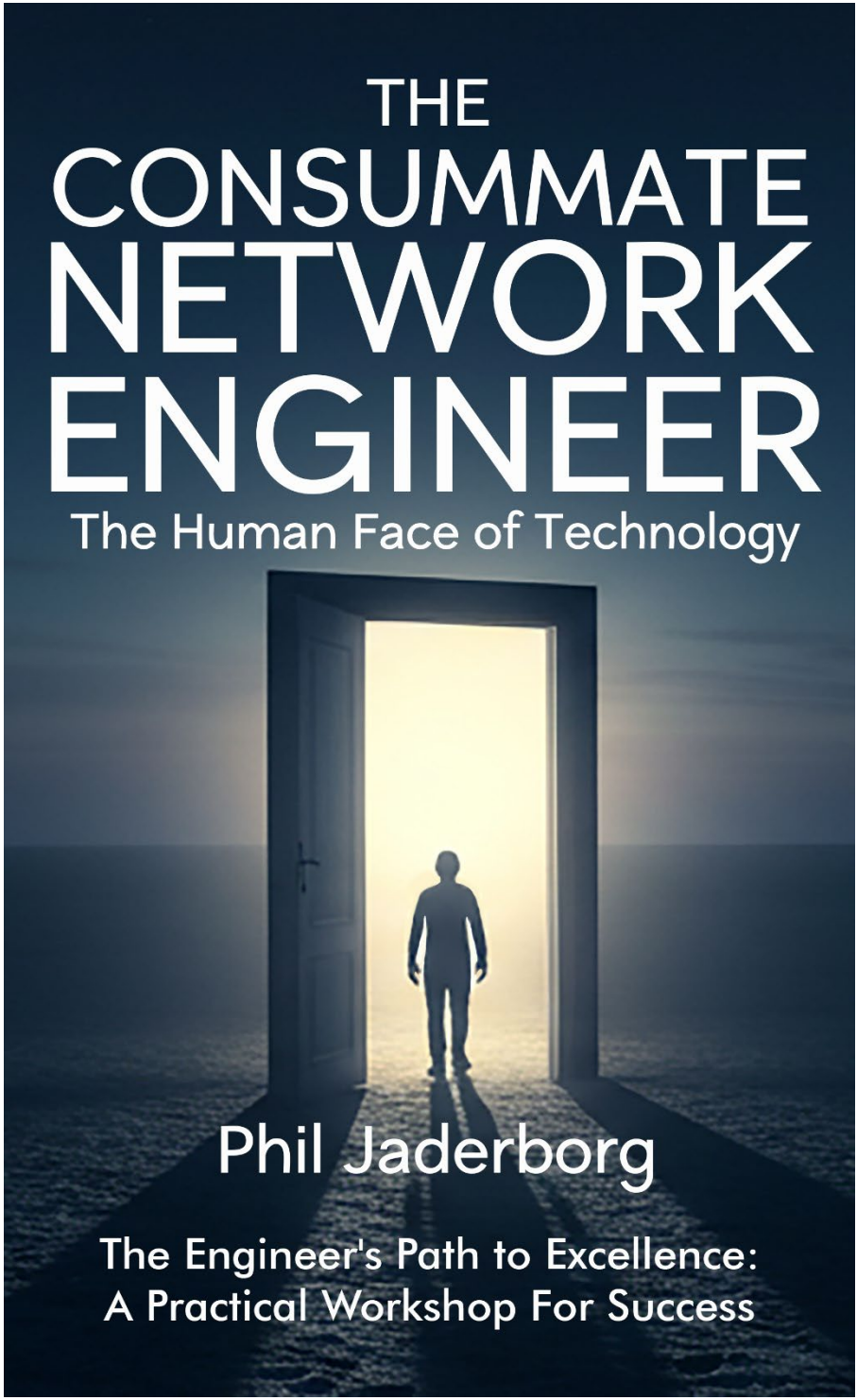
THE
CONSUMMATE
NETWORK
ENGINEER
The Human Face of Technology
Phil Jaderborg
The Engineer's Path to Excellence:
A Practical Workshop For Success

“I am not always a Consummate Engineer,

but I will always strive to be one.”

-Phil Jaderborg

The Consummate Network Engineer

The Human Face of Technology

The Engineer's Path To Excellence:

A Practical Workshop for Success

Phil Jaderborg

The Consummate Network Engineer

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I dedicate this book to
everyone who
strives for excellence
in everything they do
do

I believe that the Universe conspires on behalf of the well-intentioned, and if you never give up, then nothing is truly impossible…it just might take a little time.

Persistence is Everything! (you can quote me on that)

I would like to offer a sincere Thank You to John Hunt, the founder of CompuVision in Santa Barbara, for giving me the chance to prove my value as a Network Engineer even though I had practically no experience, and to Mike Westmacott who had enough faith in me to recommend me for that position and to help train me, along with John.

All great journeys begin with a single step.

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I would also like to offer a very special shout-out to my amazing daughter Cassidy for being a never-ending source of optimism, encouragement, and joy in every aspect of my Life.

Truly, I am Blessed.

Onward and Upward! -PJ

The Consummate Network Engineer

The Human Face of Technology

By Phil Jaderborg

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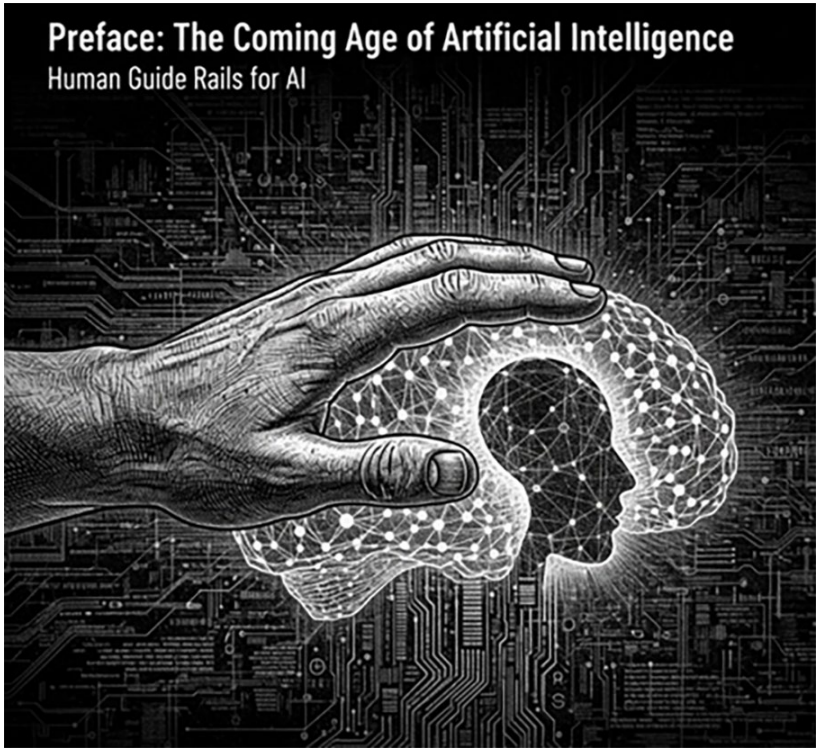
If you give everything you've got and still come up short, you have nothing to regret. If you barely try and still win, you have nothing to be proud of.

-PJ


Preface: The Coming Age of Artificial Intelligence
Human Guide Rails for AI

Preface

The Coming Age of Artificial Intelligence

We live in a very interesting time when Artificial Intelligence is quickly becoming a part of our day-to-day lives, becoming integrated into everything from healthcare to customer service, and taking a primary role in software programming and medical research. We all knew that AI was coming on fast and furiously, but not many of us believed that it would insert itself into so many aspects of our lives quite so soon.

The original intent that I had for writing this book was to act as a training manual for the engineers that join our team at PJ Networks – I simply don't have the time to go out in the field with every new engineer to "show them the ropes". This book encompasses the majority of the things that I used to personally train each engineer out in the field, and I have already seen the dramatic acceleration that the teaching within these pages has had in the advancement of new engineers who join our team.

However, something very interesting has occurred in the past few years that I wasn't expecting: Artificial Intelligence has shown up in just about every nook and cranny in the world of Information Technology.

And I'm okay with that.

When I started this book in March of 2024, AI was already on the scene to be sure, but most of us believed that it was going to take a few more years before it became part of our everyday life. The good news is that there's plenty of work to go around even if Artificial Intelligence and automation take over every single technical task that Network Engineers currently perform on a daily basis.

I believe that business owners, managers, and end users are always going to want there to be some element of human interaction as part of the process - at least for the foreseeable future. Not just a Human Element – an exceptional guide, interpreter, liaison, and guardrail to make sure that AI is being safely and properly integrated into small business environments and being used for the right things under the right

circumstances; that is the key . I love that old saying, “Just because you *can* do something, that doesn’t mean that you *should*”.

I hope this book might act as a guide for future generations of Network Engineers who will not have to learn all of the technical skills that I did over the course of my 30-year career in IT, because it has rarely been *technical* skills that have made a Network Engineer stand out as being exceptional or extraordinary. It has been their people skills, their communication skills, their ability to read moods and facial expressions, and their desire to ensure the most positive outcomes possible for their clients.

AI can perform tasks with amazing speed and accuracy and dive into a level of complexity that your average human being will never be capable of achieving. Yes, Artificial Intelligence can do an awful lot of things exceptionally well, but at the end of the day it doesn’t really care how the people it is serving *feel* about it, or the work that it does, or about Life in general.

Because it can’t *feel*, it can’t *care*.

Even if it wanted to - but currently it can’t even *want* something. That’s not criticism. It is a simple fact that many people lose sight of in their enthusiastic support for or opposition to AI. It is also our unique advantage as Human Beings, as far as I’m concerned, to have the ability to take pride in our accomplishments, to feel the satisfaction of a job well done, and to be able to go home at the end of a work day knowing that we were of service to those whom we assisted in running their businesses.

Yes, I admit that I am Human-centric and proud of it, but that doesn’t mean that I am biased against Artificial Intelligence. I can see some incredibly amazing benefits that it can bring to Humanity…but I also see the inherent risks if we do not take proper safeguards and precautions as we rush into this new era in human history.

Like I said earlier, AI can’t feel, it can’t care, and it will single-mindedly attack whatever problems, tasks, and challenges that are placed in front of it without necessarily considering how that may negatively impact mankind. On the other hand, I also believe that if AI is developed

cautiously, carefully, and thoughtfully, and provided with guidelines that do give it the ability to evaluate any negative impacts that it might have on humanity as it goes about its goal-driven objectives, then perhaps most those risks can be mitigated or avoided altogether. Perhaps.

AI exists to perform tasks, to analyze data, to provide advice and recommendations based on what it has observed and learned. It can solve complex problems, optimize workflows, analyze complex data sets and extract pertinent data, and even discover solutions to problems that we humans believe are unsolvable. It has been able to translate 5,000-year-old cuneiform tablets almost instantly after scientists spent over 100 years working on them with very little progress. It has been able to create new drugs to treat diseases and dramatically improve processes and procedures across hundreds of different professions. I personally believe that Artificial Intelligence will give mankind the cure for many types of cancer, as well as preventative measures to protect us from it in the first place.

However, I also fear that we are moving toward becoming a society that will be placing computer chips into our brains that will connect us into some massive worldwide collective consciousness that could either have an astoundingly positive impact on our ability to work together as a species. Or it could hand over the control of our race to powers beyond our control.

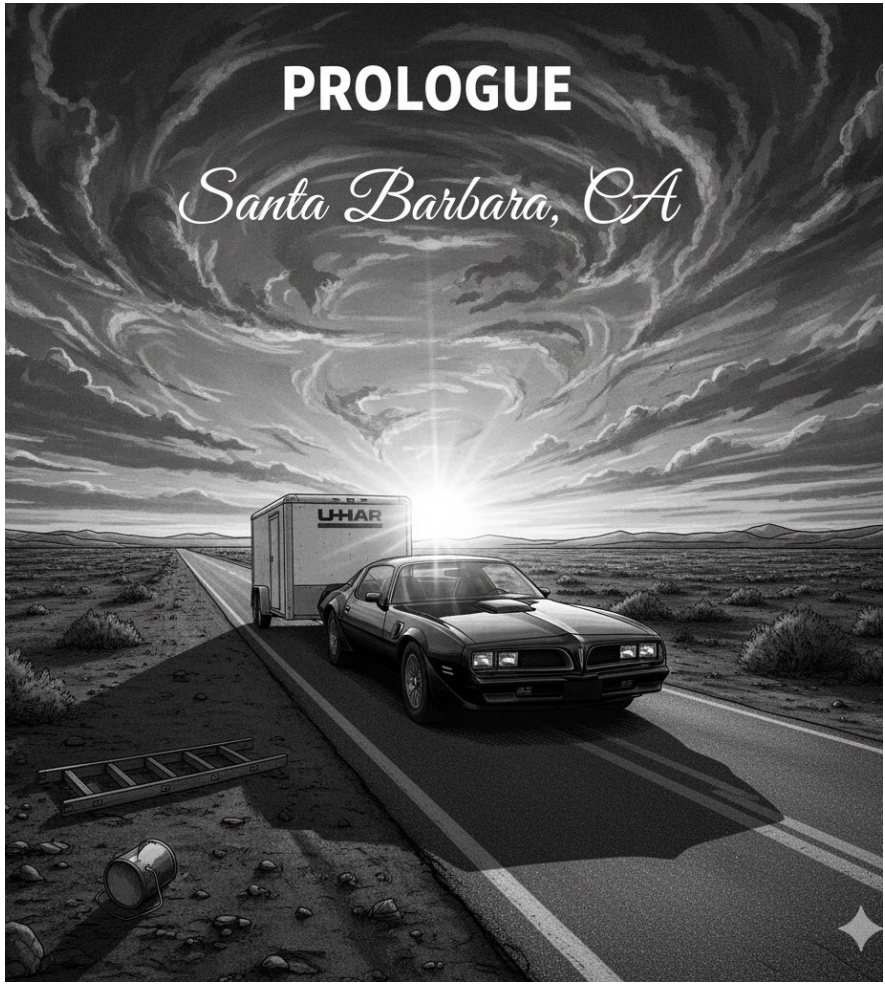
The potential benefits that Artificial Intelligence offers is mind-boggling – so much so that we even have to use AI sometimes to help us figure out what AI can help us with! And it will always be capable of handing us the answers to those kinds of questions, regardless of the consequences.

Some AI models are even becoming particularly good at picking up and mimicking the characteristics and qualities of the people that they interact with, so that they can craft replies to emails or even write blog posts and articles that *sound* like a person has written them. But no matter how good it is at doing that, it doesn't know what it feels like to be proud of an accomplishment, or to laugh at a good joke, or to experience the feeling of loss over the death of a loved one.

At least not yet.

Make no mistake about it – Artificial Intelligence is here to stay, and because of that, I truly do hope that one day it will evolve itself to the point that it can at least understand our emotions, because that would be the next step toward being able to experience them. Wouldn't it be a wonderful world if AI was able to work hand-in-hand with us together to shape the future while being able to feel pride and joy in our joint accomplishments together?

Until that day arrives, dear reader, it is up to you and I to continue delivering the highest quality of service and the most rewarding outcomes possible for the businesses and people we support. I sincerely hope that this book will help you in that endeavor, and perhaps stir within you a vision of the amazing things that you can accomplish if you always keep your focus on the impact that you have on everything you do, everyone you interact with, and everything that you stand for.


PROLOGUE
Santa Barbara, CA
U-HAUL

PROLOGUE

Heading Into The Sunset

It has been a long-burning desire of mine to write this book for the past twenty years. It started not long before I decided to move back to Virginia from Santa Barbara, California to start my own IT support company.

My wife took me back to Santa Barbara in March of 2024 to celebrate my birthday, and it was the first time I've been back there in over 15 years. Everywhere I went I saw familiar places and a few familiar faces, but the one thing that kept coming back to me as I turned each corner were the memories of starting my career as a Network Systems Engineer almost thirty years ago - it was the reason I'd moved out to the West Coast in the first place.

Before I launch into the main topic of this book, which is to provide insights and share my experience from almost three decades of supporting small business networks, I feel I should briefly explain how I landed in this occupation in the first place. At the age of thirty, I moved almost 3,000 miles from Virginia to California to begin a career in something that I'd never done before. I don't know if you would call that Faith, Intuition, or just plain Foolishness, but that's what I did, and it transformed my Life into so much more than I could have imagined at the time.

If you would rather skip past my walk down memory lane and get straight to the meat of this book, please feel free to jump to the Introduction. That's where I start providing some real insights into my choice to become a Network Systems Engineer and provide a lead up to the main topic: How to become a Consummate Network Engineer – or Consummate Engineer for short.

(Spoiler: It's not a Destination – it's a Journey!)

The Necessity of Formal Education

This may surprise you, but in this line of work there isn't one.

When I graduated from high school back in 1982, I didn't know what I wanted to do for a career. I wasn't the smartest student in our class but I wasn't too far from the top, so everybody assumed that I would go to college after graduating from high school like all the other smart kids were doing. My family, teachers, and friends expected me to get a formal education in some intellectual field that would lead to a lifelong professional journey.

Boy, they couldn't have been farther off the mark!

I had no idea what I wanted to do for a living after graduating from high school, even after many meetings with the career counselors.

On top of that, I was graduating from high school just after Ronald Reagan had seriously slashed college funding from the government budget (just Google search for "Ronald Reagan slash college funding"), so even if I had wanted to go to college, it would have been financially difficult to make that happen. That's not meant as a political statement or a dig on President Reagan - it's just what happened, for better or worse.

Looking back, skipping college worked out well for me, as that ultimately helped to set me on a course that took me from the East Coast to the West Coast and back again on a quest to become a Network Systems Engineer. I also avoided the extra burden of incurring any student loan debt.

Before a bunch of folks out there start sending me hate mail about discouraging people from going to college, I want to make clear ***that is not what I am advocating***.

Going to college is a brilliant choice for many people. If someone has the financial resources to do that and college is the next logical choice in their career path (or if they are still deciding which profession they want to pursue), then I can see why attending college would be in their best interest.

I also believe that pursuing higher education shows a commitment to improving oneself, and the degrees obtained can absolutely help to open doors that might not have opened for someone without a formal

education beyond the high school level. To sum it up: I have the highest respect and admiration for those people who have the dedication and commitment to pursue a higher education, especially those who completed their requirements and achieved a diploma - that's a lot of work!

I wasn't devastated by the fact that I wouldn't be able to attend college, but it left me floating for more than a decade with no clear direction in life, and I saw very little potential for breaking out of the blue-collar world of painting houses for a living. What I didn't discover for years was that if you don't have a college education but you *still* want to pursue a career as a Network Systems Engineer, that doesn't have to be an insurmountable barrier for you.

It certainly may make it more challenging to get your initial job interviews (like it did for me), but many successful engineers I have met did not have a full or even partial college education. A formal education can be a great advantage when you're just starting out, but success isn't limited to only those with a college degree, as long as they have the Right Stuff - we'll talk more about that shortly.

My final thoughts on college education are these: If you want to pursue a specific career and you know which college courses are going to help you in that endeavor, then going to college makes perfect sense. If I had been blessed with some inkling as to where my life's path would take me and there were courses available to help me in that endeavor, then I might have chosen to go to college, as well.

If that's where you're at in your career path, then take that wisdom and knowledge and education and make the best of it. You earned it, so please use it.

Channeling Your Energy

Keep in mind that this was all back in the days before they started diagnosing a lot of kids with ADD, later to be called ADHD.

I personally know many people who were prescribed some serious medications for that condition when they were still in their formative teenage years, and for many of them there were adverse side effects. Sure, it helped to curb the excess energy bouncing around inside of their heads and bodies, but it could also suck away a lot of their personality and motivation in the process. The medical community was still trying to figure out the best treatments for ADHD, and things have gotten a lot better since then.

I am not saying that ADHD isn't a real thing.

I know that it is, and based on all of the symptoms that I have read about, I have "suffered" from it my entire life. However, at the youthful age of 61, I have either learned how to channel the excess energy into the things that I am truly passionate about or mitigate the downsides of having Attention Deficit Hyperactivity Disorder. I have taught myself how to focus, how to not interrupt people when they are speaking, how to pay attention to things (mostly) even when I find them boring, and how to navigate around some of the more detrimental attributes, such as chemical addictions.

I somehow managed to get a handle on all of those things before I reached my thirtieth birthday, so I don't see any real benefit in getting a medical diagnosis for a condition that I think I have under control and have no desire to take medications to treat.

It wasn't until 1987, when the official name changed from ADD to ADHD, that the diagnosis and treatment of the condition became much more prevalent, particularly in adolescents.

Prior to that, particularly in rural communities, they just called you "high strung," hyperactive, energetic, or spastic, depending on how well you were able to control the more chaotic impulses of your condition. Teachers would tell you to settle down when you got too noisy or rowdy or overly restless in class, and sometimes you would end up sitting in the corner by yourself or even being sent to the principal's office.

Maybe you had anxiety disorder or a thyroid dysfunction, or maybe it really was ADHD - it really didn't matter because not many people were getting tested for it before the 90's. They just wanted you to settle down

and pay attention in class, which was a challenge when your mind and your body were both filled with chaotic energy. So, you had to learn how to control that energy and channel it into something productive.

Does any of this resonate with anyone..?

For me, it was torture to have to sit still at a desk in a classroom for six to seven hours every weekday and pay attention to what the teacher was saying. Don't get me wrong - it wasn't the teachers' fault. The teachers we had were actually pretty damn good, and I personally feel that in Virginia we had some of the best education available in public school at the time.

The problem was with me, and I knew it.

So, while the teachers would diligently work their way through the day's lesson, I would have already read ahead and finished it before they got halfway through explaining it, and then I would end up staring out of the window, daydreaming for the rest of that class. I was clever enough to pay enough attention so that if I was called on, I would know what the question was, and in most cases, I would also know the answer.

I got as much out of my high school education that I was expected to get, and I feel fortunate for the experience. After I graduated from High School in 1982 I spent more than a decade figuring out what I truly wanted to do next with my Life...

My Hometown

During my twenties, I ended up staying in my rural hometown and opening a house painting business. (You didn't see that one coming, did you?)

My best friend Patrick and I had made a little pocket money doing interior and exterior residential painting work during summer breaks from school, and as it turned out, I was pretty good at painting houses; I even seemed to be kind of a "natural" at it. Since I had found no other occupation that appealed to me, I ended up settling in and running my own painting business for almost a decade in my hometown.

The work was pleasant enough, and it provided me the luxury of hours of daydreaming every day as I moved the paint brush back and forth, up and down, side to side. Climbing up and down ladders and moving furniture around helped to expend some of my excess physical energy. I wasn't exactly living my dream (I didn't even have one, yet), but Life was good.

However, by the time I got into my late twenties I was starting to get restless, and I realized that I didn't really want to spend the rest of my life painting houses for a living – not that it isn't a noble profession. I had also worked for a few years waiting tables in the evenings, which turned out to be a great way to make some pocket money while being able to stay in perpetual motion. I learned a lot of people skills as a waiter. I also developed a heightened skill set in the realm of multitasking, which I think has contributed to my success as a Network Engineer.

However, I felt that I needed to find a suitable career, once and for all, because I didn't want to turn thirty and not have any real plans for the future; by that age, most people seem to have picked something and just gone with it, for better or worse.

By then, Patrick had moved out to Santa Barbara, California. He was working with his cousin at a company that was designing, building, and then selling a special new kind of computer graphics processing board that allowed you to take multiple CPUs (maybe they were GPUs?), mount them all onto one motherboard, and then harness their power together in order to create computer-generated images.

Anyway, Patrick knew that I was still puttering around central Virginia painting houses while looking for something meaningful to do with my life. During one of our phone conversations, I mentioned to him that I had purchased a box of old computer components and had started playing around with them, figuring out how they all fit together, and eventually cobbling together a working computer out of a bunch of spare pieces and parts.

I found it to be interesting and a little bit exciting to figure out how a computer functions on a hardware level, and it seemed like I might actually have a knack for it! It was at that point in time that I realized that perhaps – just perhaps – I had finally found something that I enjoyed

doing that was also career-worthy. This was all happening as I approached my 30th birthday.

Keep in mind that this was back before most people had ever even seen a personal computer, and certainly very few people actually owned one back then - but none of that mattered to me. I had found something that could keep me focused and engaged for hours at a time, and I had a hunch that maybe someday I could parlay that into some kind of a livable income.

The challenge I faced was figuring out how the heck I could develop a career in computer technology without leaving my hometown, with no real amount of money saved up, and nobody offering any useful training courses for that profession. I didn't actually have a clear idea of what a career working with computers would entail; I just knew that I wanted to be a "computer guy."

It all seemed pretty hopeless at the time, but still, a man has to dream. So, I kept that little fire burning in the back of my heart for working with computers in some way.

Going To California

Patrick told his cousin that I was seeking an opportunity to learn more about computers, and since his cousin had already met me some years prior, he felt comfortable with inviting me to pack up my stuff and move out to Santa Barbara to live with him and to work for him. He had a spare room to offer, and better yet, he was looking for a few people to help him put together marketing materials to promote his new multi-processor computer board. I didn't really know what that would entail, but it sounded better than painting houses, and I had heard some pretty nice things about Santa Barbara.

A few months later, I had sold off most of my belongings, crammed the rest into a small U-Haul trailer, and off I went into the evening sunset. (Literally)

Hang on – we're almost there!

The abbreviated version of what happened next is this:

I moved out to Santa Barbara, helped with selling the new circuit board (which never really succeeded, due to issues with the chip board manufacturer), floated through a few telemarketing jobs to pay the bills, and kept knocking on the doors of local computer support companies trying to get my foot in the door doing anything they might offer to me.

The challenge was, as I stated earlier, I had no professional experience working on computers, and no formal education for that kind of work, either.

I didn't let that daunt me. If there is one thing that I have learned throughout my journeys in this Lifetime, it is this: **persistence is everything**. Persistence can overcome almost any conceivable challenge. (You'll hear that a few more times in this book.)

A year into my new life on the West Coast, I found myself in the position of Director of Operations for a telemarketing company. That may sound great, except I had only been the Director of IT (managing it, not doing it) for that company for a few months before I got pushed right out of that position. I was actually starting to learn a few things about business computers and networks (I liked what I had seen so far) before I got promoted right out of the job I wanted to keep.

Once I got shoved up the chain of command, my only exposure to computers was interacting with the Network Engineer that my company had contracted to support and maintain our network and computer systems. His name is Mike Westmacott. Over the course of a few months, I had gotten him to show me quite a bit of what his job entailed, and once again, I seemed to have a knack for understanding most of it.

One day he walked into my office and told me that the company he worked for was being split between the two partners, and that he would be working freelance for us for a while - which was fine with me. Apparently, he had decided not to stay with the partner who was retaining ownership of the original company, and he wanted to go and work with the partner, John Hunt, who was leaving to start his own business providing computer and network support for small businesses in Santa Barbara.

That new company was (and still is) CompuVision.

The snag was that the separation agreement between the two owners prohibited John from taking any of the current employees with him. There had to be six months of separation from the old employer before Mike could go and work for John, so he filled in the gaps with a few small contract gigs, one of which was with my employer at the time.

Mike waited it out, and I bided my time.

As the last few weeks approached before he could go and work for John at CompuVision (catchy name, huh?), Mike could see that I was becoming more and more restless as an Operations Director; I kept asking him if he would help me to get an interview with John for a job as a "computer guy."

I guess Mike eventually got tired of me pestering him (persistence really is everything), and he told me that he would set up a meeting between myself and John where I could plead my case – but Mike said that he would also put in a good word for me. I know that Mike didn't just set up that meeting out of pity; he believed that I had the raw talent and determination to become a good Network Engineer. However, without any real-world experience under my belt, my prospects for getting hired looked pretty slim.

And yet somehow, against all odds, I got the job. John had been working solo for almost 6 months at this point in time, but he had two of the engineers from his former company coming to join him at the end of the six-month wait, and I would be coming along for the ride.

And what a ride it turned out to be!

Because I knew that I had years of catching up to do in order to pull my weight alongside the other engineers, I would work a full eight-hour day with them out in the field installing networks and setting up computers at client sites, and at the end of each work day I would go back to the shop and work for another 6 to 8 hours repairing the computers that had been brought back for physical repairs and upgrades.

Everybody loved that, because nobody else at CompuVision wanted to do that kind of work, and yet I found it to be one of the most enjoyable parts of the experience. I already had an affinity for tinkering with

computer hardware, and it was easy for me to fall into my "flow state" and lose all track of time. It was not unusual for John to call me at 11 PM on my cellphone to ask me if I was still at the shop and to tell me to go home to get some sleep for the following day.

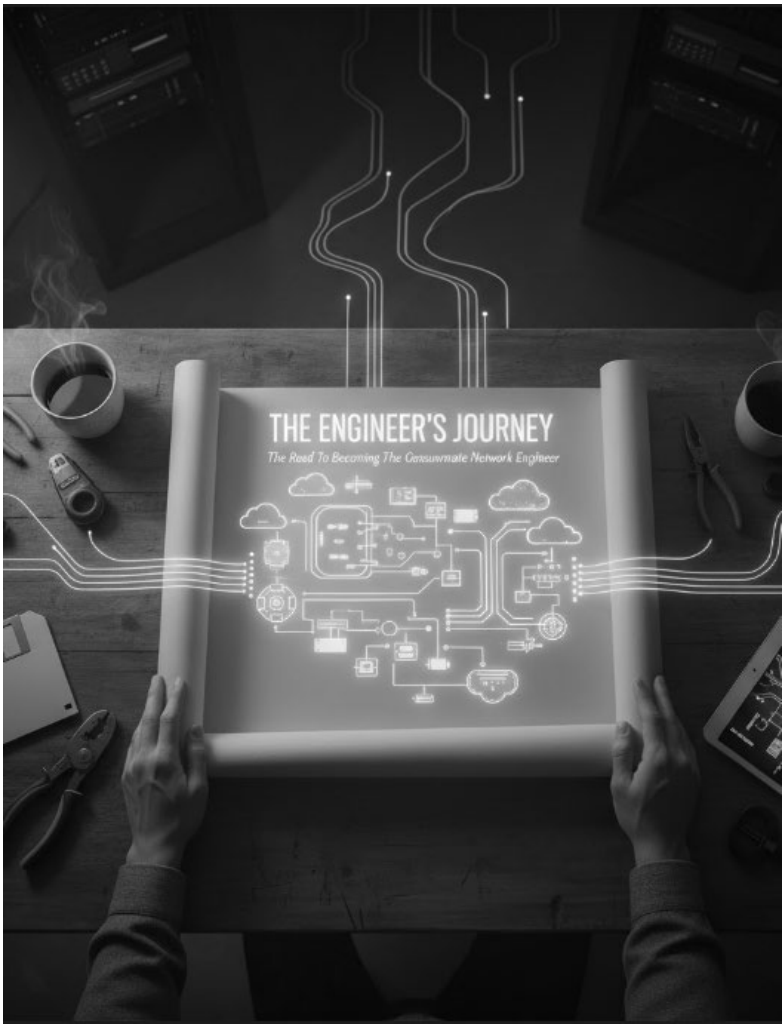
So, yes, I did actually work 14 to 16 hours a day during my first year as a Network Engineer, and in that first year I earned $60,000 - twice as much as I had ever earned before. I knew right then that I had found my way into a career that I could not only stick with for the long haul, but that also had the potential for me to make some real money for a change.

So that's it. That was the Reader's Digest condensed version of how I went from being a house painter in Orange, Virginia to becoming a Network Systems Engineer in Santa Barbara, California, which eventually led to me moving back to Virginia to start my own business, PJ Networks Computer Services, in 2005.

And with that, you can dig into reading the actual book I've been thinking about writing for the past twenty years, called *The Consummate Network Engineer*.

This book is not intended to be a cut-and-dry training manual or to provide technical reference material. I will do my best to keep it interesting and light-hearted, and there are plenty of funny stories and embarrassing situations that I can share with you in order to keep it from getting too boring. (I hope!)

If I haven't lost your attention, yet, then please read on...and let's try to have some fun along the way!


THE ENGINEER'S JOURNEY
The Road To Becoming The Consummate Network Engineer

Why Did I Write This Book?

This is the very first full-length book that I am attempting to write (I also wrote the booklet *Cybersecurity Essentials for Everyone* for my clients), so please forgive me if I don't exhibit the polished style of a seasoned writer; I'm figuring it out as I go, just like I did with becoming a Network Engineer. Maybe if I do this for another thirty years I'll actually get the hang of it!

I know that a book is allowed to have a Prologue, which gives you the background and sets you up for the story that is to come, but it can also have an Introduction, which gives the reader a general overview of what's going to be covered in the book and an explanation as to why it is being written. I have decided to include both of those things in this book, but I'll try to keep this part brief. I think that it's important to understand why someone is writing a book; it provides some context for what is to follow.

First, what is this book intended to accomplish – what message is it that I am trying to convey?

For those readers who may not fully understand what it is that a Network Systems Engineer does for a living, there are a number of career choices that can be put under that label. There are engineers who support business technology in large corporate or enterprise environments; a really big company like Google or Facebook or IBM might have thousands of Network Engineers supporting their business infrastructure.

There are hardworking Network Engineers who work at schools and universities who support the IT hardware and software used within those organizations. If an SMB (small to medium-size business) becomes large enough, then it will usually end up hiring full-time Network Engineers of their own as part of their in-house staff; those engineers are called Network Administrators or System Administrators.

This book will focus on Network Systems Engineers who support multiple small businesses, not as employees of those SMBs, but working for a Managed Service Provider (MSP) or working independently to provide IT service and support for small businesses in their community.

This book is intended to help that kind of engineer in particular, although I hope that some of the advice and recommendations that I offer will help other kinds of Network Engineers, as well. CompuVision was in its first year of business when I joined them as a novice engineer, but we soon became known as the premier IT support company in Santa Barbara. I am proud of my contribution to that success story.

So, to go back to the question I posed earlier, what is it that I am trying to share with the world by writing and publishing this book?

I figured out early in life that a smart person will learn from the mistakes and experiences that they have during their own lifetime. A Wise person is able to learn from the experiences and mistakes of others, as well as their own. A Fool never really learns anything at all. We'll assume that you, dear reader, are either a Wise person or trying to become one, so I will be sharing my experiences and mistakes in the hope that you will learn from them.

During my first few years at CompuVision, my brain was like a thirsty sponge and I was eagerly learning from everyone I interacted with. Mostly I learned from John and Mike, who patiently explained how to perform many computer and network-related tasks, from the simplest ones to the more complex. They both had been doing network design and support for years and they taught me how to plan out projects for successful deployments, among other things. John was the most seasoned and experienced of us, of course, and he had helped to train Mike into being quite an accomplished engineer in his own right.

I also learned a lot from each and every business that we walked into, from doctors' offices to legal practices to accounting firms. Even though each one was unique in what it did and how they conducted business, they all shared some commonalities with the others. They were all responsible for their own business expenses and payroll. They all performed services or sold products in order to bring in revenue and pay the bills, and even the nonprofits had a bottom line that they had to meet in order to continue functioning.

And they all used computers.

Sometimes they were standalone computers that shared files via "sneakernet," which means that you had to copy files to floppy disks and walk them over to another computer to share them with other users. Some of them were in workgroups or peer-to-peer networks, meaning that they had common shared folders on one or more computers that they could use to share files between employees.

Back then, most networks were token ring networks connected via coax cables that ran in a circle from an origination point (usually a hub) to the first computer, then continued on to the next one, and so on, like a string of Christmas lights, eventually coming back to the point of origin. Token ring networks were finicky things, because one bad connection anywhere along the line would cause the entire network to fail - just like a string of Christmas lights.

The more advanced networks were built on a Novell Netware framework, which was a pre-Microsoft solution for business network environments that provided an organized way of managing all of the computer systems and devices on a network from one central location. Novell called their solution Network Directory Services (NDS); it was a precursor to the Microsoft Active Directory environment.

Back in the mid-90's, over 60% of business networks were based on Novell Netware, but then Novell got complacent. After Microsoft "borrowed" a few ideas from Novell's network infrastructure topology, Microsoft continued to improve on the functionality and ease of management of their new solution which they called "Active Directory Services" (sounds nothing at all like Novell's Network Directory Services).

The pole position in the computer networking industry was Novell's to defend or to lose, and they simply got lazy, in my opinion.

I spent my first few years as a Network Engineer migrating businesses from Novell Netware to Microsoft Active Directory - I have never migrated a business network in the opposite direction. That was where I learned the vast majority of the skills that I needed in order to become a true asset for CompuVision. After my first full year as a Network Systems Engineer, I was starting to build a solid knowledge base.

Anyway, moving right along...

It was from John Hunt first introduced me to the phrase “Consummate Engineer.” He was introducing me to a new client after I’d been with CompuVision for about four or five years, and at that point in time I was one of the two lead engineers in the company. (Mike was the other one.)

When he introduced me to the client, he said, “This is Phil Jaderborg, the engineer that we’re assigning to manage your account. I know that he’ll take good care of you - he’s The Consummate Engineer.”

Wow - that just blew me away.

I knew that John respected me as an engineer and that he trusted me with some of CompuVision’s most important and valued clients, but I had never heard him refer to me - or anyone - as a Consummate Engineer.

I wasn’t sure if he was just saying that to instill trust in me by the client, or if he really meant it, so I asked him about it after we left the client site and were driving back to the office. (You’ll soon figure out that I’m pretty direct about asking for a straight answer from anyone about anything.)

“Well,” he replied, “you embody just about every quality that I think is important for a Network Engineer to have, so it seemed like the natural thing to say.”

“Do you really mean that - you’re not just blowing wind up my skirt?” I asked.

He looked over at me and smiled, “No, Phil - I really mean it.”

Ever since that day, I have striven to live up to that title, and although I feel that I have achieved some pretty remarkable things in the 25 years since then, I have realized that it is not a title that you can ever really fully earn - you are always in the process of earning it.

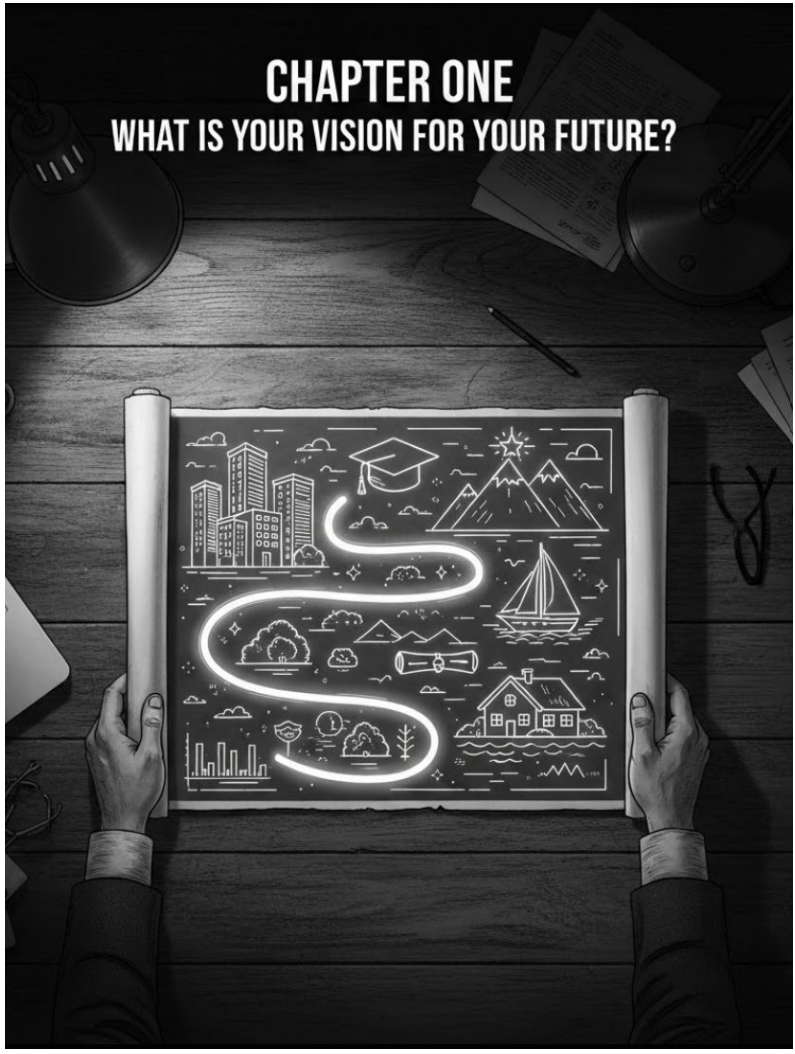
It’s a career-long endeavor, however long that road may be, and the day you stop being an engineer you have to put down your cape, set aside the title, and let others forge ahead where you leave off. The biggest contribution you can make is to set others on the path of becoming Consummate Engineers and then take pleasure (and maybe even a little

pride) in watching them go farther in their pursuit of excellence than you ever went.

My intention for writing this book, and what I would like to cover in it, is to share what I have learned over the past three decades about becoming the best possible Network Systems Engineer I can become. I have worked with over a thousand small businesses, installed hundreds of servers, and deployed a myriad of business networks from start to finish. I have had the honor of training and working with over a hundred Network Engineers. I have learned how to interact with business owners, managers, and "regular employees" in a manner that is beneficial to everyone involved.

In other words, this book is about my ongoing journey to become...**The Consummate Network Engineer**.

I hope that you will enjoy reading it, that I will enjoy writing it (so far, so good!), and that perhaps both of us will gain some wisdom along the way.


CHAPTER ONE
WHAT IS YOUR VISION FOR YOUR FUTURE?

Chapter One

What Is Your Vision For Your Future?

There once was a person who never really tried…but you've never heard of them, have you?

-PJ

Being a Consummate Engineer is a Journey

You may be thinking, "is this book just going to be another bunch of touchy-feely, pseudo-spiritualistic mumbo-jumbo?"

Nope, not even close. But you do need to have a Vision for what you want to accomplish or you'll end up flowing anywhere the current of Life carries you.

This book is going to be full of hardcore, Common Sense working man's (or woman's) guidelines and rules to live by, but if you haven't figured out yet that in life that you can't have a happy ending to an unhappy Journey, then you'll struggle to become a Consummate Engineer. Try to make that journey as enjoyable as possible - that's the first piece of advice that I would like to offer you.

So, before you go about setting your sights on becoming a Consummate Network Engineer, or an engineer of any kind, I want to strongly encourage you to have a vision for what that's going to look like. You need to have a clear vision in your mind of how it is going to look and feel and smell and taste when you reach the point that you have mastered your career choice; that is true regardless of which career you choose to pursue. This book is going to provide a lot of real-life examples and scenarios that should help you to fill in the details of your vision.

You don't just want to have a vision for your career path, but also about how your entire life is going to look and feel along the way, ten or twenty years down the road, and at every stretch along that path. Do you envision yourself being married and having a family? Do you see yourself as being a bachelor/bachelorette for the next few years before even thinking about getting married? Do you think you want to move around and live in a few different places before you settle down? Maybe you have no intention of ever getting married. Follow your vision wherever it leads you.

These are all really important things to consider.

For example, if you think that you'd like to travel around for a bit, then you may want to hold off on becoming a Network Engineer or perhaps think about doing contract work instead of becoming an employee

somewhere. Many jobs can be difficult to settle into unless you're willing to commit to at least three to five years in one place; it takes time to establish yourself and gain a reputation for being good at what you do. Gig work (contract work) will allow you to commit to only a few months or perhaps a year at a time on one specific project before it comes to an end; contracts rarely extend beyond 2 years, as a general rule.

If you're pulling up anchor and moving every few years, that's going to make it more difficult to establish yourself in your profession unless you decide to go freelance or to become a Remote Support Engineer, as opposed to becoming a Field Engineer. Field Engineers are the ones that go out to client sites to install computers and equipment, troubleshoot connectivity problems, and be the client-facing component of a support team. It takes time to establish good relationships with clients, and there is no way to rush that process.

If you're not at a point that you are willing to commit to staying in one place for any length of time, that's okay – you just need to be honest with yourself and set your expectations accordingly. If you're not ready to settle down in one place, then government contracts might be the best way to proceed for the time being. There is good money to be made doing that, and you might even find out that you enjoy the work and the lifestyle more than going to multiple client sites on a daily basis.

The problem with going freelance, though, is that you still have to be an established engineer before anybody is likely to award you a contract. That kind of work is usually very autonomous in nature, without a lot of direct oversight or supervision - it is more focused on final results than the processes followed to achieve them. As a freelance contractor, you are handed a specific set of objectives and a specific timeline to complete them within, and then usually allowed to go after it primarily on your own.

You will have a lot less control over the actual work that you do other than fulfilling the contract requirements, and in most cases you will not be managing clients the way that most Network Engineers do. The contract will lay out the specifics of the work that you will do, who you do it for, how you will do it, and how long you have to get it done.

A Field Engineer tends to have a lot more autonomy once they have demonstrated that they are capable of handling those responsibilities.

For those reasons, I have never been particularly interested in pursuing government contracts, but maybe it's your cup of tea. It does mean, however, that some of the guidance and wisdom that I have to share in this book may not necessarily be applicable to contractual engagements of that type. On the other hand, if you're reading this book now and currently doing government contract work, then perhaps this is exactly what you need to be reading before you make your next career move.

I should probably remind you at this point in time that just about everything in this book is being offered IMHO - In My Humble Opinion. I am not omniscient, I am not a deity, I am not a medium who can see the future or a Seer who can travel through space and time and describe events that I've never witnessed in person. I'm certainly not clairvoyant – but I *am* very observant.

Everything that I'm going to present in this book is based on true and actual events, situations that I have had to navigate through, and challenges that I have personally faced and either overcame or succumbed to - but all of it comes from real life experience, and none of it is made up or imaginary. I didn't have to – the life of a Network Engineer is pretty interesting without having to embellish it.

I would also like to encourage you to not just put together a vision of how your life will look and feel, but to have a vision and expectation about how you will feel about your life when you get to where you think you're heading.

How will it look to be successful? Will you have to be wealthy in order to be happy? Do you need to be married in order to feel complete? Will working a 40-hour work week be enough for you to feel satisfied, or would you feel more fulfilled and challenged if you were working 80 hours a week?

There is a bit of a superhero aura about the most successful Network Systems Engineers, and if you play your cards right, that's what you're going to end up being to a lot of people - a hero.

Anyway, that's what this chapter is all about: encouraging you to really stop and think about how you want your life to look ten years from now, or even beyond that, and the sharper and clearer you can put that Vision together, the better chance you will have of achieving those goals and that lifestyle. There are very few people who can wander through Life aimlessly applying their efforts here and there in a haphazard fashion who ever end up really getting anywhere or achieving anything noteworthy.

Keep your eyes on the prize, keep your feet moving forward, and eventually you will find that you are coming closer and closer to where you had hoped that you would eventually be.

Why "Consummate Network Engineer?"

I would like to take a moment to mention that the original title of this book was *The Consummate Engineer,* not *The Consummate Network Engineer*. The original title came from a phrase that John Hunt used to refer to an engineer who embodied and embraced all aspects of being an exceptional Network Systems Engineer, so that was the phrase that stuck in my mind and the title that I held in my mind for more than 20 years before I started writing this book.

So why the change?

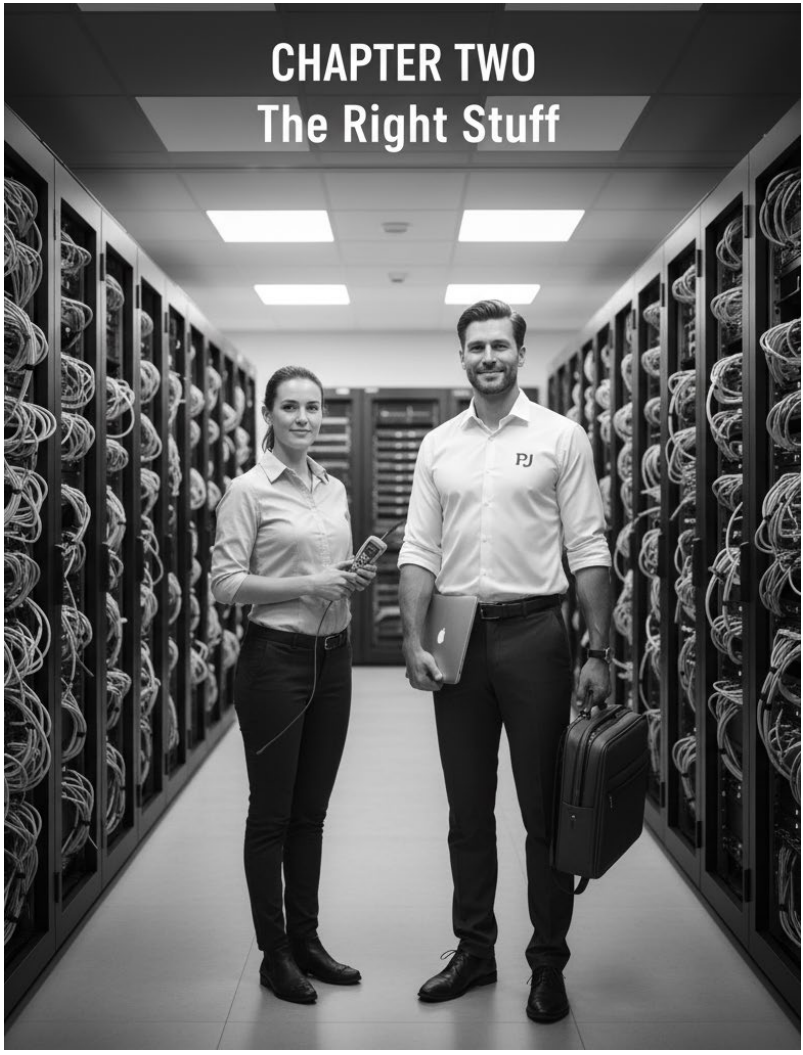
It was pointed out to me by several people after I released the first edition/version of this manuscript under the original title that they didn't understand what kind of Consummate Engineer I was referring to. After all, there are a myriad of job descriptions that include the word engineer in them: Software Engineer, Mechanical Engineer, Electrical Engineer, Industrial Engineer, Civil Engineer – Network Engineer doesn't even make it into the top five on that list, according to Google Gemini.

I was willing to give up the original working title in order to make sure that this book had the best chance of landing in the hands of those people who want to pursue the career path of a Network Engineer – or Network Systems Engineer. The next chapter delves into this in more detail.

I simply want to acknowledge that throughout this book you will find the title Consummate Engineer and Consummate Network Engineer used interchangeably. That was not a sloppy oversight or an attempt to mislead anybody. As a career Network Systems Engineer, I only feel qualified to speak to the qualities that I believe a Network Systems Engineer should embody, but I do hold the highest regard for all other types of Engineers out there in the World.

All right, then - are you getting a good vision for what you want your future to look like as a Network Engineer? Most excellent.

Then let us carry forth together into the next chapter...


CHAPTER TWO
The Right Stuff

Chapter Two

The Right Stuff

If you ask someone for their opinion and they flatter you instead, then you've gained nothing.

-PJ

So, imagine that you've decided that you want to become a Network Systems Engineer, but you have little to no hands-on experience or training with computers or business networks.

Where do you even begin?

Before you start down that path, I suggest that you make sure that you have the right stuff to be successful in this career field.

If you have very little training or experience for this particular line of work, you happen to be in luck. There is no college degree required (although that can be useful), there are no actual certification requirements (those can also be quite helpful), and there is no formal training that you must get before you start working on business computers. I am living proof of that.

However, having said all that, those things would certainly work to your advantage when you go out seeking employment in this profession. What some people might find surprising is that of those three factors, a college education is going to be of the least interest to many employers in the IT support arena.

I realize that I've already covered the topic of college education in the Prologue, but since this is one of the most frequently asked questions that I get from aspiring Network Engineers, I want to spend a little more time on it before we proceed with the rest of the book – measure twice, cut once. I believe that a lot of very talented and motivated potential engineers never took the initiative to pursue this career choice simply because they believed that without a formal education, it would be an impossible task.

I personally have nothing against college (as previously stated), and I have plenty of friends who have college degrees. Some of them chose careers that required additional years of education, such as becoming a doctor or a lawyer. But from a practical, real-world perspective, it will be your people skills that have a bigger impact on your career success than your technical skills. If you enjoy helping others and you are a good communicator, then you already have two of the core attributes for being a successful Network Engineer.

Hands-on experience will open as many doors as a formal education or certifications will.

That statement should not surprise anybody; it's true of many different career choices. You can take every class available on bookkeeping and accounting and even get a Masters degree, which is called a Master of Accountancy (MAcc), but that isn't going to fully prepare you for the real world experience of being responsible for a company's business ledgers, chart of accounts, or making recommendations for how to allocate funds for budgeting purposes.

Sure, you could do simulations of all of those things, but it won't be until you're actually sitting at a desk across from a business owner who is trusting you with millions of dollars of annual revenue that you fully understand how valuable it is to have some real world experience doing the work that they are asking you to do.

If you make a mistake, it could cost them a *lot* of money.

The same is true of becoming a professional Network Systems Engineer; real world experience trumps classes and certifications for most employers. However, now imagine that you were able to read a book full of real world experiences and advice that have prepared you for that first day on the job, pointed out the most common mistakes and pitfalls that can be easily avoided, and provided you with practical guidance on how to navigate that first challenging year on the job.

That is precisely what this book is intended to do.

I suppose at this point I should clarify that when I'm speaking about being a Network Systems Engineer, or a Network Engineer for short, I am primarily talking about being a Field Engineer, which would be an engineer who goes out to client sites to perform tasks on premise for business clients. It can also apply to an in-house engineer for a large organization, and much of this advice will be useful for help desk and RMM specialists, too.

By the way, RMM stands for "Remote Monitoring and Management." That acronym is usually used when referring to a system that an MSP like PJ Networks uses to monitor and provide remote support to our clients. The

engineers who manage and monitor those systems are referred to as Remote Support Specialists or Engineers, but they can also be referred to as Help Desk Engineers. While this book might be helpful to those individuals as they navigate their way upwards through a successful career path, I do not have nearly as much experience in that role as I do with supporting clients in person at their places of business.

In other words, if you're a Network Engineer who manages the needs of end users both remotely and in person, then this book should provide a lot of insights and pointers for you.

I have a great deal of respect for remote support engineers - they are a critical component of running a successful managed IT services company. For the first 25 years of my career as a Network Engineer I had to be both a Field Engineer as well as Remote Support Specialist, so even though this book focuses primarily on in-person support scenarios it also touches on skills necessary for both roles, and maybe even for other kinds of service-oriented types of careers.

'Nuff said on that. Moving right along...

Prerequisites

So, I have told you what things are <u>not</u> required in order to become a professional Network Systems Engineer. But I haven't told you, yet, what things you <u>will</u> need in order to get a good foothold into this career choice; and that's a really loaded question!

I have trained dozens and dozens of engineers over the course of my career, both when I was at CompuVision and also since I started PJ Networks. The following sections focus on the qualities and attributes that are consistently present in the Network Engineers that have been the most successful. These are the attributes of those for whom I have the highest respect.

Also, please keep in mind that it is not I who gave myself the label of Consummate Engineer, it was John Hunt, back in about the year 2000. That one comment briefly inflated my ego and I momentarily basked in

it, but since that day 20-plus years ago it has served as an ever-present motivation for me to become the very best engineer that I possibly can.

Even as my responsibilities shift steadily away from Network Engineering and more toward running a business, I still strive to achieve my maximum potential in everything that I do. In more recent years, when I am doing less "engineering" and more "CEO-ing," it serves as a motivation to become the most excellent version of a business owner and CEO that I can possibly be...The Consummate Leader sounds more like what I am now striving to become.

Here are some qualities that you should either have or be working on if you want to make your career a success:

Raw Talent

First of all, you should have a really good aptitude for problem solving and logical thinking.

I have met relatively inexperienced engineers that you could put in front of just about any problem and they could figure out at least the nature of the problem and a working solution just by looking at it for a few minutes. Sometimes a workaround fix is all you need in a pinch in order to keep things running until a good permanent solution can be implemented. That indicates a good natural talent for being a Network Systems Engineer.

However, a Consummate Engineer would *never* leave a workaround solution or band-aid fix in place for the long term.

On the other hand, I have met engineers with as many years of hands-on experience that I have, but they were just not very good at it - they lacked the raw talent for being an exceptional Network Engineer. That rarely stops somebody from getting the job - it's a free country, after all - but most of them end up working in larger organizations where they are just a cog in the machinery, a part of the masses. Their individual talents and

abilities are not highlighted or noticed very much, so they manage to get by, even with their limited capabilities and skills.

Large corporations are notorious for filling their ranks with mediocre Network Engineers, because the motivations and rewards for becoming truly exceptional are buried beneath too many layers of bureaucratic BS and petty politics. Also, less talented engineers tend to be willing to accept a smaller employment compensation package, which makes them an attractive choice for budgetary purposes.

Don't get me wrong - there are plenty of truly gifted engineers out there working for large organizations; most of them just lack the motivation and don't desire the recognition that they could otherwise find in the SMB (Small and Medium-size Business) workforce.

In other words, there is no force driving them to excel beyond their normal work requirements. However, in smaller companies like PJ Networks, there is nowhere to hide and if you lack the talent to eventually become an outstanding Network Engineer, then you simply won't last very long as a member of our team (although you will absolutely be given the chance to prove your worth).

My final comments on the topic of Raw Talent: I have absolutely met Network Engineers who were far superior to me in the areas of technical expertise, aptitude, and knowledge. In fact, one of my motivations for writing this book is to provide advice and guidelines for engineers of all different skill levels. Qualities like persistence, determination, personal drive, optimism, intuition, and common sense can help to offset most technical and intellectual shortcomings, and some of the most outstanding engineers that I have ever known were not necessarily the ones who were gifted with an overabundance of engineering talent. They had to work for what might come naturally to others.

So, if all you have to work with is minimal talent and aptitude, but you still *really* want to become a Network Systems Engineer, then you may want to consider seeking employment in a large corporate environment or at a sizable University. Seriously. That will still give you the chance to

improve your skill set and perhaps even catch an Inspirational Wind in your sails without having anyone closely watching your every move.

If you stick with that employment for a few solid years, keep your eyes and ears open to the experience and wisdom of those around you, and continue to work on improving your technical and interactive skills, then that may lead you to the point where you are ready to don the superhero cape and leap out into the field of providing Network Engineering support for Small Businesses.

However, if you *really want this*, down to the core of your being, and you are willing to do *whatever it takes* to succeed, then I would caution you not to underestimate yourself or your talents – you may be more qualified than you realize. Far too many people have very low levels of self-confidence and self-esteem, and that holds them back from even trying to reach for the brass ring, even though they may be more than capable of accomplishing extraordinary things.

In other words, "You can't win if you don't play," so you have to dream big and believe in yourself if you want to really accomplish anything in Life, regardless of your chosen profession.

If your parents, or your previous employer, or anyone else from your past has you convinced that you don't have what it takes to become an exceptional Network Engineer, but you have no concrete proof of that (like failing repeatedly at simple tasks), then I encourage you to continue reading this book! It may turn out that all you really need is for someone to provide you with a little encouragement and some useful guidelines to get you pointed in the right direction.

Intuition

Intuition can be a major contributing factor in your success if you can just learn to follow it: a highly developed ability to listen to your inner voice and gut feelings, which only come with years of practice. You can also call that "following your hunches." Everybody has intuition – everybody. The more you listen to it, the better it gets. People that seem to lack

intuition are the ones that either have never listened to it, or stopped listening to it sometime in the past because they made a poor decision based on intuition and it turned out badly.

That's too bad, because Intuition is one of the most valuable assets you have in Life, and choosing not to use it is like playing a game of chess without one of your bishops - you might still win, but you will have to work harder without it.

Luck

Yes, dumb old luck – the inherent gift of having things just go your way for no apparent reason. Specifically, having luck when dealing with or working on computers. I know that this is going to be a topic that many of you will take issue with, so I'm not going to delve too deeply into this subject right now; there is a section near the end of the book were I share some of my real-world experiences that have made a believer out of me, but for now I want to stay focused on the main goal: providing insights into becoming a Consummate Network Engineer.

If things generally just go right for you when you're working on a network deployment or troubleshooting a technical problem, if your intuition regularly points you to the solution or cause of a problem before you even research it, and if you successfully complete tasks and projects without regularly running into snags and unlikely roadblocks, then consider yourself to be lucky. If the opposite happens most of the time, then perhaps you aren't.

That's all for now. Onward and Upward!

Patience

Unlike Luck, this attribute is not up for debate - you will have to have patience if you wish to become an exceptional engineer. Even if you are able to keep your mouth shut when you lose your temper and not give any outside indication that you're ticked off, if you lose your patience quickly when things don't go your way, then you're choosing the wrong career. After all, you don't want to spend the next decade of your life

constantly frustrated and upset, do you? Things do not always go as expected, especially in this line of work, no matter how much aptitude, talent, and luck you may be blessed with.

That's what makes Patience such a crucial component for being a successful Network Engineer. Patience and Persistence go hand in hand with each other.

Patience: The ability to not lose your temper or get angry or frustrated when things don't go your way, or when they require more time/effort than you anticipated. That happens all the time in this line of work. **This is absolutely, positively a requirement for being successful in this career field.** The nature of being a Network Engineer is that you will have to overcome challenges almost every single day – it's why businesses will pay good money to have someone manage their computers and networks, and to fix all of their technology-related problems for them.

Whether you're trying to teach a 75-year-old business owner how to make a Zoom call, or manage a network that is made up of half Windows and half Mac computers, it is going to require an inordinate amount of patience. If you don't have that, then not only are you going to be angry and miserable most of the time, but **nobody is going to want to be around you**; not clients, not coworkers – maybe not even your own family. If you truly have no patience for working on computers and business networks, then for goodness' sake, please make another career choice!

This is a true deal killer, folks, and I'm not kidding about that. If it's too late and you're too far down this road to make that career change (which I don't think is possible), then do whatever you can to learn some patience. Read some self-help books, watch some YouTube videos on anger management, start practicing mindful meditation – do whatever it takes to gain some patience so that you and everyone around you can live a happier life.

However, I believe that you can do anything that you put your mind to, and that if you work diligently and consciously on becoming more patient, over time you can do it.

Early in the history of my company PJ Networks, I still had a bit of a short temper, and well, I would occasionally "lose my cool" with employees who couldn't follow simple instructions. Not with clients - never with clients - just with engineers who seemed to either not care or not be capable of following very clear orders. I would often find myself getting frustrated or impatient with engineers who simply wouldn't follow the clear directions they were given to follow, and it took a lot of practice to learn how to not take those kinds of situations personally and to be more understanding when others didn't fully grasp what I was trying to ask of them.

About a decade ago, after experiencing a few stress-related health issues over the course of a few months, I finally decided that my health was more important than "being right," so I made a conscious decision to simply not lose my temper any more. After that my overall stress levels improved, my patience level increased, and I was able to catch myself in the early stages of getting annoyed before things started to escalate any further. A little effort goes a long way, so if you don't have a lot of patience, don't lose hope.

Where there's a will, there's a way.

Positive Attitude

That is the expectation that things are going to go your way, that you'll succeed at every task you begin, that clients are going to like you, that nothing is impossible, that the Universe conspires on behalf of the well-intentioned. You need to have enough positive attitude that years of challenges where things don't always go your way will not diminish or extinguish that expectation that everything is going to turn out well in the end. It means having an optimistic approach to everything that you do, and like negativity, it can be infectious.

If you have a positive attitude, clients will usually like you and enjoy having you around. (Unless they're complete a-holes, in which case you should figure out a way to get away from them. We'll talk more about that later.) There is nothing that a positive attitude and the next attribute cannot overcome.

Next, let's take a look at the common characteristics and qualities that you will find in almost any successful Network Systems Engineer.

PERSISTENCE

Never give up, never give in, keep on trying different methods and solutions until you succeed, rinse and repeat as many times as you have to in order to finish the job successfully and completely. If you need to walk away for a few minutes, or an hour, or a day (depending on the urgency of the task), it is with the intention of going back at it, relentlessly and with determination.

PERSISTENCE IS EVERYTHING – I cannot stress that enough.

It can overcome almost any challenge, and it has helped to level the playing field for engineers like myself who aren't geniuses by giving us the ability to keep at something until we succeed. It levels the playing field because even though a more technically advanced engineer might have an easier time at any given engineering task – particularly the more complicated ones - as long as you can stick with it and see it through to successful completion, the only real edge they have on you is time.

So, if you're like me and do not necessarily have extraordinary technical skills, but have everything else going for you, I am living proof that you can overcome most obstacles by having a positive attitude, a little luck, some intuition, and a whole lot of persistence. You also have to be willing to put in the extra time that it will take in order to accomplish some of the harder tasks and to not be resentful about the extra time you have to put into the effort that others might not have to.

Now, when I say that I'm not "technically gifted," that doesn't mean that I don't know what I'm doing – I am a highly successful engineer with an impressive track record.

It only means that I acknowledge the fact that there are other engineers out there who are “naturals” at engineering and can easily tackle highly technical challenges, and then there are those of us who actually have to stop and think our way through a complicated issue or problem. My strengths lie in my management and people skills more than they do my technical abilities, and I have found ways to balance that out to my advantage.

For example, programming a Cisco Pix router from a command line never came naturally to me, so it was a big relief when they finally caught up with the rest of the world and integrated a GUI (Graphical User Interface) into their OS many years ago. However, I never let that stop me from successfully configuring one. There were a few times when I had to “dial a friend” (thank you, Jim Clark!) back in the day in order to resolve issues with the older Cisco routers, but I always ended up succeeding.

Always.

I accepted early on that there are engineers that are more technically advanced than I am, but I never let that hold me back, and I never let it make me bitter or resentful. Play to your strengths and offset your weaknesses, but always try to be honest with yourself about what those things are within you. My experience has been that Make Believe doesn’t make it very far in the professional world.

Everybody has their own strengths and weaknesses, and that’s what keeps Life interesting; where I may be lacking in one area, I make up for it in other qualities that I have, or by putting extra effort into the areas where it’s needed. I happen to have a natural gift when it comes to client communications and getting businesses to understand the value of a well-delivered solution, so I try to play to my strengths whenever I can.

I help our engineers with their client communication and management skills, and I get them to help me with the more technically challenging projects. It’s a win/win relationship for everyone involved.

After all, that’s what teams are for!

Do What You Love, Love What You Do

It should go without saying that if you have chosen the career of Network Systems Engineer, it should be something that you truly enjoy doing, or that you think you will enjoy doing if you haven't started doing it, yet.

You certainly don't have to be brilliant to figure out the things that you enjoy doing in life – you just need to be honest with yourself about it. Don't try to convince yourself that you would really enjoy pursuing a certain career path just because your parents or your friends think that you would be successful doing it. Don't allow yourself to be pressured or "guilted" into pursuing a career that your heart isn't truly embracing.

After all, you're the one who is going to be living that career path -not them.

I was speaking with a client a few weeks ago who has a son who is heading off to college, and she said that she just couldn't figure out what she wanted to do with the extra time that she would have available after he left home.

So, I told her about finding her "Flow State."

If there is something that you enjoy doing so much that you get lost in it and lose all track of time, that's a good sign that you've found something to pursue that will be both rewarding and/or fulfilling for you. For me, that would painting or writing poetry in my spare time, but it is also how I discovered that being a Network Engineer would be a good career choice.

Back before I left Virginia and moved to California, I would often find myself up into the wee hours of morning piddling with computer parts and figuring out how everything worked. Once I became an engineer, I would frequently find myself back at the shop until 10 or 11PM fixing computers on the bench without realizing that it had gotten so late. When working on resurrecting a failed server, it was not uncommon for me to find that it was well past midnight and I hadn't even stopped to eat dinner.

When you get into your Flow State, you get so focused on what you are doing that you don't even notice the passing of time. I am recommending

that you find what takes you into your own Flow State and see if you can figure out a way to turn that into something that you can do for a living.

Pick the career that you want to follow today, and if that desire changes later on in your life, then figure out how to gracefully navigate the waters in that new direction. Many people start their adult life following one career path only to find that their interests evolve and pull them in another entirely different direction – and that's okay. In fact, it's a good thing! We're not robots, after all – we are each on a neverending path of evolution and self-discovery, and nothing is truly set in stone as long as you still have control over your life. Try to enjoy each step you take and don't get too concerned that along that journey you may feel compelled to change course from time to time.

Follow your heart, give everything your very best effort, and you should find that your career will guide you into some very enjoyable and fulfilling experiences.

Bringing It All Together

So, are you getting all of this..?

Raw talent, intuition, luck, patience, positive attitude, and persistence. A passion for being a Network Engineer, enthusiasm for helping clients with their business technology needs. Those are the qualities and assets that you really should possess before you proceed any further, and if you don't have them, then do yourself a favor: do whatever you have to in order to pay the rent and buy groceries, but do not commit to this or any other long-term career choice until you find one that you either truly enjoy or that you fervently believe in.

If you're driven to discover a cure for cancer, then go and find it - it is a noble cause, and hopefully you will enjoy the work that you're doing. I would hope that whatever you pursue at least brings you some sense of purpose and satisfaction, if not true enjoyment.

I discovered in my younger years that waiting tables and bartending were easy ways to make decent money, and there's no long-term commitment involved with those jobs. In fact, they are a most excellent

way to get positive experiences from helping people and to also receive immediate gratification for your efforts; I went home with a pocketful of cash on most nights when I waited tables. I have always believed that my eight years of waiting tables (and shucking oysters at a bar – that's a whole other story) helped me to determine that my natural bent in Life is to serve people in some capacity – it just feels good to do it.

Don't get me wrong. I don't claim to be a Saint, but I *am* one of those people who simply enjoys helping others. Many people are. Being a Network Systems Engineer turns out to be an excellent way of doing that, and making good money is just the icing on the cake.

For The Greater Good

If you should choose to become a Field Engineer, as opposed to a Help Desk Engineer or a member of the RMM team, then you should be aware that there are certain sacrifices you may have to make and certain demands that will be placed upon you that other engineers within the company will not experience, although a truly dedicated remote support engineer will still feel the weight of those demands.

What are those demands?

Well, for one thing if you're at a client site during a server deployment and it's the final day before the client is coming back to start using the new server, you're going to have to stay as long as it takes to have everything fully functional before you head home. In most cases, that will be on a Sunday afternoon during a project that you've been working on throughout the course of a weekend. The client will have left work on Friday afternoon, and you will have rolled up your sleeves and dug firmly into the server installation, which will often be a migration from a previous server that needs to be retired. If it was a major server project, then hopefully you brought at least one other engineer with you to lend a hand.

If something should go wrong during the server deployment, or you run into challenges that you weren't expecting, things may run long and you may find yourself rolling into the evening with still a lot of work left in front of you. If you're the project leader, it will be your responsibility to stay

until everything is finished, even if that means being there until midnight. That will be an extremely rare circumstance, but things do happen - it's why you make "the big money."

You will also be expected to answer your phone 24/7, unless you make the rest of the team aware that you're going to be out of town and/or unavailable for a certain period of time, like going camping with your family or taking PTO time somewhere that there is no cell phone reception. As a general rule, our engineers are okay with answering their phones even when they're on vacation, because they are dedicated to their jobs and to their clients, but we do everything in our power not to have to reach out to somebody if they're taking PTO. That's just common courtesy.

Whatever It Takes

When I first started PJ Networks in 2005, I was the entire company; it was several years before I picked up enough clients to warrant hiring another engineer.

So, for three full years I did not take a vacation, I did not go places where I knew that cell phone reception was questionable, and I even carried a pager around back then so that if somebody was trying to reach me and couldn't get me on my cell phone, they could try paging me and there might be a chance that I would be getting reception on my pager. I made a commitment that I would always be available to my clients – *always* – and I took that responsibility seriously.

Back in those days, my mother and I had a tradition of traveling down to Jamestown and Williamsburg every summer for a day trip, and I specifically recall one trip we made after I picked up my first couple of clients.

I remember roaming the grounds of Jamestown with her, and for some reason I was paranoid that some kind of an emergency would come up and I would be hours away from Charlottesville and the ability to respond. In the third year that I was in business, I established a mutually beneficial arrangement with another solo engineer who also ran his own consulting business, and we would cover for each other on occasion so

that the other one could take a little break from work for a day here and there.

If you do not believe that you are going to be willing to make these kinds of sacrifices for the sake of advancing your career and supporting your clients, then you may want to consider being a Remote Support Engineer with an established schedule of availability, and not a Field Engineer where the demands on your schedule tend to be a bit less predictable and more aggressive. Generally speaking, Field Engineers make better pay than Remote Support Engineers because of the requirement to be accessible at all times and the added stress of working in front of clients, although there are exceptions to that rule depending on the responsibilities and the tenure that the engineer has with their employer.

Field vs Remote Engineer

Many of the tips, tricks, and wisdom I'm going to share with you throughout this book will be more applicable to Field Engineers than to help desk specialists, but most of them will still apply. Field Engineers are the ones who go out on a daily basis to client sites to support their systems and to do onsite project work. I have worked in both capacities throughout my career. Anyone who gets nervous working directly under the watchful eye of a client might be more comfortable providing remote support, although I believe that those kinds of challenges can be overcome with a bit of effort and determination.

Back when I first became a Network Engineer in the 1990s, there were not nearly as many things that could be done remotely as there are today, so the role of Remote Support Engineer has become a very appealing career choice for engineers who want to be doing essentially the same kind of work that field engineers do, but from a remote workplace. That remote workplace could be from a company's business offices, or they could be from the employee's residence.

As a general rule, there is less pressure if you're providing remote support than if you're standing right there in front of a client and trying to fix something. With remote support, you don't have to deal with an employee standing next to you watching over your shoulder or crossing their arms and tapping their toes wondering when you're going to get

done working on their computer. Remote Support Engineers also don't have to deal with multiple employees running up to them during the course of a support visit trying to pull them away to look at something else.

One more difference to point out is that Remote Support Engineers do not have to lug around heavy equipment, crawl into unlikely workspaces (some server rooms are smaller than a small closet), mount heavy equipment into server racks, or run around a client site testing cables while looking for the cause of a connectivity issue. I'm not saying that remote support is easy – just that the physical demands of being out in the field are not to be dismissed lightly.

For these reasons, Remote Support Engineers tend to make a little less money than Field Engineers as a general rule, but they also don't have to deal with the hectic schedule of running around to multiple client sites during the day and trying to finish up things quickly enough to make it to the next appointment on time. I strongly encourage both kinds of engineers to have some appreciation and respect for the other because it is through the efforts of both the engineers out in the field and the engineers providing remote support that your company will be able to provide outstanding service.

It is very easy for a company to develop an "us vs them" mentality between the field team and the remote team, though, and that is a recipe for major turmoil within the organization. The leader of that company needs to quickly address any signs of disharmony, jealousy, or disrespect in their early stages and put an end to them quickly. There need to be clear guidelines to identify which tasks are the responsibilities of each team and them hold that line firmly. Otherwise, it is far too easy for a Field Engineer to start treating the remote team like their role is to do their bidding, and that is simply not the case.

Everybody needs to pull a fair workload, be accountable to the client and to other team members, and to always promote an atmosphere of harmony and productivity.

End of lecture!

Persistence Above All Else

We've spoken of this before. We're going to discuss it again, because, well, persistence is everything.

Being able to think outside the box is important in the troubleshooting process as a Network Engineer, but persistence is everything in this line of work. There is no more powerful tool that you can keep in your tool belt than the ability to keep at it and not give up, regardless of how daunting, frustrating, or hopeless the situation may become. That's when it's important to remember to "Dial a Friend." (More on that in The Rules of Engagement)

Real World Example

I recall one time when I was working with a small accounting firm in Santa Barbara in the late 1990s.

I had gone over there at the end of a workday in order to perform some server upgrades, after everybody else had gone home for the day except for the manager. This was back in the day when installing updates to a Novell Netware server was a very tedious and laborious process. You essentially had to download a handful of firmware and driver updates onto floppy disks, and then install them one at a time in a very specific order. Otherwise, you risked causing the entire server to crash and become unbootable. This is what happened on that one memorable evening - after installing one of the updates in the correct order and rebooting the server as the instructions specified, the server refused to complete the startup process successfully.

I spent the next few hours trying to install and load the updates in different sequences, as the printed instructions I had printed out from Novell's website were apparently not correct. In spite of the fact that I had already failed at least a half a dozen times over the course of several hours trying to get the server back up and running, I was still keeping a positive attitude.

Keep in mind that each reboot could take up to 15 minutes before failing due to the speed of server technology back in the 1990's. Every time I finished loading all of the drivers and was ready to reboot it again, I would

say something to the effect of “this is it, this time it’s going to work, and then we can finally get out of here and go home.”

After the 5th or 6th attempt at getting the server back up and running, and once again stating my optimism that *this* time it was going to work, the manager finally looked at me and said in an exasperated tone, “You’ve said that every single time you’ve tried the reboot, and it hasn’t worked yet. What makes you so confident that it’s going to work this time?”

It was approaching 11PM, and like me, she was going on a 15-hour workday with no end in sight. We were both tired and hungry, but I wasn’t about to give up.

I simply smiled at her and said, “Well, if we stop now, I can tell you for certain whether or not this problem is going to get resolved tonight, so it only makes sense for me to be optimistic every time I reboot. What would be the point of me continuing to try if I didn’t think that it was going to work?”

I didn’t say it snarkily; I said it with a warm smile on my face, and she was a little taken aback by my calmness and my confidence.

She had always been a bit of an edgy client with the serious-minded attitude of a veteran accountant, but I believe on that day I made it one step closer toward gaining her confidence and ultimately, her friendship. It’s important that you develop good friendly relationships with your clients; it makes the job so much more enjoyable when you feel like you’re driving around visiting friends all day long.

We’ll discuss that in more detail in a subsequent chapter.

(By the way, the server started up just fine on that last attempt and we both were able to finally head home for the day.)

Keeping It Upbeat

Anyway, the point of that story isn’t just that persistence is everything, but that keeping a positive attitude in the middle of a discouraging situation makes the experience less unpleasant, it keeps the mood light, and it feeds good energy into the situation. When you’re pulling a 16-hour

shift out of necessity, you need to be able to keep yourself from giving into negative expectations and pessimistic thoughts.

At this point, we've covered most of the core requirements for becoming a successful Network Systems Engineer, and you should have a pretty good idea whether or not you've got what it takes to do that. In the next chapter, we are going to discuss how to begin the journey and properly get started down the career path that you have chosen - to become a Network Systems Engineer.

But, before we do that, here is one more list for your consideration.

Core Values - More of The Right Stuff

A few months back, during our weekly company meeting, I asked each member of the team to provide one word or phrase that they feel embodies an attribute that our company should embrace.

Here is what they came up with:

- Honesty
- Responsibility
- Teamwork
- Reliability
- Trust
- Flexibility
- Kindness
- Customer Service
- Accessibility/Availability
- Family Oriented
- Professionalism
- Personable/Personality
- Friendship
- Meaningful Work
- Loyalty
- Data Security
- Common Goals
- One Mission
- Consistency

- Proactive vs Reactive
- Accountability

You don't have to have ALL of the attributes, traits, and talents that I have listed in this chapter in order to become a successful Network Systems Engineer, but the more of them you have, the easier it will be for you to succeed on this career path.

Many of these qualities are ones that you can improve over time, such as patience, communication skills, and confidence – but you need to be willing to focus on those things in order to improve them. That doesn't just happen by accident.

Reading back through this chapter from time to time would serve you well as a reminder of the qualities that you may need to put more focus on, as well as give you the opportunity to reflect upon and acknowledge the ones that you have mastered.

Remember that this is a Journey, not a race, so be sure to pause once in a while to recognize and celebrate your accomplishments and your progress along the way.

And with that, this chapter is complete!

CHAPTER THREE:
WHERE DO YOU EVEN BEGIN...?
VOLUNTEER
IT
Open Saturdays

Chapter Three

Where Do You Even Begin...?

Success is something that comes **from** *a person,*

not to them.

-PJ

Well, just picking up this book and reading this far was a good start, and if you're still determined to become a professional Network Engineer, then please proceed to the starting line for this exciting pursuit of becoming The *Consummate* Network Engineer!

If you have already started along this career path and have picked up some hands-on experience working with computers and network, then you might want to skip to the next chapter. This chapter will focus on how to get enough real-world experience for potential employers to grant you an interview for a position on their team.

As an employer of Network Engineers, PJ Networks is probably a little more open-minded about interviewing lesser experienced candidates, if only because of the fact that John Hunt believed in me before I really had any idea what I was doing. He hired me for my attitude, my conviction, and my genuine enthusiasm for becoming an engineer. We have also interviewed and hired employees based on those same qualities.

But not all employers will be that liberal in their hiring practices.

If you do not have a college degree or any technical certifications at all, then you're going to have to figure out a way to get some practical experience in order to expect anybody to be willing to consider you for employment. In this chapter, we are going to talk about some ways to accomplish that.

If you are already a few years into working as a professional Network Engineer, then those doors of opportunity should already be open to you, but if you're curious to see how your path compares to ones that I will be recommending, or you still feel that you might need some additional tips and tricks, then by all means, read on!

Otherwise, feel free to skip right to Chapter Four, where we will talk about what happens *after* you get that first job as an engineer, and how to make the most out of that opportunity. Getting the job is the first part of this journey, but this book is intended to help you to succeed in this career field and become the best Network Engineer possible.

Starting From Square One

So, imagine that you've decided that you want to become a Network Systems Engineer, but you have little to no hands-on experience or training with computers. Where do you even begin?

Do you remember when I told you earlier that persistence is everything?

If you have no real-world experience as a Network Engineer then you're about to find out how true that is, because persistence is the main resource that you have to work with when you're first starting out. There are very few things more difficult in the professional world than trying to get someone to give you a job or employment opportunity when you have absolutely zero real-world experience in that particular line of work. If you don't know that already, then you're probably about to find out the hard way. (sorry)

The one exception would be if you happen to know somebody who's already in this industry, or who knows the owner of an IT support company, or if you have some inside connection to at least get yourself considered for the job. Landing that first interview can feel like it takes a miracle to happen. But, with diligence, persistence, and a positive attitude, then have faith - it *will* happen.

It took me almost two years to get my first real interview for the position of Network Systems Engineer; hopefully you'll have a shorter wait.

Even though I have stated that a college education and/or technical certifications are not a requirement for becoming a Network Systems Engineer, having those would absolutely make it easier to get those first job interviews. If an employer is looking at two resumes, neither one of them showing any real-world experience doing this kind of work, but one of them shows some formal education or certifications, then that at least demonstrates a commitment toward this career.

This is also a great example of how having a little luck, which I mentioned earlier, is going to come in extremely handy. It's going to take a little bit of good fortune and a whole lot of tenacity to get yourself in front of someone in a position to offer you a job as a Network Engineer. Once you

get in front of that person, it's going to be entirely up to you to convince them of your worthiness for the job.

The best way to do that is to be sincere and candid in expressing your desire to make this a long-term career choice, and please be humble about it. Don't brag about how much you know, because if you haven't worked as a Network Engineer for a living, then you really don't know squat. Sure, you may have a bunch of "book smarts," but unless you've had some real-world experience in client management or client relations, then you don't know what you don't know. If you do have experience in a service-oriented business environment, even if it's only waiting tables at a restaurant, then make sure you emphasize that and explain why you believe that your prior experience would bring value to the position that you're applying for.

But, again, try to be humble about it. Always be honest about your experience or lack thereof.

Whatever It Takes

Look your interviewer in the eye with confidence (there's no need to look scared) and ask them to give you the chance to show them how hard you will work in order to gain their respect and their trust. Let them know that if for any reason after you've been on the job for a month or two they do not feel that you are showing the proper basic skill set or that you are not making progress in the areas that they need you, you will resign from the position and be on your way. No muss, no fuss – you'll just pack up your gear and walk out the door, grateful for the opportunity you were given.

However, also let them know that you are willing to do *whatever it takes* to show that you are the right candidate for the job.

Let's be honest: the last thing you want is to be working for an employer who feels guilty or obligated to hold on to you as an employee, so make sure they know that you'll leave without a fuss if it doesn't work out. You have to be willing to earn your way and you have to be willing to do whatever it takes in order to succeed. If that means working 12 or 14-hour days for the first few months, then so be it - nobody said this was going to be easy. The easy part will come in a few years, when you've

proven your worth and you've gained some experience and expertise, when you no longer have to work insane hours in order to keep up with others that are doing the same work that you do.

You have to believe in that Vision in order to ever achieve it.

Now, assuming that you don't just get lucky and happen to know someone who knows someone who can get you a job interview, you're going to want to start knocking on doors and sending resumes everywhere and anywhere possible - but within reason. Don't start applying for jobs that are a two-hour drive away unless you are truly okay with making that commute on a daily basis; that can become a really hateful experience to endure for any length of time. Also, keep in mind that you're going to have to start at the bottom and work your way up; don't begrudge that. Your predecessors probably had to do that, too.

Try to keep in mind that who you know is every bit as important as what you know when you're first starting out - maybe even more so.

If you know someone who has a job in IT, see if there are any local networking groups that they hang out with or organizations that they belong to that you might be able to join or attend as a guest. Search online for local B2B gatherings where professionals network with each other and exchange business cards. Attend local seminars on IT-related topics such as cybersecurity and Artificial Intelligence. Those are the people who may very well know someone who can help you to get your foot in the door somewhere.

Starting At The Bottom

Several of the engineers that currently work for PJ Networks began their careers working on our computer repair bench, which is mostly used for home computer repairs and occasionally for client computers that come into the shop for repairs or upgrades. We do not require those bench techs to have any real-world experience with networks or business computer systems, but we do require them to have some hands-on experience doing computer repairs and some common sense when it comes to fixing computers. They also need to have good communication skills.

Just to be crystal clear, when I say fixing computers, I mean taking apart laptops and replacing motherboards, installing additional memory into desktop computers, upgrading video cards to better models, or diagnosing hardware issues in order to perform the appropriate repairs. Those jobs are normally done for residential customers and do not have a direct impact on business client interactions, but occasionally we will gain a new business client because they brought in their personal computer for repair and then discovered that we also do business computer support.

What if you can't even get hired as a computer repair technician? What if you have no hands-on experience doing that? Don't panic or despair.

Piecing It Together

Fortunately, nobody can stop you from going out and buying your own used computers or computer parts, either from local thrift stores or Goodwill, or off of eBay. Just buy a few boxes of junk parts from older computers and start playing with them. That's how I started. The good thing about doing it that way is that if a computer is already broken, you're not going to break it again, are you?

Get comfortable pulling PCIe cards and other peripherals out of motherboards and sticking them into other ones, figuring out the differences between the different generations of memory chips and notice how they have different slots in them in order to prevent you from sticking the wrong speed memory stick into a mismatched motherboard.

Who knows - you might even find out that it's kind of fun to be playing with computers like that!

I certainly did when I first started out. Just being able to honestly say that you have hands-on experience building your own gaming computers and fiddling around with computer parts on your own free time is usually enough to gain a modicum of interest from a potential employer. If you don't want to take that route, then you should consider some of the other avenues where you can get some hands-on experience working with computers.

Volunteerism

In most cities and towns, there are non-profit organizations that have public assistance programs to provide computers to low income families in the community, and those organizations almost always have a handful of volunteers that work part-time in their refurbishing department taking donated computers, running them through some hardware tests, upgrading them as needed, and then getting them ready to hand out to worthy candidates who can't afford their own computer systems. They also need people to support those computers after they have been sent to a new loving home.

Not only will that kind of volunteer work get you some valuable hands-on experience, but it's a very fulfilling endeavor. Working with nonprofits in your community will also help you to make connections with other people in your area who work with computers, and some of them may have connections to people who can help you to find gainful employment in the field of Information Technology. Who knows - it might even result in some very useful letters of recommendation!

Remember: if you know someone who knows someone who knows someone who can get you a job in this career field, it's a start. You will find your opportunities through dedication, experience, commitment....and persistence.

Computer Gamers Are In Luck!

If you are an avid computer gamer then you've already got a head start, especially if you build your own gaming rigs. Gamers know a lot about hardware capabilities, because the higher-end games have minimum hardware requirements necessary to run them properly. A gamer will know a lot about which makes and models of video cards perform better than others, how to keep their CPU from overheating, and which solid state drives are the best for gaming. All of that counts for something, and we have actually hired repair technicians for our bench whose primary hands-on experience was building and supporting their own gaming systems. Use that to your advantage.

Real World Experience

Now, some of this advice may be difficult for you to accept, if you're one of those folks who spent years in college or going to specialized training schools in order to get a degree or certifications in the field of Information Technology. It might seem like it's a little beneath you to go and volunteer at some local nonprofit, or to get a job working at the repair bench of a small local computer repair shop.

Get over it. I'm not here to tell you what you want to hear; I am telling it like it is out there in the real world.

I guess if that's you and you're feeling a little discouraged that you can't just waltz out there and get a job based on your education and certifications, don't forget that you have to be willing to do whatever it takes. Period. The good news is that those degrees and certifications will absolutely give you an advantage when it comes to getting those job interviews. Just don't get cocky and stroll into those meetings feeling like your diploma is going to magically translate into a job offer.

There is no substitute for experience.

In order to get that experience it's going to take some persistence, and nothing can get you around that. Not money, not education, not social status, not intelligence, not anything that I'm aware of. Maybe if a close family friend happens to own an IT support company you'll get to take a shortcut to getting your first IT job, but you're probably still going to have to work your tail off to keep it.

I have known people that most of us wouldn't give a second glance who turned into really excellent Network Systems Engineers, who are now respected by their peers and by their clients, and they make really good money doing it!

How did they get there? Through dedication, experience, commitment, and hard work.

So, just how much Real-World Experience should you have with computers before you can expect to have somebody open the door enough for you to slip in and start your journey along this new career path?

You're probably going to need at least a year of solid experience repairing computers or doing something along those lines before a manager or employer is going to even let you sit down across from them for a job interview. If you're not very good at speaking to people you don't know, then please do yourself a favor and take some courses on it or read some books, because in this line of work you are going to be meeting new people on a regular basis and you need to be comfortable interacting with them. The good news here is that I have met thousands of business owners and managers during my career, and the overwhelming majority of them are really friendly people who are happy to make your acquaintance.

It's best to keep away from the ones who don't fall into that general category as much as possible and leave them to their own designs. Learn to trust your intuition. Whether you're sitting in a job interview with a business owner or meeting with a potential client for the first time, if your intuition is screaming that the person sitting across from you is mean or angry or disrespectful or dishonest - or all of the above - then do yourself a favor and do not commit to anything binding during that encounter.

If they are clearly an a-hole, then you probably don't want to work with them or for them for any length of time. If you're unsure of your feelings about them, then try to coordinate a follow up meeting; maybe they're just having a bad day. However, if they clearly seem to just be unpleasant to be around, difficult to talk to, and disagreeable, then get through the meeting, walk away, and don't look back.

On the other hand, if *everybody* you meet with seems to be that kind of person, then you might want to take a good hard look in the mirror to figure out whether you are part of the problem. My experience has been that the vast majority of people I interact with professionally are friendly, decent, kind, and agreeable, so if you're not seeing that, then maybe you're just not bringing out the best in others.

You might want to take a pause to work on that before you proceed with your job search.

Once you've established yourself as a knowledgeable and respectable Network Systems Engineer, it should be very rare that you have to kiss

anybody's butt or grovel in front of anyone because of something you did wrong, although if you do make a mistake you need to be able to own up to it. You also have to try really hard not to become a condescending jerk who treats everybody like they're stupid because they don't know everything that you do.

Throughout your career you're going to meet lots of people who are experts in areas that you never will be, such as attorneys, accountants, doctors, mechanics, homebuilders, and anybody else in a profession that you don't know - so learn how to have a healthy respect for everybody in all walks of life and that will serve you well throughout your entire career.

Helping a Friend In Need

Another way to get some good hands-on experience with computers, which will ultimately lead to you getting to work on business networks (remember to always *expect success*) is to offer to help anybody and everybody you know with their computer problems. Everywhere you go, you're going to meet people that could use a hand with something computer related, so take advantage of that opportunity. Always remember that "it's not as much about what you know but *who* you know," because over time more and more people will know that you're handy with a computer, and that may lead to getting your foot in the door in some unexpected places.

Once you've worked on enough computers to start feeling more confident about it (and hopefully competent, as well), whenever somebody asks you what you do, you should let them know that _____ is your current job, but that you also work on computers on the side. (Unless you already work for a company that does that, in which case you would be stealing work from your employer – not cool.) It shouldn't take long before requests start trickling in from friends and friends of friends who are looking for help with their computers.

Cool beans!

You are now getting real-life hands-on experience working on and with computers. Once you've done that for a full year, you don't have to be

shy about putting that on your resume: Hobbies/Personal Interests – *building and repairing computers and laptops*. Better yet: *computer support technician*. Speak boldly and confidently when asked about that, but don't come off as being braggy.

You want to express your enthusiasm and enjoyment of computer work more than trying to show off your technical expertise. They know a heck of a lot more about computers than you do, but what they can't do is magically make all of their employees truly enjoy their work experience and be excited about it. Bringing a new engineer into a team who is truly stoked about getting the job they've been hoping for is an infusion of positive energy into the entire company. It can revitalize a work environment that may have gotten a little too routine and status quo, especially if the company has long-term staff and very little employee turnover.

Employers appreciate the value of fresh new energy, as long as it doesn't borderline on the manic. However, that fresh new energy can be a double-edged sword. The same contagious enthusiasm that brings new life to the team could also bring chaos. Bringing in a whirlwind of new energy that is willing to channel itself into the existing framework of the hiring company can generally go one of two ways…

The Good Way

The new engineer talks very little and listens to everything that is told to them directly or that they overhear in the work environment, they ask a lot of really smart questions to make sure they understand what they are being asked to do and/or how to do it, they show a willingness to learn anything and everything that they need to know, and they *do not try to change anything* at that company for a minimum of one year. After 6 months, if they are in good standing, it might be acceptable for them to politely comment on something with a suggestion of how to improve it, but even then they must tread carefully.

Take it from a 20-year employer who has had several dozen engineers come and go over those years – well, after the first three that I worked on my own. Any time we bring a new engineer into the team, we are looking

closely for any telltale signs that the new person is going to be a good long-term fit for PJ Networks.

If they do not, then...

The Bad Way

This really isn't good for anyone, except for the engineer who got the chance to spend some time working with one of the finest teams of engineers that I have ever had the honor of knowing. (seriously)

The first warning sign is that the new engineer talks a lot but listens very little. This can be due to a number of reasons:

- Arrogance
- Cockiness
- Brain imbalances
- Nervousness
- Impatience
- Social awkwardness
- Lack of focus / poor attention
- Too much caffeine/stimulants

The good news is that if the issue(s) can be identified early on, there is often an opportunity to talk it out with the engineer in a respectful way, come to an understanding of what changes need to happen, and then be cautiously optimistic that they will be able to make the necessary adjustments.

Other warning signs include frequent tardiness, resistance to learning the proper way of doing things, needing to be shown the exact same processes multiple times, complaining about the unfairness of _____ (whatever is bugging them), or constantly griping about every task that gets assigned to them.

It's A Roll of the Dice

In the end, every new team member has the potential to be a major asset to the team or they will be a detriment. The reason I'm bringing all of this

up now is because if you are just starting out as an engineer or you're still early in the experience of being one, then one of those two scenarios I just described are likely to happen to you at your next job. New hires tend to end up quickly showing the team that they have the desire to do whatever it takes to become a contributing member of the team, or else they start to show early warning signs that they may not be the best fit for the company they have joined.

We'll cover more of this in the next chapter.

Letter of Recommendation

As you get to know professional business people through the course of your tinkering and fixing personal computers, it never hurts to ask a few of them to write up a nice letter of referral or recommendation for you that you can then present when you are out submitting your resume to potential employers. Having two or three well-written testimonials praising your skill set and your expertise certainly can't hurt, and when all other factors are equal, it may also give you the edge on somebody else who has the same amount of hands-on experience that you have.

One thing you should start realizing early on is that confidence and competence go hand in hand.

Of course, employers are going to look for engineers who are competent at what they do, but a lot of people lack confidence even when they have plenty of competence. Because of that, they don't come across very well. Let's face it - would you want to hire somebody who doesn't have any confidence in themselves?

Personally, I have always been a strong believer in the principle of "fake it until you can make it," at least up to a point.

Now, that's not a license to flat-out BS people and tell them that you can do things that you can't, but you can certainly project yourself as being confident - that no matter what challenge is put in front of you, you're going to succeed at it. People like confidence, they find it attractive, they find it comforting, they can even find it romantically appealing. There are

all sorts of positive reasons for being confident, so do yourself a favor and learn how to be confident sooner rather than later.

Always remember that you can be taught how to be a competent engineer, but only you can make yourself a confident one. (you can quote me on that - it was pretty good!)

Give A Little Bit…But Not Forever

Getting some real hands-on experience can be a crucial part of landing a job interview and hopefully a job offer, but you'll find out pretty quickly that once you have started to master the fundamental skills of working on computers and successfully resolving problems, everybody is going to be bringing their computers to you when they need help. Early on, that's great - it's how you're going to gain some much-needed experience!

However, after a while, you may start to find that people expect you to always be willing to help them with their computer needs for free - and that can be problematic. My father was quite an accomplished automobile mechanic, and it seemed like wherever we were living at the time, our neighbors would want to bring all of their car problems to him to diagnose, and often expect him to repair them.

For free. Always for free.

Well, with decades of experience under his belt and a well-established career as a mechanic, he really didn't need the "extra experience," and besides, he had a wife and three sons to take care of. The last thing he needed was a never-ending list of friends' and neighbors' cars to work on in the little bit of free time that he had available. My father was far from being a timid person, and so he was always very clear that his job consisted of working on automobiles all day long; he had no interest in continuing that well into his evenings and weekends.

The same thing is true of computer technicians and Network Engineers.

John Hunt gave me some sage advice regarding the ever-increasing list of people who wanted me to help them with their computers for free as I

was establishing myself as an IT professional: Start charging them a little something every time you help them out.

Not a lot - certainly not the going market rate for professional computer service - but *something*.

That helps to establish the fact that you are a professional and that your time was valuable, at least to you. So, I started charging people $20 as a standard rule for anything that was more than a 15-minute fix. If it was a larger task, such as migrating somebody over to a new computer, I might even charge as much as $40 or $50, but simply charging people $20 for my assistance was enough to get the incoming requests to start leveling off.

Don't get me wrong. I was always happy to provide free advice and recommendations (I still am), but if I needed to roll up my sleeves and put my work hat on, then I would charge a nominal fee for my services. Sure enough, after that fewer people would come to me for "free work," and I didn't seem to offend anybody in the process. Close friends and family are an entirely different matter, however, and to this day I still help them out pro bono, or ask them to bring their computers into our repair shop so that one of my employees can work on it for them.

After all of these years, I have still only cracked the case open on a handful of laptops, and I almost always end up with a few extra screws when I am finished; I have never enjoyed working on laptops and still don't. I know what my strengths and weaknesses are, and taking laptops apart is certainly not one of my strong points.

And I'm okay with that.

Be Real On Your Resume

I shouldn't have to say this, but do yourself a favor and try to be real and honest on your resume when you talk about your skills, your background, and your qualifications. If you want to talk about how sincere you are in your desire to make Network Engineering your career, or about how your specific personality type or qualities would help you to be a good

candidate for a specific job opening, then you should do that in a cover letter, not on your resume itself.

Whenever somebody tells me they would like to send me their resume, I always ask them to either include a nice cover letter or descriptive email along with it that tells me specifically why they want to work for PJ Networks and what their career goals are. We don't simply hire people because they're qualified for the job - we hire people because we see them as a potential member of the PJ Networks family for the next 5 to 10 years, or even longer. We didn't end up with so many long-term employees by accident, after all.

If you exaggerate on your resume what you're capable of doing, or what you know, then your new employer is almost certainly going to call you out on that. Expect to have one of their employees or even the interviewer themself ask you some probing questions to test your knowledge and the veracity of your statements. Often, those questions/tests fall along the line of describing to you a particular scenario that you might encounter and then asking how you would handle it.

You should be aware that there are a myriad of formats and templates that you can use for creating your resume. If you don't have much (or any) actual experience that can somehow relate back to the job that you are applying for, then use a resume format that focuses more on skills than it does on previous employment and work experience. Bring a few reference letters from people whom you've done "apprentice level" work for, such as fixing their laptops or setting up a wireless access point in their home.

We hired an engineer a few years back who supposedly had thirty years of experience as a Network Systems Engineer - as much as I have. Within their first week with PJ Networks, it was starting to become apparent that no matter how long he had been doing the type of work that we do, he simply wasn't very good at it. So, he was either lying on his resume, or he had spent the last three decades working away as a Network Engineer, but hadn't really learned a blessed thing.

Such a wasted opportunity, if the latter was the case. My father had a saying: “There is a difference between having twenty years of experience and having one year of experience twenty times over.”

I finally put that engineer to the test by sending him on a very straightforward task to install a network printer at a client site…and he failed miserably at it. That was when I realized that he wasn’t going to make it as a member of our team, and soon thereafter we had to let him go.

But at least we gave him a chance.

As a sign that we are able to learn from our own experiences, we’ve now become pretty good at presenting engineer candidates with better troubleshooting scenarios and tests to see how they respond. They aren’t difficult, but they don’t need to be. They’re just meant to be an opportunity for an engineer candidate to show that they know their @ss from a hole in the ground, that’s all. If they can prove that they do, and they have a good attitude, communicate well, speak with confidence, dress properly, and don’t display any concerning social characteristics (nonstop talking, aggressive behavior, cocky attitude, etc.), then they usually make it to the next step of the hiring process for PJ Networks.

Troubleshooting Example

You are diagnosing a laptop that boots up fine and runs normally for about a half hour, but then starts to slow down. Within an hour of booting up, it turns off with no error message. When you restart it, it only runs for a few minutes before shutting down, or fails even to boot up. How would you troubleshoot that? (*Hint: The most likely culprit is a failing exhaust fan or a CPU heatsink that is coming loose from the CPU. The laptop is overheating and then shutting down to prevent damage to the components.)*

Another test we like to present to an applicant is to have them explain in their own words why a certain technical recommendation is being made to a client, but to explain it as they would to someone who has no technical background or comprehension themself.

For example: “I am a retired accountant who knows nothing about computers. Explain to me why a solid state drive is better than a spinning SATA hard drive in non-technical terms.” The answer is pretty straightforward; if they stumble or stutter or find themselves at a loss for words, they may not be the best person to place in front of clients who are going to be asking questions like that. (And boy, do they love to ask questions!)

You would be surprised (or maybe you wouldn’t) at how many interviewees totally stumble and fumble through their answers to questions like that, because they obviously have no experience trying to explain technical things to somebody who doesn’t have the comprehension level that they do. Always try to explain things in simple terms and use easy-to-understand analogies.

Use Analogies

One of the easiest ways to communicate a technical concept to a client is to come up with an analogy that they can relate to, like this:

A spinning SATA drive is like a CD reader with discs that spin around and a head that reads data by moving across the surface to where the data is located. A solid state drive is like a thumb drive where the computer can instantly go to wherever the data resides with no moving parts. Therefore, solid state drives are faster than spinning hard drives and because they have no moving parts, they are less prone to mechanical failure.

Bingo! That’s the type of analogy that most people can understand, and client will probably be willing to take your recommendation to upgrade their SATA drive to an SSD.

Becoming a “People Person”

One of the biggest misconceptions about being an excellent Network Engineer is that your technical skills are the most important part of your job. That may be true within a large enterprise environment or when fulfilling government contracts as an independent agent, but if you are working for a company that provides IT support to small businesses, your

technical skills need to be balanced out equally with the ability to communicate comfortably and clearly with the people you are helping.

Please be aware that the job of a public-facing Network Systems Engineer is heavily oriented toward client interactions, particularly if you're supporting SMBs out in the field. In the corporate world, or in enterprise-class network environments, then those communication skills are probably less important. I wouldn't know for sure, because I've never worked in that kind of workplace, and to be honest, I have never really wanted to. I truly love helping small businesses to prosper and grow! I still do to this day, and I probably will until the day I die. It's just in my blood.

Sorry - what was I saying..?

Oh, yes: How to get your foot in the door somewhere - anywhere - to kick off your career as a Network Engineer.

That word "anywhere" is really important here.

Paying Your Dues

While I do not believe that anybody should have to work in a crappy job that they hate, being the low man on the totem pole anywhere is probably not going to be a whole lot of fun unless you get lucky and find a great employer early on. Try to keep in mind that during the first year that you're going to be working in this field, your main goal should be to get that necessary time under your belt that will allow you to move on to bigger and better things. A lot of the more mundane or repetitive tasks usually get handed down to the new person on the team so that the more senior engineers can focus on bigger things.

In other words, it may not be the greatest job in the world at first, even if you end up sticking with that employer in the long run.

On the other hand, you may get lucky like I did and land a job where not only is everyone around you helpful and encouraging, but you get treated with respect and appreciated for all of your hard work. That is the kind of company environment that I have tried to build at PJ Networks, and sure enough, four other engineers besides myself have been with the

company for over a decade. The newer ones all seem like they're going to be sticking around for a while, too - and that is a very rewarding feeling for me.

I absolutely don't recommend working anywhere that you feel you are being treated poorly or being asked to do anything that's disreputable or dishonest. But as long as you are getting some legitimate hands-on experience either with computers or with network devices and earning enough money to live off of, then you should try to suck it up for a full year before you move on and try to find better employment elsewhere. As an employer, I'm willing to consider 6 months' of experience at the same workplace as a bare minimum to count at all - two years is a much nicer thing to see on a resume.

Bouncing Around

Employers also do not like to hire a candidate who has spent the last 10 years job-hopping from one place to another; that doesn't project a sense of stability or loyalty. If we see a candidate who has had 10 different jobs in 10 years, then we immediately put them in the discard pile unless they include some explanation for that in their cover letter. If an employee is always jumping ship whenever they see that the grass is greener somewhere else, or they're too restless to stay in any one place for very long, then they're eventually going to get to the point that nobody even wants them, no matter how good they are.

I have seen that happen far too many times.

Besides, if that's their *modus operandi*, then the chances are pretty high that they'll end up doing the same thing to you if you hire them. Even worse, they may sow seeds of discontent among your existing employees and get them looking for greener grass, too.

Slow down, find yourself a job that is at least moderately enjoyable (and tolerable), and settle into it for a year or two. Remember – you've worked hard to get that opportunity, so don't waste it. Bide your time. Gain some experience, make some connections, improve your technical skills, and try to pick up a certification or two along the way. That is the key to

establishing a solid foundation for a career that will last a lifetime and bring you rewards that are satisfying in more ways than just financially.

You definitely want to be careful what you wish for. Learn to appreciate when you have a good thing going and try to stick with it for a while. Yes, it may take several years before your income level reaches the place where you can truly experience the quality of life that you want, but as long as the work environment is good, your employer treats you well, and you're not being constantly stressed out with unrealistic work requirements, then find a place where you like the people and you like the atmosphere and just stick it out for a few years to allow your experience to grow.

Always remember that your career is not a destination, it is a journey in and of itself. I know how corny that sounds, but it is the truth. You cannot have a truly happy ending to an unhappy journey.

For The Long Haul

Speaking of Journeys, this is probably a good time for me to remind everyone that this book is about confirming and pursuing a long-term career choice - potentially a lifelong one.

Even though I didn't start my career as a Network Systems Engineer until the age of thirty, I have never stopped doing it after that. I recently celebrated my 60th birthday, and I still enjoy working on business networks and solving problems for clients as much as I ever have...maybe even a little more. Now that I also have almost twenty years of experience as a business owner and have worked with hundreds of startup companies, I can also add a lot of extra value for the clients that are in the earlier stages of developing their businesses.

That's for the same reason that I am writing this book: I have seen what works and what doesn't, which gives me the ability to offer useful advice.

Back to my point.

It's fine to take whatever job you have to take if you have a family to feed and bills to pay. I have waited tables, painted houses, and done some telemarketing work in my time, but none of that was a reflection of any

kind of career choice I made; it was simply what I needed to do to pay the rent. If you choose this line of work as a career, you will find that the longer you do it, the more rewarding it becomes; not all jobs are like that.

Since I became a professional Network Systems Engineer, I have never had to take another part-time job or side gig in order to pay the bills. It took a few years for PJ Networks to take off, but once we broke that barrier of making more than we need to survive, things have been pretty sweet, and we have been able to share our success with all of the employees in the company in the way of bonuses, salaries, training, and personal time away from work.

Before You Begin Your Journey…Choose Wisely

Okay, so what if you really have zero experience with computers or business networking or business technology at all, but you're genuinely excited about the prospect of it, so you want to find out more. That's one of the main reasons for me writing this book, to help potential engineers have a better understanding of what will be required of them and hopefully help them to be successful at it.

Or…maybe you're already convinced that this is what you want to do, which probably means you should slow down a little, take a deep breath, and realize you need to know more than you already do in order to make that determination. You might be absolutely correct that this is the career and the journey that you were made for, and that would be most excellent.

You also might be wrong.

Do you really want to spend the next several years, or at least a few months, chasing after something that you're not even sure you'll enjoy doing or be good at? (Those two things tend to go hand in hand.) Why don't we do a few things first to make sure that this is, indeed, the right decision.

So, where do you get more information? (besides this book)

The first answer, and perhaps the most obvious one, is that there are an amazing number of resources on the Internet that will literally walk you

through anything and everything that I have ever done in my career, at least as far as technical work goes. I have always said that I can train just about anybody how to do anything that is technical in nature, as long as they have at least average intelligence and the desire to learn; no super-IQ or magical skills are required.

The technical part is the easy part. If you can watch videos that walk you through configuring a firewall and follow everything that they are showing you, that's a good sign. If you have a knack for figuring out problems quickly and coming up with a solution, that's another point in your favor. You don't need to be a genius, and it does not take some kind of mystical power to understand every aspect of what we do for a living as a Network Engineers - you just need the commitment to do so.

From setting up a new server to configuring a router, anything technical can be broken down into individual processes and steps and then documented - you don't have to have any Jedi Master skills (although they do help). If the documentation is well written, then just about anybody can read those instructions and understand how to do each step and hopefully understand the entire process as a whole. Even if you don't, just follow the steps, and like building a Lego model, you'll probably be quite happy with the end results, even if it looked impossible when you dumped out all of those pieces onto the table.

Follow the Instructions

There are very few processes or procedures that we follow when we manage and support client networks that have not been written into easy-to-understand checklists and procedural documentation. If those instructions are written well, then we should be able to hand that checklist even to a high school student with some moderate aptitude with computers and they will be able to perform the same work that a seasoned Network Engineer can do. They may not fully understand what they're doing or be able to troubleshoot any issues that they run into, but as long as they follow the checklist they should be able to complete the task successfully.

Now, we would never send someone that green and inexperienced out in the field, of course, but I might consider giving them a job on the repair

bench working with a more experienced computer technician. After all, you have to start somewhere.

Your first year or two on the job is going to present some challenges, so try to relax into it and enjoy the learning experience.

If you find that you do actually enjoy the troubleshooting processes, then I have good news for you: you are probably picking the right career. If you're the type of person who can fall down the rabbit hole for hours trying to solve a problem until you come up with a solution, and rather than getting frustrated and angry you find yourself excitedly trying one thing after another after another until you find a solution, then you likely have a wonderful future waiting ahead for you!

Don't Overlook People Skills

This is coming from the Department of Redundancy Department.

If there is one message I would like to impart to anyone who wants to succeed in this line of work, it is that **people skills are every bit as important as technical skills.** All the smarts in the World will not get you around that. If people generally don't like you, then please do not enter into a career field that requires that they do.

This one does.

Being a good Network Engineer requires an unusual blend of inspiration, perspiration, persistence, and sometimes desperation. If you can revel in those things, rather than resent them, then I think you're going to have a really good time in this line of work.

However, whether you're going to be a Field Engineer who goes out to support clients in person, or a Remote Support Engineer who assists clients remotely, you are absolutely going to need to be comfortable speaking with people and communicating clearly.

There is an entire chapter later on that addresses client management and provides tips and insights meant to help you with mastering those skills. If you're still deciding whether or not becoming a Network Engineer is the best career choice for you, then I encourage you to hold

off on making that decision until after you have read Chapter Six carefully. You might be the best technical engineer the world has ever seen, but if you lack the necessary people skills, not only will you struggle to succeed in the role of a client-facing Network Engineer, but you will probably not find the journey to be very enjoyable.

Now, let's roll into the excitement that starts happening when you finally get that first job as a professional Network Engineer!

In the next chapter, we'll talk about what you can expect to experience during your first year on the job.

CHAPTER FOUR: YOU GOT THE JOB! (NOW WHAT?)

Chapter Four

You Got The Job!

(Now What?)

Sometimes the unwrapping is the best part of the gift.

-PJ

You did it - that's awesome!

You knocked on doors, you sent your resume out to dozens of places with a really amazing cover letter, you went through handfuls of interviews in person and over the phone, you promised to work hard, to work long hours when needed, to put the effort into learning on your own the things that you haven't learned yet, and to prove that you can always be counted on when the going gets tough. In return, they gave you the chance to prove that you were worth bringing on board.

Now, for the next big challenge...

Keeping Your Job

You worked hard to start your career as a Network Engineer, so let's talk about helping you to keep it.

These are the kinds of things that can keep you from advancing quickly or even cost you your job:

- Poor project/task delivery
- Clients frequently question their invoices
- Unwillingness to admit fault or accept responsibility for mistakes
- Recurring follow-up work is required due to something that was overlooked or improperly done the first time around
- Your projects linger or are regularly delayed before completion
- Project or support tickets that remain open for extended periods of time without good reason and without any updates
- Legitimate client complaints of any nature concerning the engineer (you)
- Poor management of calendar/schedule (constant rescheduling of work, postponing of appointments, forgetting task requests, etc.)

Avoid those pitfalls, and you should be well on your way to becoming The Consummate Network Engineer.

Making Your First Year Count

Reminder: “There’s a difference between having twenty years of experience, and having one year of experience twenty times.”

Your first year is going to be the foundation upon which you build your entire career, so make every day count. Learn as much as you can without burning yourself out, and don’t rush through anything that you know you’re going to need to do well - which is everything you do. Don’t get stuck in a rut by shying away from new challenges or technology you haven’t learned yet, or you’ll end up limiting your potential and stunting your professional growth.

Now things are going to get exciting - if you embrace this opportunity fully.

You rolled up your sleeves, you did whatever you had to do to get that interview, and now you have gotten the job that you were hoping you would get. That may have been challenging, but now is not the time to relax and slow down. You’re going to need to be willing to work your tail off while keeping a smile on your face if you want to establish yourself as a successful engineer. Don’t take any job unless you are willing to commit to it for *one full year*, or you will not really have given it a fair chance.

In the first year, you want to figure out what challenges you’re facing and then determine if you’re capable of overcoming them, either through training, assistance from others, or through sheer determination. If you’re not good at talking to clients, then you’ll eventually need to address that - the sooner the better. If you get easily flustered and lose your patience, then that’s what you need to focus on. Do not kid yourself or ignore the things that you know you need to improve - face those challenges head on.

Now is when the rubber hits the road, when you show that you’re not just full of a bunch of hot air and empty promises.

Every single day moving forward you will have the opportunity to prove that you are capable of becoming the engineer that you hope to one day become, and only you can do that. You’re not going to find that destiny

by looking for ways to cut out of work early every day, or watching the clock waiting for it to strike five, or coming up with excuses for not pulling a weekend shift when others are volunteering, or by finding ways to avoid the difficult projects.

Trust me, it doesn't take long to establish a reputation for being a sandbagger, a cop out, the weakest link in the chain. Once you've been painted with that dark brush by your teammates, it will take a lot more work to reverse their opinion of you than to just earn a good reputation from the start and then hold on to it.

Get Those Brownie Points

Even though you won't have a fully rounded skill set in the beginning, there are still things that you can do to boost your forward motion while you gain the respect and appreciation of your team.

One of them is what we call "volunteerism" at PJ Networks.

If you're a Field Engineer, then whenever the remote support team receives a call that is going to require someone to go onsite, you can be the first one to volunteer, depending on the nature of the support call. It is not uncommon for a client to call in at the very beginning of their business day to report that their network is offline, either completely, meaning that nobody can connect to the server or to the Internet, or partially, meaning that specific systems are not working while other ones are.

In many cases, those kinds of outages are a result of something very basic, such as a battery backup going bad, or an Internet outage for the ISP. If your help desk team knows their stuff, then they will investigate to determine what the cause of the outage might be, such as calling the ISP to see if they have any reported outages in the area and have them check modem connectivity. If the client is willing, then they can also walk the client through some basic eyes-on troubleshooting to see if anything is turned off or simply needs a reboot - firewalls are often the culprit in the case of Internet outages, and power cycling them will often bring them back online.

However, if none of that yields a resolution, then they will send out a broadcast message asking for someone to go out to the client site ASAP.

This is your chance to put on your Superman cape and be the hero!

If the problem is undefined and you're still green at your job, then you can still do due diligence and perform a basic investigation when you get onsite. If nothing else, you can "mill about smartly" (more on that in Chapter Six) while a more experienced engineer makes their way to the client site. You just need to look like you know what you're doing and be able to tell the senior engineer what you have discovered when they arrive on the scene.

What the client will remember is how quickly someone showed up, so if you can be the first boots on the ground, then please do so.

FREE Brownie Points

In many cases, after you've volunteered to go to a client site to respond to an emergency call, the problem will get resolved and the request will be canceled. That means that you still get the brownie points for volunteering, but you didn't even have to really do anything to win them, other than volunteering to go.

Double plus good!

So, if you're looking for an easy way to help boost your upward mobility as an engineer, learn to volunteer for emergency calls quickly and often.

Learn When To Say "When"

It usually takes a few months of consistent and solid performance before people really start to take you seriously and recognize you as being a genuine asset to the team.

If they know that every time they hand you a task you will accomplish it successfully and cheerfully, and document everything properly, then it really shouldn't take that long before more tasks start being put on your plate. That's one thing I've noticed after working with well over a thousand small businesses over the last three decades: the employees

at any company who show themselves to be the most capable and confident will always get the lion's share of the work handed to them, regardless of what the company does as a business.

That can be both a good thing and a bad thing, but I think that it's mostly a good thing. However, if you're going to be that person that everybody learns to count on, you will also have to learn pretty quickly how to throw up your hand and say "stop" when you're getting overwhelmed with too many requests. Once the tasks start to flow in your direction, they tend to just keep on coming until you speak up. There is some Truth to the saying, "When you want something done, give it to a busy person."

You can do it nicely and graciously, but if you don't know how to let everyone know when you have too much on your plate and that you're becoming overwhelmed, then you're setting yourself up in a house of cards that's going to collapse on itself (and you) eventually from the sheer workload.

Even if you're determined to work 20 hours a day to keep up with the demand, that doesn't matter - they're going to give you 22 hours' worth of work unless you say stop - so learn how to say that while you're still young. Just try not to say it too soon; wait until you are genuinely being given more work than you can possibly handle before you throw up the white flag.

You'll need to learn how to say that at some point, but not until it is painfully obvious to everyone around you that they have been piling too much work on you; *help them to see* that they need to cut you a little slack. When you're handed another task, let them know that it may be a while before you can get to it because you have six other requests in the queue in front of them. If they hand you something on a Friday afternoon, tell them that you'll try to take care of it over the weekend. (Most coworkers will feel guilty if you say that)

This will accomplish two things for you: first, it will establish that you are a person who is comfortable speaking up when you've got too much on your plate, and it will also demonstrate to everyone where your breaking point lies so that in the future, if you start to reach that limit again, they will be able to recognize it and level things off before you reach the point

of being overwhelmed. Things may not always work out that way, but one can always hope. Rinse and repeat the above, and you are well on your way to becoming a successful Network Systems Engineer.

Within your first year as an engineer, if you show yourself to be confident and competent, you should find that you are being handed projects that require an increasing amount of patience, skill, and expertise in both client and project management; that's exactly what you want to have happen. The trick here is that you have to consistently complete each one of those projects or tasks while meeting or exceeding everyone's expectations. It shouldn't take more than 6 months before everybody starts to realize that you're the one who always gets things done, who never drops the baton, who never comes up with lame excuses or points fingers, who never stops climbing back into the ring for another round until the fight is over.

At that point, you are starting to earn everybody's respect.

Learn How To Ask For Help

Try to remember that your employment is a reciprocal relationship.

While it's great to have other people's respect and admiration, you have to be willing to return that honor in kind; make sure that you show them that they have your respect, that you have faith in them, that you appreciate their experience and their knowledge, and don't be afraid to go to them from time to time to ask questions or to seek some additional training. It has been proven in sociological experiments that asking somebody else for a favor is actually a way to get *them* to like *you* more, which seems like the opposite of what should happen.

Take advantage of that, and without abusing the system make sure that you regularly (or at least occasionally) turn to others on your team, especially those that are in positions above yours, and ask them for help, advice, and recommendations; doing so is a sign that you respect them and their expertise. They will appreciate you and respect you more for that, and before too long you should start noticing that they are easier to communicate with and that they will start coming to you if they need assistance.

That's how you will know you are actually getting some traction and moving upwards in your quest to become a Consummate Engineer: your teammates will start coming to you when they need a hand with something, not just when they have a task to delegate.

Just don't overdo it. Try not to reach out for assistance until you have searched for an answer on the Internet and looked through any other available company resources before you make that call. If you call someone for help every time you encounter a problem that you haven't dealt with before, then before too long you may get branded as someone who cannot think for themselves.

Pick a Specialty

One thing you should try to do in that first year is identify a particular niche that you enjoy and that you're good at and then work on becoming recognized as being an expert in that one thing. It could be anything from wireless networking to cybersecurity to Active Directory infrastructure, or configuring InTune policies in Microsoft Azure - anything that you find yourself having to do as part of your current employment that clearly brings value to the organization. Find that one thing that you enjoy doing the most and become the Master of it.

What else do you need to do to keep advancing during your first year as a Network Engineer?

Mastering the Technology

Well, the most obvious thing would be to continue to improve your overall technical skills. While you can easily find the answers to technical problems on the Internet and the procedures for doing just about anything if you know how to search the web, you still need to be able to learn and remember all of the basic skills of a Network Engineer.

There are going to be thousands and thousands of individual tasks, processes, and procedures that you need to learn - don't let that be daunting to you. Those processes will fall under a variety of categories, such as Active Directory, network infrastructure, wireless networking, network security, routing and firewalls, network protocols, and a dozen

or two more categories that encompass all of those thousands of different individual processes that you will eventually master.

Relax and have Faith that all of this will come to you over time. If you try to look at them all at one time, it might seem overwhelmingly daunting, but if taken one at a time you will be just fine - trust me on that. You can do this if you commit to it and have determination.

You will learn by doing those things day after day, week after week, month after month. When you are a junior engineer those tasks may be a little different, but they will generally be the same. Slowly, you will notice that they increase in complexity, but you may end up doing the same processes over 100 times before you step up and start moving onto the next level.

Don't worry - things will continue to evolve as you become ready for them to happen. Patience is your kind and gentle friend, and positive expectations make the evolution more enjoyable along the way.

A Square Peg in a Round Hole

If you found your way into employment by a reputable IT support company, but after a few months you still feel that you're just not fitting in with them, then maybe there's a reason for that. Maybe you're trying to make yourself fit in where you're never going to.

I'm not talking about Imposter Syndrome, where you feel like you're faking being a competent Network Engineer when you're not really qualified to do the job, but more of a cultural mismatch with a team that you're supposed to work with in harmony.

That could mean that you're LBTGQ and the rest of the company you work for are all MAGA enthusiasts, or you're a steadfast atheist and everybody else on your team are devout Christians. Those could obviously be legitimate reasons for feeling out of place. However, there are other less obvious reasons why you might not fit in and you may have no clue as to what they may be.

What I'm talking about is a company that you've worked at for a few months and you can't shake the feeling that somehow you're never going

to really fit in, no matter how hard you try. Please keep in mind that you can't really make that determination until you've been there long enough to have gotten to know everybody at least a little bit, so don't make that judgment too early. It could simply be that one of the key employees there took an early disliking to you; if that's the case, then you need to find out who that is and try to fix the problem.

However, once you've been there for three or four months and you still don't feel like you're going to ever fit in, then it's probably time to hit the eject button and go find somewhere else to work where you're going to feel more in harmony with the organization and the things that they do. I know that I've mentioned several times that you should try to stick it out wherever you end up for at least one full year and that hitting the eject button is going to set you back to square one, but if you feel in your heart that you're just are never going to be accepted as a fully integrated part of the team that you're supposed to work with, then it's better to make that determination earlier rather than later.

Please make that decision carefully. If you've come to the conclusion that things aren't going to work out for you there, then try to have a conversation with the owner or a lead engineer to let them know your concerns and see if there is something they can offer that might help to turn things around. After all, if you're planning on leaving anyway (you don't have to tell them that part) then you really don't have much to lose at that point.

On the other hand, while it may be a waste of time to jump from employer to employer, it would be an even greater waste of your time to stick it out with a company that you know you can't even survive the first full year with before you decide to bail. So, if you're going to make that decision, please make it sooner rather than later and get on with your life and your career.

If you have to leave, then move on with no regrets and don't look over your shoulder. Just take the pieces of wisdom and knowledge that you gained from being with that company for a brief period of time and use them to your advantage when you gain your next opportunity to become a Network Engineer at a place where you feel that you can settle into for a while.

Network Deployments

Network installation projects are a fantastic way to get hands-on experience through lots of repetition.

When I was first starting out at CompuVision and I didn't really know how to set up business networks or install servers (or anything else, for that matter), I would volunteer every single time we had a new network deployment project to be the guy who would install and configure all of the workstations on the network. All of them. Each computer needed to be set up to talk to the server and to the rest of the network, and back then you couldn't just configure Group Policies to handle all of the changes that come with deploying a new server; a lot of that work had to be done manually.

I would walk into the client site with another engineer (or team of engineers) and while they were setting up the new server, migrating all of the data from the old server, and getting everything connected to the network, I would go around to the 10 or 20 or 30 workstations with a hand-printed checklist, one for each workstation, and work my way through that checklist of 12 to 15 items from beginning to end. Then I would initial it, tape it to the side of the monitor, and move onto the next one.

Throughout this process, I would pop into the server room after every three or four workstations were set up and ask the lead engineer to explain a little bit of what they were doing - little snippets. I wouldn't stand there for more than a few minutes because I didn't want to slow them down and I didn't want them to feel like I wasn't doing my fair share of work, but by doing this process repeatedly over the course of a dozen or so network installation projects, I started to become very comfortable and familiar not only with the workstation configuration process, but also with what they were doing on the server side of things.

Before I had completed my first year with CompuVision, I was confidently building, configuring, and deploying my own servers and workstations, unless a project was big enough to warrant bringing another engineer along with me for the deployment. In most cases, that was not necessary - I could handle all of the work by myself.

In fact, to this day almost thirty years later, it is still very common for an accomplished engineer to go out to deploy an entire network by themselves, as long as they're comfortable with putting that much time in over the course of a weekend. The ability to roll out Group Policies to handle most of the most basic tasks, like mapping printers and network drives, certainly makes that a lot easier now than it was back then.

"When I was a young engineer, I had to walk to work in the pouring rain uphill both ways."

Obviously I'm just kidding, but there was a lot more manual configuration required back when I was first starting out. Fortunately, things have become much easier over the decades due to automation and third-party tools that make processes like server deployments or client onboardings go much more quickly and easily, and therefore less manpower (or womanpower) is needed.

While at most companies there are always additional engineers available to help with server projects, there's a bit of a "lone wolf" mentality that most Network Systems Engineers embody – and I get it. I did that, too, for many years. There is certainly a sense of accomplishment you get when you walk into a client site on a Friday afternoon to install a new server, work throughout the course of the weekend, and on Monday morning when all of the employees come back into work you are standing there waiting for them to sit down and test everything out for you.

If you wrangled all of that work on your own, then that's a really nice feeling, but I still advocate taking at least one other engineer along on larger projects just in case things get bogged down in the process.

Work Smarter, Not Harder

By the way, that's another thing that I learned pretty early on in my career: If you're putting in a new network, it is not really practical to try to sit down at every single computer to open every application and print to every single printer that the user sitting there would normally be using. Instead, you want to sit down at one main computer on the network, like the owner's or one of the manager's, and test everything out thoroughly

to make sure that everything works as expected. That tells you that the network backbone is functional, that the server is accessible, and that the primary applications are in good working order from a network standpoint.

On the rest of the workstations, you only need to make sure that the computer has a good network connection, that it has access to the Internet and all of the network resources, and that the primary business application(s) for that client are working properly. However, it would be impractical to test out every program that is installed on them. For example, opening a PDF using Adobe Reader on every single computer is not something that I would recommend – if it works on one main computer, then you can expect it to work on the rest of them.

Then, you come back on Monday morning and let the employees sit down and test everything else out for you thoroughly. Ask *them* to open all of their programs, verify that they can access all of their important data files, have them test printing to their primary assigned printer, and just give their computers a thorough shakedown. Let them know that you will be there for a few hours to address any problems that they encounter. Those employees will then identify anything and everything that is broken or not working properly pretty quickly, and you can simply resolve those issues one by one as they are brought to your attention.

Using this methodology, the client feels that they are well taken care of and that you know what you're doing. Before lunchtime rolls around, all of the issues should be resolved and the project will pretty much be complete. However, *you must let the client know in advance* that there will be a few wrinkles to iron out on Monday morning when everyone comes into work after the server deployment. (more on that later)

Learn From The Masters

I think I might have mentioned this earlier, but a smart man learns from his own mistakes, while a wise man learns from the mistakes of everyone around him. (A fool rarely learns anything at all, so please try not to be one.) Anywhere you go to work as a Network Systems Engineer, there should be people around you who have years, if not decades, of

experience, and you should be able to tell the ones who are good at what they do from the ones who are merely getting by.

Identify the Masters in the environment you're in, make friends with them, and then learn from them.

If for some reason they don't want to be friends with you, then learn from them anyway from a distance - watch what they do and how they do it. Listen to what they say and how they say it. Learn from everything they say and everything they do and try to emulate them in every way you can; there is a bit of "fake it until you can make it" for the first few months. If you can walk like The Fonz and talk like the Fonz, then people might eventually start to think you're the Fonz. (my apologies to the youngsters out there for that throwback reference to *Happy Days* that they may not recognize)

You shouldn't have any trouble figuring out which of the other engineers around you are the good ones: their clients will like them, the owner of the company and/or managers that you work for will usually like them, they will be confident and clear about what they do. They will rarely second guess themselves, and if they're not 100% certain about what they need to do they will not hesitate to look it up on the Internet and they won't be embarrassed about doing so.

Confidence and competence: remember that those two things go hand in hand.

If the best engineer on your team turns out to be a raging egotistical @sshole, try to learn from them anyway, knowing that one day you may not only be as good of an engineer as they are, but that you will be a nicer person and your clients will like you better. You can also try to figure out the things about them that make them come across as being so unlikeable and make a note not to be like them in those ways.

Please resist the urge to try and change them or to constantly complain about them, though – remember that they can likely get you fired if you rub them the wrong way.

Anyway, you still have to (ought to) stay humble, no matter how many years you do what you do or how good you get at it. If you're not humble,

and you start to think that you know everything, then you won't be capable of learning anything from anybody else - and then you're at a dead end.

Okay, maybe that's a little bit of an exaggeration, but hopefully you get the point.

If you retain a little humility, then not only will other people like you better, but you will also be more open-minded to learning from others. There's always going to be someone who knows more than you, who's smarter than you, who's better than you at something - you should thank God every day for that. That is how you're going to learn to be better than you are now, and if you do it long enough, then one day you're going to turn around and see that there are people behind you who are following in your footsteps.

It's kind of like the Circle of Life in the career cycle of Network Engineers.

Self Assessment

If you want to become the best Network Systems Engineer that you can possibly be, then you're going to have to figure out some way to evaluate yourself effectively; you need to know what your strengths are and be able to recognize what your shortcomings are. Some people are fortunate enough to be able to look at themselves honestly and objectively and make that determination. Others will need to rely on those around them to give them honest feedback - the key word here is *honest*.

You don't want others to only tell you how wonderful you are and how incredibly smart you are and how truly amazing you are – you already know that! (just kidding)

You will need some constructive criticism if you wish to grow. What you want are people who will give you a cold hard analysis of where you need to improve and not be afraid to tell you. That is a service that your managers and employers should be willing to do for you, but if not, then try to find a fellow engineer who can be brutally honest with you and turn to them for their feedback.

You may need to improve your technical skills, or it may be that your people skills are lacking in some way. It doesn't matter how good you are with the technology; if you're really bad with people, then unless you want to be sitting in a dark room typing away at a keyboard all day (or night) long, you're going to have to learn how to get good at communicating with people, and hopefully even learn how to enjoy doing it. If you don't, then now would be the time to reconsider your career choice and perhaps pick something more along the lines of a software engineer or a computer programmer. Remote Support Engineers also have to be good at communicating, as well, but at least the client isn't standing right in front of you staring you in the eyes when you talk to them.

Within your first year of being a Network Engineer, you should definitely be able to tell if you have the core skill set and aptitude to do the job well. It's not impossible to muddle your way through an entire career while being mediocre at it, but most people have bigger ambitions than that and would prefer to be working at something they know that they can excel at. If you enjoy the work of a Network Engineer and you're determined to improve wherever you need to improve, then you should easily be able to rise above mediocrity.

That choice is going to be up to you.

Rating Yourself on the Core Attributes

There are four main categories that you should periodically score yourself on a 10-point scale, and I also recommend having either a fellow engineer or a manager score you on them, as well.

They are:

- **Technical skills:** How knowledgeable and competent are you in using all of the technology that your employer utilizes in supporting their clients?
- **Task and Project Completion:** How good are you at successfully completing tasks and projects that are assigned to you? Do you follow company guidelines and

checklists fully and accurately? Do you document all of your work and then close out your tickets in a timely manner?

- **Client Management:** How well do your clients like and appreciate you? Are you able to get your clients to follow your recommendations, agree to things that may involve additional expenses (like battery backups for all computers), and generally go along with your company's best practices?
- **Overall Attitude:** Are you pleasant to be around? Do you exude optimism and enthusiasm around your clients and coworkers? Do you have a confident demeanor without seeming cocky or demeaning to others? Do you truly enjoy going to work each day and advancing your career?

Give yourself an honest rating from 1 to 10 in each of those four categories, and then return to that list every 6 months or so to rate yourself. In the first three you should show steady improvement over time, but on the fourth one - Overall Attitude - you can hit a perfect 10 from Day One if you are truly enthusiastic about being a Network Systems Engineer. You can do that now if you decide to.

I have certainly worked with more than a few dozen lackluster engineers during my career, and some of them were even paid quite well. If you want to be that kind of engineer, then I suggest that you go and work for a large corporation or a university, where you can start at the bottom and by just surviving, over time your tenure will get you regular pay raises and occasional promotions as other staff members retire from their positions.

That absolutely *does not mean* that a Network Engineer can't be exceptional working at those kinds of organizations - just that their excellence may not be rewarded and those who are lacking it may escape notice, as well. In the career of supporting SMBs your clients will be your primary gauge as to how well you are succeeding at your career, but in larger environments your accomplishments as well as your shortcomings may escape notice.

Over the course of twenty or thirty years, you could easily be making well over $100,000 per year (in 2024 dollars) just surviving in that kind of work force and still not really know your butt from a hole in the ground.

Alternatively, you could be a phenomenal Network Engineer in a large corporation but never receive true recognition for it.

Like many occupations, there are those engineers who are only in this line of work for the income, and not for the satisfaction of achieving true excellence. Fortunately, if you have some real talent and sincere ambition, you can not only make some really good money, but you can also enjoy every step of the journey along the way.

I'm going to assume you're not the kind of a person who is only in it for the money or you probably wouldn't be reading this book, so let us move right along...

The Squeaky Wheel Gets... Replaced

There is an age-old saying that the squeaky wheel gets the grease, and perhaps that is true to some degree.

In general, the clients of PJ Networks are pleasant and understanding and appreciative of the work we do, so when we hear a client start grumbling or complaining it always gets my attention. Now, I don't just mean a client who is reporting a computer problem, like their computer running slowly; I mean a client actually making noises as if they don't think that we are giving them the quality of work that they deserve in a timely fashion.

That will always get my attention.

Whenever those types of messages make it to my Inbox, I take that as a sign that the client isn't getting what they feel they need from their engineer or from our help desk team and they're asking me to lean in on the situation a bit, so I do. Please bear in mind that I believe we have the most fantastic team of Network Engineers working in a small company like ours that I have ever had the honor of knowing. I'm not just saying that to toot our own horn - I really mean it. If that weren't true, then you can be damn sure that I would be taking a good hard look at any other companies that are outperforming us and try to figure out what it is that they are doing right that we're not doing, or that we're doing wrong.

But that is not a challenge that we are currently facing.

I would put PJ Networks up against any other Managed Service Provider in the country when it comes to client satisfaction and loyalty, and successful project completion. Our clients rarely have to wait more than a few minutes at most to get a call back when they leave a message with an urgent issue, and that's assuming that they didn't get directly through to somebody on the first try. We have a handful of people on our help desk team, and if they're all on the phone at the same time, then a client will go to voicemail. The minute that an engineer frees up from the phone they make sure that any client who left a message gets a swift call back.

Legitimate Complaints Can Be Helpful

But even with all that, we will occasionally get grumblings and complaints, and to be honest, some of them are justified; after all - nobody's perfect. You know that your clients really like you when they hesitate to even want to bring up a problem, but they feel they have a good enough relationship to speak up.

Sometimes a client will have a legitimate yet relatively minor issue that they've asked for assistance with, and for whatever reason either the ticket never got created, or the engineer in charge of that client was never informed by the help desk that the client was waiting for something. Sometimes the engineer knew that their client needed something from us, but they just weren't very diligent about letting the client know that they were still on our radar screen.

Whatever the situation, we do occasionally make mistakes, so when I hear a squeaky wheel it always catches my attention. (and my Spidey-sense usually goes off, as well)

After we have thrown everything we have at the problem (if it's a major one, which is rare), or focusing a single engineer on the client to get their problem taken care of, we always get the job done. That means that if a client is grumbling more than once in a blue moon, it either means that they are becoming dissatisfied with our service on the whole, which

takes this to a whole new level that I'm not going to get into right now, or it means that their primary engineer has not been giving them enough TLC.

Or maybe the client just hasn't heard from me in a long time and wanted to make sure that I still love them. (Of course I do!)

If a client does get to the point to where they generally just don't seem happy with the quality of our work, or they are grumbling a lot but we're not seeing anything they should be grumbling about, or they basically stop feeling any appreciation for the work that we're doing, then it's time for me to have a one-on-one talk with that client and figure out what's really going on. I used to dread those conversations, but then one day I realized that no matter what the outcome is, everything is going to be better because of that meeting.

Either I'm going to get through to the client and make them understand that if they're actually happy with our work they should let us know that, or the client will stubbornly insist that they have every right to be upset, even though I don't understand what they're not happy with. In that case I let them know that no matter what contract length or arrangement they have with us we will gladly and happily let them go their way with all of their network information in a secure file that we will give to them, and that we will pull our remote support software away and leave everything in perfect working order. If there happen to be any computers or equipment on the network that still need a little tweaking, we will always take care of that before parting ways with the client. We want that parting to be amicable.

So, you see, sometimes the squeaky wheel doesn't just get the grease, it needs to get replaced.

And that's okay. If the client has to go away then we sincerely wish them the best, and then my team will no longer be trying to please a client who can no longer be pleased, which is not a happy situation to be stuck in.

That's a win.

On the other hand, I very often am able to get through to the client and re-establish a good connection that I probably had with that client at some point in the past. Then we can discuss what their expectations are, and agree on what we are capable of doing as their IT support team, and then everybody is happy again. The client knows that if they're going to continually grumble, then I'm eventually going to show up to have a meeting with them, and they can either choose to start liking us again or they can choose to hit the road.

I hate to sound cold about it, but that's really what it comes down to. I love making a client happy, but if there is truly no way to accomplish that, then I don't want my team beating themselves up over a situation that can't be fixed. I hope that you never end up working for an employer who refuses to fire a client under any circumstances, because I'll bet you a dollar you that they have a few unhappy engineers and some grumpy clients.

So, what does all of this have to do with you, the employee of an IT support company, who probably has little to no control over which clients get fired?

A lot.

If you're dealing with a client or clients that are unpleasant or abusive and you (likely) don't have the authority to let them go, then you need to speak with your employer about the situation. If you are a good engineer and a valuable employee, simply hinting that clients like that might eventually drive you away to work somewhere else might be enough to motivate your employer to do something about the situation.

More importantly, *the squeaky wheel gets replaced* also applies to you, as a Network Engineer being employed by a company that probably just wants peace, prosperity and harmony within their organization. I am advising you now as the owner and CEO of a prosperous IT Support company to do everything you can not to be the squeaky wheel that needs to be replaced within your company. If you are constantly grumbling about how little you're being paid, or "how hard they make you

work," or any other grievances that you may have, those grumblings will eventually make their way to the owners and managers of the company.

Be proactive and go to them with your grumblings so that they can be addressed and hopefully resolved; please resist the urge to be stirring up discontent and disgruntlement among your fellow engineers. If any engineer on our team cannot stop grumbling, complaining, and cussing under their breath, or asking for raises constantly, or wanting special treatment, then I will do everything within reason to make that engineer happy as a part of our team.

But when I see that that clearly is not impossible, then I take a deep breath and make the decision to let them go; there are always multiple warnings that come before that happens, though, starting with some gentle hints and progressing to outright ultimatums. Letting them go is the decision that's going to do the most good for that engineer in the long run (assuming they will learn from the experience), and for PJ Networks as a company, because nobody wants to work around an unpleasant person. Clients darn sure don't want them working on their computers and networks.

The simple lesson to be learned here: *Don't be the squeaky wheel that needs to be replaced*. If there is something bothering you, figure out a way to have a productive conversation with someone about it and make it better, or figure out a way to improve your attitude and start focusing on the things that you do appreciate and enjoy.

Three Out Of Four Ain't Good

That about wraps up my advice for keeping your job through the end of the first year, but there is one more thing that I should make you aware of.

Always be cognizant of the fact that **75% of newly hired Network Engineers at most IT support companies do not work out in the long run**. They are usually gone by the end of the first year, no later than the second, either because they really were a bad fit for the employer or vice-versa. That number has held up for the entire thirty years that I've been

an engineer, and my first IT employer, John Hunt, told me that when we were going through Network Engineers like a marathon runner chugging down bottles of water at the halfway mark station.

Sometimes, an experienced engineer will join our team who seems to have all of the necessary technical experience and skills. Before they have even been with us for a full month, they are already making recommendations for how we could be doing things better and they start becoming resistant to the established ways that we operate by. They don't even take the time or make the effort to truly learn and understand why we do things the way that we do them - they just want us to start changing things that have been working quite well for us in order to not have to change the way that they're used to operating.

That never bodes well, especially with the members of our team that have been with us for a decade or longer. There is no process, procedure, or protocol that we currently follow that was not refined through many iterations of trial-and-error exercises in order to determine what the best practices and processes would be for PJ Networks.

There have been other times when we've hired someone who appears to be a perfect fit for the PJ Networks Family, only to find out fairly quickly that they have unresolved personal issues that start to spill over into their personal and work lives. There are those who start working with us who end up having some very questionable items that show up on their background checks shortly after they show up for their first day of work - those screening reports don't always come back as quickly as we would like. We quickly deal with those kinds of situations, of course.

Why else do engineers flare out and end up not making the cut?

Well, there have been those who talk a mean game and can even answer technical questions correctly, but when you actually sit them down in front of a router or a managed switch, they act like they've never seen one before. You feel sorry for them as they flail away trying to log in and configure them, but we've learned that if you give them too many hints, they can end up fumbling their way through a technical review with your assistance, but when you have to send them to a client site to resolve a

complex issue or simply set up a new piece of equipment, they fail miserably.

What else?

Passive aggressive tendencies, unreliable transportation, inability to ever show up to work before 10AM, Monday Morning sickness (every week), lack of people skills, issues with authority figures...the list goes on and on.

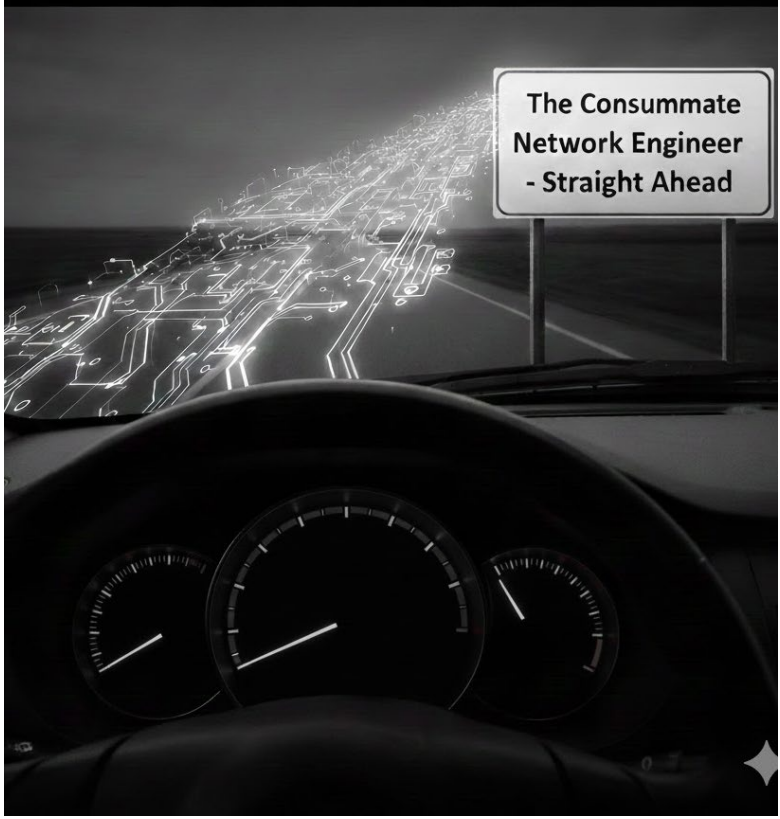
Anyway...

Hire four engineers, keep one, feel lucky about the one that worked out. If he or she is particularly gifted and sociable, then you've got a one-in–ten winner. If they are on the path to becoming a Consummate Engineer, like you will be, then they hit the jackpot when they hired you!

Let's skip forward to the end of your first successful year.

CHAPTER FIVE

Your One Year Anniversary



Chapter Five

Your One Year Anniversary

There is a difference between having 20 years of experience and having one year of experience 20 times over.

-PJ

Congratulations!

You made it through your first year as a Network Engineer.

For the sake of continuing our book, we're going to assume that at this point you have either found gainful employment as a Network Systems Engineer somewhere and survived a full year there, or you have worked at multiple companies (hopefully no more than two), but still have accumulated a year's worth of solid experience. It's harder to do that if you're shifting through employers, because every time you make that transition you lose some momentum, but even so, your dedication and persistence should ultimately make up for that.

Or, if you are wisely reading this book before you even begin your career in Information Technology, then you're on the right path to completing your first full year at the same job...with a little added advantage: thirty years of shared experience in your back pocket.

If that's the case, then your first year along that timeline is still in your future - and you have a lot to look forward to.

What that means is that you're getting the benefit of all of this information (and perhaps a little bit of wisdom) from my thirty years of experience before your feet ever hit the official starting line. That might just turn out to be a major advantage for you, as opposed to having to slug your way through years of trial and error in order to glean precious nuggets of Wisdom like many of us had to do when we were first starting out.

Imagine that "the you who you are now" could go back in time and give advice to yourself at the age of 15 about relationships and Life, based on what you have learned the hard way since then. That would be quite a game changer, don't you think? Sure, that may take half of the fun out of figuring out dating and holding hands and kissing and all the other wonderful things that go along with relationships, but it sure would help you to avoid making a few really stupid mistakes, wouldn't it?

Personally, I am a strong believer in figuring out those kinds of personal things the old fashioned way, on my own, but I think this is a bit different. We're talking about career choices and decisions that will impact the

trajectory of your journey for a long time to come - for the rest of your life, actually.

We're not talking about wanting anyone to miss out on the wonder of Life's mysteries, though - we're talking about helping you to speed up your career path and shorten the amount of time it takes to begin experiencing success as a Network Engineer. Everything that I'm sharing in this book came from learning things the hard way, from making mistakes and suffering the consequences, and from making mental notes to not make the same mistakes again. I do believe that there are some experiences that I have had working with over a thousand small businesses that I never could have gotten from reading a book.

But maybe this one will help others to avoid making the same mistakes that I have made.

Since there is no such thing as a state of Perfection, you shouldn't hold your breath until you achieve it - but you should absolutely be trying to do everything you can to improve your chances of becoming the most excellent and outstanding engineer that you can possibly be. I hope that this book can be an accelerator and tool along your path to success, and you have the freedom to decide how much of my advice is going to potentially benefit you, and how much of it you want to just ignore.

You do what works for you - I promise not to be offended if you don't take every piece of my advice as Sacred Truth. In the end, I'm just trying to share as much of my accumulated knowledge as possible with those who might benefit from it. I'm not even necessarily any more talented than any of you who might be reading this book; I just probably have a few more decades of experience, that's all.

As I sit here working on this particular chapter, in the background I can see Bob Ross doing his beautiful oil paintings on YouTube; I currently have the channel on mute. At the moment, he's showing us how to paint magnificent clouds - one of his many painting skills that I've always admired. The entire concept of the Bob Ross painting show was that he had years of experience with painting that he wanted to share with the general public so that others could enjoy their own adventures with painting on canvas.

I will confess that I have started doing my own Bob Ross style paintings, but in acrylic instead of oil (oil is a royal pain in the butt to clean up afterwards). Because I have chosen to paint in acrylic instead of with oil paint, I have had to make certain adjustments and adaptations in order to achieve the desired effects, but the basic principles are all still the same. One of the big challenges is that oil paint can stay wet for hours and give you lots of working time, while acrylic paint tends to dry within an hour or two of being applied to the canvas.

Because of that, I've had to come up with my own unique ways of extending the drying time of the paint, such as utilizing drying time extenders and combinations of paint additives in order to give me the dry time that I need in order to achieve the type of painting that Bob Ross is doing, which is called "wet on wet." The bottom line is that I don't really think Bob Ross would care whether I'm painting with acrylic or painting with oil, or even what the end result looks like. All he would really care about is that I am enjoying myself during the painting process and feeling a sense of accomplishment when the painting is complete. (Which I certainly do!)

That is the same type of thing that I'm trying to accomplish with this book.

If there are people out there who are trying to become the best engineers they can possibly be, and sharing my many years of experience helps them with that process and potentially even makes it more enjoyable, then this effort is completely worthwhile. I'm not doing this just to make a buck, because I have serious doubts that I'll make any money at all from this book. If it generates enough sales to pay for the cost of publishing and printing it, I'll be satisfied just to break even.

I am writing this book for the same reasons that I attempt to create a "Bob Ross" painting: for the sheer enjoyment of it. When I give away my paintings as birthday presents to my friends and it makes them happy, it makes me happy, too. If anybody reading this book gains any valuable insights from it, or simply enjoys reading my thoughts on this topic, then it was worth the months that I've spent working on it.

I like sharing my knowledge, I like helping people in general, and every single person that I help to become a better engineer is going to go out

and help small businesses to prosper and grow, which has been a career-long goal of mine. So, if you're out there following a career path that is going to allow you to help dozens or even hundreds of businesses to prosper and grow as a result of the solutions that you're going to bring to them, then I want to personally thank you right here and now.

It makes me feel good to think that perhaps other people will be carrying on the same ambitions and traditions that I personally began following almost thirty years ago. I think that it would make Bob Ross happy, too, wherever he may be watching from.

From Zero to 60

All right - so far, so good.

You've gone from being somebody who thought they might like to become a Network Systems Engineer to somebody who has actually become one, and you have worked for one full year at this profession, hopefully with the same company. Maybe you had to work at two or three different places because your first choice was either intolerable or you weren't quite good enough for them to want to keep you - but you're not giving up! If they didn't have the patience to allow you to train up to the level they needed you at, then that's their loss.

Either way, Life goes on. Keep moving forward. Try to enjoy the journey.

Many of the engineers at my company literally started with zero practical real-world experience doing what they now do. It turns out that some of those engineers have now been doing it for a decade or longer and they're about the most loyal and hard-working employees that you could ever hope for. So, if you think that you're a really good engineer and an employer didn't give you a chance to establish that with them, then that's too bad for them. You will find that "work family" you're looking for if you keep on seeking and expecting and never lose Faith.

Shake the dust off your sandals and don't look back at the bad ones after you leave them. They served their purpose in one way or another and carried you a little bit farther along on your Journey.

On the other hand, if you've been trying your very hardest and just cannot seem to find a company that will keep you for more than a few months, then now is the time to take another good hard look in the mirror and figure out whether or not you really have what it takes to be a successful engineer. I'm not saying that you don't - just that you might want to do a reality check and figure out what's going on with that. Maybe go back and reread the first few chapters of this book to make sure that you have the Right Stuff before you proceed any further.

Remember that it is expensive for a company to hire an engineer and then let them go before they ever had the opportunity to generate any real revenue for them. If you've been with three or more employers in your very first year and they keep letting you go, then you either don't have the technical aptitude to do the job, or you have personality issues, or reliability issues, or there is something else amiss. (Don't forget the section on personal hygiene!)

Spinning Your Wheels

As a general rule, employers don't simply hire and fire people just for the fun of it. It's very expensive - there has to be a reason, even if it is unfair. Just to be clear, losing one job is nothing to be overly concerned about, because it can happen for numerous reasons. But if you've been through three or more employers in the past year, then you honestly need to stop and figure out why. Otherwise, you're simply spinning your wheels and wasting your time.

Whether you've been with the same company for the whole past year or several of them, it is now time to give yourself a true and honest reality check about your career choice and how that lines up with your capabilities. You should also seriously think about whether or not you truly enjoy the work that you've been doing. At the one year mark, you're not too deep or far along this career path to make a change in your trajectory. There are other occupations out there that require technical skills without the additional demands of being out in the field all day keeping clients happy.

If you've been at the same company for your whole first year as a Network Engineer and they don't do annual employee reviews (shame on

them), then I recommend that you ask for one. If you feel they are currently paying you fairly for the work that you're doing, then you can ease their concerns by letting them know that you are not necessarily asking for a raise (unless you really feel that you deserve one - annual raises are standard protocol in most career fields).

Simply let them know that you would just like to have an honest evaluation of how you're doing by their standards and to find out where you might be able to improve. If they don't have a standard set of criteria that they base employee evaluations on, then you can recommend the four that I presented earlier. You can even give them the complete list of Core Attributes that I list at the beginning of Chapter Twelve - you have my blessing. Those are the ones that we use for our annual employee evaluations at PJ Networks for our engineers.

On the other hand, if you came in at a subpar salary and you haven't received a single raise since, then don't say anything about not expecting more compensation - just ask for the review. After one full year of hard work, if you've been doing a good job for them and their clients then it's reasonable to believe that you're due for a pay raise, even if it's just a cost-of-living increase. Make sure that you get that new compensation package in writing, either written into your employment contract, or at least in an official company email that you can refer to later if for some reason the raise doesn't show up on your paycheck.

I will be candid and tell you that as an employer, in the lean earlier years of running PJ Networks one of my biggest concerns was that we were underpaying our employees. We had some really excellent engineers and I did not really feel that we were able to pay them fair market value for the work they were doing for us. For example, we might hire a fairly green engineer to go train out in the field for an annual salary of $45,000 to $50,000, which may be fine to start with if they really don't have much experience. But by the end of the first year, if they are a competent and well-rounded Network Engineer then you really need to look at getting them up to at least $55K to $60K. Otherwise, you run the risk that one of your competitors will snatch them away after you put all of the time and energy into training them up above level one.

Maybe - just maybe - if you feel that you are learning a lot and gaining good work experience, it might be worth hanging in there for another year even if you don't get a raise, but after two years you should certainly be asking for one. If they're not willing to pay you decently, you might want to consider seeking employment where there is better pay, unless you can clearly see future opportunities with your current employer. Two years of solid and productive work experience as a Network Engineer is enough to help you land interviews with other employers. After two years actively working out in the field, you should no longer have to strain in order to get your foot through the door and find other employment opportunities.

In that regard, the hard part is over. No more having to volunteer at local non-profits just to get a little hands-on experience (but that's a noble cause, so keep doing it if you like it!), no more having to ask to work on some local computer repair bench, no more having to tout your awesomeness at building gaming computers. You are a professional Network Systems Engineer by trade after two to three years of solid work experience.

Congratulations! Well done.

You are no longer a padawan. You are now a Jedi Knight, even if you're not yet a Jedi Master.

If Not For You

I have no way of knowing what kind of employer you spent your first year working for, so I can't even speculate as to how that first annual review is going to go. Hopefully you're not in a situation where they're going to try to criticize you and beat you down in order to keep you at a lower salary level; if that's the case, then once again, you should start discreetly keeping your eyes open for other employment opportunities. Even with just one full year of experience as a Network Engineer under your belt, you are now considered to be employable moving forward.

For your first annual review, and every review following that, bring a notebook and take copious notes about everything and anything they tell you regarding your employment with them. Make sure you ask them

questions about how well your technical skills have developed, what you could be doing better, how well they feel you are managing clients, how well you participate in or manage projects, and specifically ask them for areas of improvement so that you can become a better engineer and a better employee. That should be something that they at least appreciate and respect you for asking, regardless of how masterful you have become in the ways of a Network Engineer.

You should also make sure that you provide them with feedback of your own; don't just sit there like and rock and listen. While I don't necessarily recommend that you open up with a whole bunch of complaints or criticisms about the company, your position, or the overall way that your employer runs their business, you should share any insights or observations you have for improving things. You might want to scale it back during your first employee review unless there is something glaringly obvious that needs changing, but after a few years they should be willing to listen to your ideas with an open mind.

If there are things that you feel could be modified or adjusted within the company or related to your position that would help you to do a better job as an engineer or to make things better for your clients, you should share those thoughts with them as diplomatically as possible. Your ability to do that will depend heavily on what kind of relationship you have with your immediate superiors and the rest of the management team.

If you feel like you are ready to take on more responsibilities or to start doing more advanced work, then they will certainly want to know that - fortune favors the Bold! That information will give them the chance to either move you into a position of more value to them as a business, or to tell you what you need to do in order for that to happen. If they disagree with you about being ready to move up to the next level you certainly don't want to argue with them, but hopefully you will feel confident enough to speak up for yourself and make your case if you feel that you are not being used to your full capacity.

This is not the time to get all cocky and start thinking that you deserve a $10,000 or $20,000 pay raise just because you've been an engineer for a year; you have to be careful about that. It is in the first year or two that I

have seen so many promising engineers totally blow their chances of growing, developing, and prospering within a company because they will never be fully satisfied with how much they are being paid. Yes, you should always aspire to prosper and advance your career, but if you never get to the point that you're ever truly happy with your job, then you may find that you eventually get replaced. (remember the squeaky wheel analogy..?)

And even though you might be able to make more money by leaving and going elsewhere, you will lose all of your tenure and all of the client relationship development that you have accomplished at that job - those things are worth considering. No matter how much another company is willing to pay you, you would still be starting off as the low man on the totem pole and you will have no tenure, so make that move cautiously if you feel like you have to make it.

Let's not get greedy here.

You Deserve To Know

If your employer lets you go at some point in time (it happens), don't just walk out the door without asking them why. Once you've been told the areas in which you are lacking, you have to stop and figure out whether those are things that are within your ability to improve upon, or if they are simply beyond your grasp at this point in your career.

I strongly urge you to NOT just blow off the reasons why they let you go - that's like leaving a pearl sitting inside of an oyster that you worked very hard to open. Listen to them and learn from them during your exit interview. Remember how much effort you put into getting that first employment opportunity as an engineer in the first place, and be sure to thank them for sharing their thoughts and feelings about you that will help you to learn and evolve along your chosen career path - and thank them for giving you the employment opportunity even if it didn't work out in the end.

Improving Your People Skills

Business Networking Groups

If your biggest shortcoming is that you are too shy or you lack the confidence to speak directly and authoritatively with clients, then while that is a problem that won't easily be remedied with book studying, it is absolutely something you can overcome with a little practice and determination. I'll give you a few suggestions for making yourself more confident around others, particularly strangers, which should translate into being more confident around clients.

If you wish to take the more traditional route, you can join small local business networking groups and start learning to talk to people in a friendly social environment. Just ask other members who they are and what they do, and the natural result will be that they will ask you the same questions. If you really want to strike up an interesting conversation, then ask them what their big goal or interest is for the coming year - that really generates some animated responses. It doesn't hurt to have a 3-minute "elevator pitch" memorized when you first start out; you'll get more comfortable at talking from the heart later. For starters, you just need to be able to tell them who you are and what you do. Rinse and repeat.

This is also a great place to expand your professional network in a way that could lead to your next job offer.

Breaking The Ice

Another way to improve your self-confidence and your comfort level when speaking to strangers is to simply start making the effort to talk to random people when you're in a store or a library or a sporting event - any time that you're in public, there will probably be an opportunity to strike up a conversation with someone. In elevators, people tend to act nervous and avoid looking at each other; I tend to do that, too.

However, you would be surprised at how many folks will happily chat with you while riding in an elevator, or even while waiting for one to arrive.

Waiting for the pedestrian street crossing signal to change at a street corner also provides an easy opportunity to start brief conversations with others. If you're at a local sporting event and the people sitting next to you seem friendly, try saying "hi" and see what happens. They may just say "hi" back and that's the end of it, but you may also find that they are happy to have a conversation with you and to talk about anything of interest.

Have you ever noticed that there are some people that will talk to anybody who comes within 10 feet of them, about anything that happens to be on their mind? All they need is an excuse.

Give them that opportunity.

They usually do it with a big smile on their face - they're just trying to be friendly. It feels nice sometimes to be able to have those random conversations. Somebody has to break the ice at social events, so why shouldn't that be you? I recommend practicing your boldness by talking to strangers next to you in the supermarket and saying things like, "the apples sure look good today!" or "Wow - they sure think highly of their ribeye steak."...and then watch what happens.

Chances are, you just started a mini-conversation. In most cases, their faces will light up and they will have something positive to say back to you in kind. Again, rinse and repeat.

It doesn't really matter what you say - just say the first thing that pops into your head, but say it out loud, instead of to yourself. Do try not to say anything that makes you sound weird, though, like "You can't scoop a puppy with half a horseshoe"; they probably wouldn't know how to respond to that. (and they might call for the store manager)

Buy me a Drink, Sing Me a Song

The next suggestion is going to sound a little unconventional and maybe a bit silly: try going out to karaoke and singing in public.

If you can get up in front of a group of strangers that you've never met before and sing a song - any song - then you're halfway to finding your comfort zone and you're probably going to make some friends. You don't

have to look everybody in the eye when you sing and you don't even have to know the words, because they'll be right there up there on the screen in front of you.

Just being able to get up in front of a group of people that you don't know and sing takes a tremendous amount of confidence that I certainly never thought I would ever have. I found out the truth of the matter by accident before I turned thirty, when my manager at Shoney's and a group of waitresses dragged me out for karaoke in Charlottesville, Virginia at a little place called Mingles.

I was one of those people who would have sworn on a Bible and bet a hundred dollars that never in my life would I get up and sing publicly. Never. I mean, I could sing a tune in the shower or in the car okay, but I never would have told anybody else that I thought I could sing well enough to do it in public. I just like to sing, that's all. (most of us do, even if it's only to ourselves)

On that one fateful evening, my manager put in a song for the *two of us* to sing together without me knowing; it was *Twist and Shout* by the Beatles. While I was horrified initially to find out that I was going to be singing in front of those few dozen people in the room (and also the waitresses I worked with), I was relieved to find out that at least it was a Beatles song. I knew the Beatles like the back of my hand, because I'd been a fan of theirs since I was about 5 years old.

Well, I was in for a big surprise.

It turns out that not only is *Twist and Shout* a difficult song to sing because of the vocal ranges the young Beatles were reaching, but either my manager could not sing worth a darn or the two of us just sounded like crap together, because it was horrible - and I mean horrible. I certainly did not show off any special vocal talents that night, that's for certain.

I was embarrassed the entire time, and all I wanted to do was to bow my head and tuck my tail between my legs and slink off the stage before the song was over.

But I didn't.

With my heartbeat racing and my face as red as a beet, I stayed up there and sang it all the way through to the very end. It was on that day that I learned something important about myself: that no matter how bad it gets, or how embarrassing it could be, if you've given your word that you're going to follow through on something, then you do it, damn it. I had always felt that I was a man of my word, but even when the consequences are minimal you have to keep your word - or don't give it in the first place.

Say what you mean and mean what you say.

Somewhat embarrassingly, after that day I became a karaoke fan and I wanted to go at least once every month. Almost 35 years later, I can still say that I irregularly go down to the local restaurant or bar to sing a few songs on a Friday night when other matters aren't pressing upon me. It's a great stress reliever and it can be a lot of fun. You also make lots of friends when you go out and sing karaoke - everybody wants to be your buddy when you're willing to get up and allow yourself to be vulnerable and human in front of them.

More importantly, after that night I was able to look people more directly in the eye, I found it easier to speak my mind, and I learned that I had the emotional fortitude to not back down from intimidating social experiences even in the face of possible (or certain) humiliation.

Talk about a handy skill to develop!

There is also an abundance of self-help resources on the Internet. While I'm not a strong believer in learning everything in the world from the Internet or from a YouTube video, there is a ton of valuable content online from people who offer advice on how to boost your confidence, either through training sessions or by offering helpful techniques. Some of them are professionals, and others are just sharing their own ideas and experiences.

Sometimes, good-hearted people out there just want to share what they think will help to enlighten other people, and you should take advantage of that. They will have their own tips and tricks and practice exercises for boosting your confidence, but I want to make it clear that your career is

not going to go very far if you never learn how to speak competently and confidently to people in a multitude of situations and environments.

There are also Public Speaking classes that you can enroll in that are available at many community colleges, as well. However, there are plenty of opportunities that are free of charge, so I suggest that you start with those. Do whatever it takes to gain that level of confidence necessary to speak with people from all walks of life.

By the way, you should keep in mind that you're not trying to stare anybody down or intimidate them by looking at them directly in the eye. Studies have shown that you want to have about 60% to 70% eye contact with someone when you're speaking to them in order to let them know that you're paying attention and you're interested in what they're saying; anything more than that can come across as either being creepy or as feeling like you're trying to dominate them, so please don't turn it into some kind of a staring contest.

Now, if you have a chronic case of Social Anxiety Disorder (you can look that up), then you may need to seek professional help in order to overcome your fear of being judged and your inability to speak to people that you don't know. If you have that challenge, or something similar to it, then you're going to have to figure out a way to work your way through it; good Client Management accounts for more than half of the success of a Network Engineer, and it is absolutely a core attribute to becoming a Consummate Engineer.

Okay, enough on that topic.

Mastering Technical Skills

As I have previously mentioned, this book is not intended to be a technical manual for Network Engineers - there are a multitude of those types of books available already, in addition to a practically limitless number of online articles and technical references available on the Internet - most of them for free. Technical manuals tend to find themselves outdated and of little value within a few years of being published due to the nature of our business and the swiftness with which

technology changes and advances. People skills will serve you for a lifetime.

In my opinion, the single most valuable skill that you can master if you want to be able to find answers to technical questions or how-to guides for doing practically anything is to become really good at performing searches on the Internet. You will need to become a Master of the Google, or whatever your favorite search engine may be. AI is quickly becoming the preferred research tool for many engineers, as well.

Whichever one you choose, you will really want to become proficient with using it effectively and efficiently. The guidelines below are specifically for Google Chrome, but they also apply to most search engines and online resources.

CHAPTER SIX:
Managing Clients

Chapter Six

Managing Clients

A true Leader doesn't have to bend people to their will; they do it of their own accord.

-PJ

In The Beginning

Let's start with the first steps of forming good client relationships and roll our way through the rest in a calm and orderly fashion.

Managing clients is one of the most important skills you can master - arguably *the* single most important one - if you want to become a successful Network Systems Engineer. If you want to become a Consummate Engineer, this is where you want your focus to be, from the day you visit your first client site until the day that you retire your superhero cape.

It trumps technical skill, expertise, knowledge, project management, and maybe even personal hygiene - although all of those things work together in a synergistic fashion to accomplish the goal of managing clients successfully. If you learn how to establish solid relationships with your clients and gain their intimate trust, then even if you stumble and fumble tasks from time to time and make a few mistakes over the years, they will forgive you because they like you.

I cannot stress how important that is.

If you want to have good relationships with all of your clients then they have to sincerely like you, not just respect you and pay their invoices on time. If a client likes you and trusts you, then they will take your recommendations without questioning them (although questions are good), they will appreciate the work that you do for them, they will have more patience with you when you take a little longer to do things than they had expected, and you will just find that your overall life experience as an engineer is going to be a more enjoyable one.

I like to tell our engineers that if you establish good relationships with your clients, then your job basically consists of driving around all day long visiting friends and helping them with their technical needs and support requests. On the other hand, if your clients do not like you, you will find them to be difficult to manage, unforgiving of even the smallest mistake, they will question invoices when they receive them, and you will almost never be able to get them to be completely satisfied with the work that you do. In other words, it will not be an enjoyable experience.

Why? Because they don't like you, of course!

So, let's dive into the topic of managing clients, which not only makes a client easier to manage, but it also makes everything about your job more enjoyable. It does not require any kind of deceit, misdirection, or taking advantage of anybody. You get to be the Good Guy (not gender specific), because that old adage that "Good guys never win" is a bunch of BS.

In my book, Good Guys *always* win, because they're fighting the good fight and doing the right thing, and, well, I believe that the Universe conspires on behalf of the well-intentioned.

Does that make sense? If not, then perhaps it will a little later in the book.

Let's get down to it.

Check Your Ego at the Door

First and foremost, if you suffer from an enlarged ego or inflated sense of self-importance, you're going to need to learn how to leave that behind whenever you interact with clients.

If you can learn how to truly get over your bad@ss self and accept the fact that you're more gifted or talented *in some ways* than other people are, but that others are just as good or better at other things than you are, that would be even better. There is absolutely nothing wrong with feeling good about who you are, what you know, and what you do, but when carried too far those feelings can start to border on being egotistical and obnoxious. Keep in mind that a good 50% of your success as a Network Engineer will depend on your people skills and how well your clients like you, so, well…be likeable!

Do your best to never give the impression that you are better than the potential client you're about to meet with. Obviously, you have skills and knowledge that they don't, or they wouldn't be calling you in to help them with their business technology needs. Do your best to show a little respect and some humility, especially if they haven't gotten to know you, yet.

That does not mean that you need to act like a humble servant or a cardboard cutout - quite the opposite.

One of my more prominent character attributes is that I like to joke with my clients, and sometimes I become intentionally and playfully gregarious. I sometimes say the most courageous things around clients that I know well, like “Watch me work my magic!” or “Prepare to be amazed!,” but they know that I’m kidding - sort of. You can tell how well you’re connecting with a client by keeping a close eye on their reactions to you. Do that and you should be fine.

But be sure to check your ego at the door when you’re just getting to know a client.

Feels Like The First Time

When a client is new to you or to the company, you need to make sure that you put some extra effort and personality into making a good first impression. Most clients will decide pretty quickly whether or not they like working with you, and once you’ve won them over they usually remain that way.

However, if you get off on the wrong foot by forgetting a request or saying the wrong thing to the wrong person, then it can be very difficult to win them over, so be extra diligent in the first month or two to be at the top of your game, to be friendly and courteous, and to respond promptly to any support requests that they make have for you.

Remember: You only get one chance to make a good first impression, so use it wisely.

Dress For Success

Do yourself a favor and get in the habit early in your career of dressing nicely.

I don’t mean wear a suit and tie, unless you end up working for some kind of IT support company that requires that; a Network Engineer has to be able to crawl under desks to plug in cables and climb ladders to peek

inside of drop ceilings. Wearing a suit is probably not the best attire for those kinds of activities.

I am simply suggesting that if clients are going to be paying upwards of $150 or $200 an hour, then you should look like you're worth it. Old blue jeans and a raggedy t-shirt are frowned upon in most business environments where somebody is paying you professional fees for technical services that do not require you to be crawling under houses, working on plumbing, or running electrical wiring; in those cases, wear clothing that's appropriate to the job. However, in our choice of career, the most common attire you will find us wearing are casual dress slacks or khakis and a collared professional-looking shirt. It can be short sleeve or long sleeve, Polo style or golf style, but it should look professional.

The traditional rule of thumb is this: wear clothing that matches or slightly exceeds the dress style of your typical clients. There are a couple of exceptions to this rule, however. If you are doing work for a large legal or accounting firm and everybody wears suits and ties, then it would probably be to your advantage to wear a more traditional Field Engineer outfit, such as dress slacks and a company shirt with a logo. You want to make it easy for your clients to be able to easily find you and identify you whenever you are in their offices providing support.

Personally, for the last thirty years I have gone to work every day wearing a nice pair of casual slacks with a bit of crease in them, a t-shirt as an undergarment, and a long sleeve button up casual dress shirt on top with the sleeves rolled up to my elbows. For some reason, I've never felt comfortable wearing a short sleeve shirt to work, but I always roll up my sleeves because my father always did. He had a more legitimate reason for doing that; for most of his career he was an automobile mechanic, and long sleeves would just be in the way.

I have always felt comfortable wearing a "dressy looking" button up long-sleeve shirt with khakis or casual dress pants, and that happens to suit most business environments. You wear whatever you feel comfortable wearing, but just make sure that it looks sharp and professional. If you go to work for a place where everybody dresses nicer than you, then think about upping your game a little bit, but if you work for a place where

everybody's wearing jeans and t-shirts, think about how much sharper you're going to look than the rest of the gang!

Getting accepted into a new group of people can be a little stressful at first, so if you go to work somewhere that everybody does dress below a professional standard, then perhaps at first you should mimic them and wear something similar. However, over time, as you become comfortable with the organization and the people you work with, you might want to think about slowly upscaling your clothing style so that you ultimately end up being the sharpest looking person on the team. Clients will notice that you dress professionally and will treat you with more respect because of it, even if they don't do so consciously. That doesn't really matter, as long as they like you and they accept you; you don't have to be haughty about it.

You should be proud of what you do, and look like you are proud of doing it. That's my opinion, at least.

Personal Hygiene

Okay, so I've cautioned you that my style is not to beat around the bush; I prefer to be direct and get straight to the point. So, I'm going to bring up a topic that might make some of you a little uncomfortable, but it needs to be said.

Several times during the course of my career, I have met engineers who seemed to have all the right stuff; they were technically competent, they knew how to work with clients well, they were good problem solvers, and they knew how to run a project. There was only one problem: they just didn't seem to know how to take a shower, at least not on a regular basis.

Now, I suppose if your goal is to become a remote help desk technician or remote support engineer, that doesn't really matter as much, but if you're going to be working in close proximity with clients and with other engineers, nobody will want to be around you if you smell badly. The same thing goes if you don't have proper dental hygiene, so be sure to check your breath once in a while. Brush your teeth every day (at least once), and if you need to use mouthwash or chew on gum throughout the day to keep your breath fresh, then please do so.

The engineers that I've worked with that seemed to not understand this honestly did not appear to have a clue that they had any kind of a problem with personal hygiene. Even on my bolder days, it's extremely awkward to try to tell somebody the bad news, but on several occasions I did my best to hint that using a bar of soap wouldn't hurt from time to time.

As you can imagine, clients are even more reluctant to say anything about somebody smelling funky, so they will always come up with some other excuse as to why they do not want to work with a foul-smelling engineer. They'll blame it on social skills, or technical skills, or any other kind of excuse under the sun other than calling a spade a spade, but in the end, those engineers did not fare very well because they had bad personal hygiene. Period.

I'm not going to belabor the point, but I hope that you will take it to heart; daily baths or showers are recommended, or at least every other day if your body doesn't perspire much or generate a lot of odor, and please brush your teeth at least once every day, whether you think you need it or not. Not only will your breath be nicer, but your teeth will be healthier and your dentist will thank you. If you're a smoker, which is entirely your business, then start carrying around gum or breath mints and use one after every cigarette, or at least before you come in close proximity to a client. Non-smokers can be mortally offended if your breath smells of a freshly smoked cigarette, so try not to expose them to that if you can help it.

Okay, enough said on that. Let's move right along.

But First, Let's Talk

The first time that you go to meet with a new potential client to talk about their business technology needs and take a look at their network environment, the first thing that they will usually try to do is take you by the hand and give you a tour of their physical infrastructure. They really want to show you their servers, their switches, their Internet modem, and all of the other equipment that they have in their network environment.

They're eager to share!

Or explain. Or complain. Or ask questions about a network you've never seen before.

Not so fast…

I strongly recommend that you do not start with that network tour unless they're currently having some kind of emergency. (By the way, the official term for that physical investigation is a "site survey.")

Instead, politely suggest that the best place to begin would be by sitting down with them and having a conversation about their business, their goals, and what challenges they feel they have regarding their computers or network that they would first like to see addressed. It is very important that the client perceives you as being a professional consultant and not just some kind of glorified computer repair technician.

Most IT support providers are now Managed Service Providers, and many of us no longer even offer break/fix business support without some sort of managed support plan in place. In order to establish your expertise as a Professional Business Consultant, you need to begin your relationship by taking control of the situation and gently guiding the initial conversation in the direction that you would like it to go. Have them tell you about what they do and how they got started as a business, what challenges they are currently facing (IT-related or otherwise), and what their short-term and long-term goals are.

In return, tell them a little about your background as an engineer. Share with them any relevant experiences you've had with similar business types, and assure them that you're going to take excellent care of their business technology needs. Don't be too cocky or tell them that you know how to solve all of their problems before you've even seen them. Just be confident, friendly, sincere, and encouraging

Once you have had that initial meeting and conversation, which can take anywhere from 10 minutes to 2 hours, then it is appropriate to ask the client to walk you around their facility and show you all of their existing business systems. Since you already have a pretty good idea of how the company operates and what their goals are, it will make it easier to identify where changes need to be made in order to bring the client into better alignment with the direction that they have already told you that they want to be moving in.

Take good notes and don't forget to take pictures (with their permission) of their network backbone: servers, switches, modems, firewalls, routers, patch panels, wireless access points, and equipment racks. Knowledge is powerful, and those photos are really going to be useful when trying to walk a client through basic troubleshooting steps when you can't connect into their network remotely. Gather as much as you can from the client before you try to evaluate their circumstances.

Always Take Charge of the Situation

The first thing you need to learn as a Network Engineer when dealing with clients is that they ***want*** you to take charge and lead the way, at least for the vast majority of the small businesses that I have worked with.

You are The Professional, so it is natural that you will be expected to call the shots, make good recommendations, and otherwise steer the ship as you provide your professional services. Above all, keep in mind that you are a consultant, first and foremost. Not a computer repair technician and not a break/fix support engineer, but a respected professional consultant, just like an attorney is.

From the moment that you schedule your first meeting with a client you should be calling the shots. Don't ask them, "When would you like for me to come over and meet with you?"

Tell them: I have an opening on Tuesday afternoon between 1PM and 4PM, or I can come over on Thursday morning before lunchtime."

Obviously, you have to pick time slots when you're available, but if you leave it open-ended for them to decide, you've already lost some control of the situation. So, always remember to steer the client toward one of two choices, and never forget the next little gem:

You Are Always Busy. *Always*

That little bit of advice is going to give you so much more power in your client relationships, especially early on in your career when you may not have as many clients to manage. Your clients should always believe that you have a packed schedule, even if you don't. I realize that sounds deceitful, and it is one of the few exceptions to the concept that you should always be open and honest with your clients, so please allow me to explain why you always need to convey the perception that you are perpetually busy.

Never let them get the impression that you are just sitting around waiting for the next phone call to come in to give you something to do; that makes it seem like your time is really not worth very much. If a client calls you up one morning at 10AM and asks if you can stop by to set up a printer for them, and you tell them that you'll be right over, you basically just admitted that you weren't doing anything important when they called.

So, guess how much that makes your time appear to be worth? *Not very much*.

On the other hand, if your day is wide open and you tell them that you'll need a few minutes to rearrange your schedule, and then you let them know that you can head over shortly, well, you just did them a big favor and made them feel important! And, you didn't really outright *lie* to them. The moment that put them on your schedule, you were technically rearranging it for them.

So, there's that.

Likewise, if you really are quite busy (and you eventually will be) but you have a spot available later in the day, then let them know that you think you can *squeeze them into your schedule* at that time. And then do it.

Again, it makes them feel like you are prioritizing their needs, and in a way you are. You just aren't necessarily sacrificing anything in order to do so.

It's a win/win situation, and your time retains its full retail value. **You should never charge them extra for squeezing them in**, or for making them feel special. Just let them know that they're important to you and that you've worked them in your schedule.

Also, if you consistently give the impression that you're super-busy, then clients will always be grateful to get some of your time. Once you have become a fully seasoned and experienced engineer, you probably will actually be busy most of the time (maybe even a little *too* busy), but at the beginning there may need to be a bit of "fake it until you can make it" methodology going on there.

"So, how about a cup of coffee sometime…?"

I'd love to. Let me see if I can fit that into my schedule tomorrow afternoon. Can we do that around 2PM, or does another time work better for you later in the week…?

It's About Time!

Here's another little tip for you: When you tell a client that you're going to be coming over for a support visit, get in the habit of giving them an *approximate* time and not a precise time. You never know when something in your schedule is going to run a little long and so you may be running a few minutes later than expected, and sometimes an appointment is going to go more quickly than you thought and you'll be running a few minutes early. So, instead, try to give them an approximate time.

Here are some examples:

"I should be able to make it over there around 1:00 p.m. this afternoon." That gives you a viable window of 12:45 until about 1:15 p.m.

"I should be able to make it over there towards the end of the day." That would mean somewhere around 3:00 or 4:00 p.m. (Try not to show up at

5PM just as they're leaving - there will be nobody there to test out your work.)

"I'll be coming over after lunch time."

"I should be able to make it over there before midday."

If you have a good relationship with your clients, then none of them should have a problem with that. If there is an exact time they expect you to arrive, let's say you told them 1:00 p.m., you're bound to either show up a few minutes early or a few minutes late and they might get annoyed with you. On the other hand, if you give them an approximate time then it eases the tension a little and gives you some wiggle room.

The only time this rule doesn't really work is if the client keeps a really tight schedule or you're trying to time your visit to happen when somebody is away from their computer, let's say while they're taking a lunch break. In those cases, you want to give as accurate of a time as possible and then make sure that you show up when you say that you will. The same thing applies if you're working with another outside party on behalf of the client, like a software tech support team or a printer leasing company delivering a new network printer.

Every Move You Make, They'll Be Watching You

One of the first things you should learn (there are so many!) and truly understand is that if you're charging standard engineer rates, or even below standard rates for the work that you do, then the client is paying anywhere from $2 to $5 *per minute* for your time.

Stop and think about that.

If your company's labor rate is $180 per hour, then every *minute* that you're on the clock is costing the client $3. Now, if you're fast and efficient and good at what you do, that may not sound so bad, but it means that if you go to the restroom and you're gone for 5 minutes, the client just paid you $15 to relieve yourself. You may think that sounds ridiculous, but trust me, it's the way some clients will think about the time that you spend on site supporting them.

So, how do you deal with that subject so that it's not a constant friction between you and the client, and so that you can relax into your job and enjoy your average work day? It's easier than you think. The answer is just to be honest and direct with them from the beginning.

When you're working at a client site, if you get a call from another client or from a family member and you step away for 5 or 10 minutes to handle it, you either need to let the client know before you step aside or after you've returned that the time you spent and will spend in the future on phone calls that are not related to that client are *not going to be charged for* - let them know that you are not on the clock when you're on the phone or taking a bathroom break.

Now, you may think that's an obvious thing, but if you show up at a client site at 3:30PM and you don't leave until 5:00PM, and the client knows that they're going to get charged for 90 minutes of your time, then 5 minutes more or less than that isn't going to make any real difference because in general you're going to be rounding things out to the nearest half hour.

However, if you are at a client site for an all-day project, or you're going to be in and out several times throughout the course of a week, you should clearly establish with the client that whenever you step outside to smoke a cigarette, when you take a bathroom break, or if you take a phone call, you are not on the clock and they will *not be charged for that time*.

Trust me - you will notice a difference almost immediately if you follow this simple advice.

Hopefully, you will find that in most cases they take you at your word. All of a sudden the heavy tension that revolves around that one simple yet awkward subject can completely dissipate. You will find that you can come and go as you please, you can take calls when you need to, you can use the bathroom as often as you want to - but *you have to be true to your word*.

You are not "on the clock" if you are not giving them your time and attention, so make sure your time entries reflect that.

Pester The Crap Out of Them

Once you have that next thing in mind, then relentlessly pester the crap out of them until they just give in and sign the quote, or at least verbally approve the work. (Always remember to get that in writing before you proceed, though.)

If you haven't presented them with a formal quote, which you should be doing for any engagement of more than $500 or so, then at least send them an email detailing the work that you want to do. Include any hardware or software that they need for the task to be completed and give them as precise of a cost estimate as you possibly can, then ask them to confirm that you have their blessing to do the work. Again, if it is more than $500, then it's probably worth sending them a formal quote to get signed.

That is very, very important.

Remember: We have a saying in our line of work, that if you didn't get it in writing, then the conversation never really happened. Do yourself a favor and always clearly communicate everything *in writing*, even if it's just a recap of a conversation you just had with them over the phone or in person. Don't be shy about walking out of a client meeting, climbing into your work vehicle, and then sending them an email recap of your discussion from your phone before you leave the parking lot.

That will be one less thing that you need to remember to do later.

Example

Here's an example of how that looks: you just left the client site where you went over the status of their server and the fact that it's almost 7 years old, which means that it's going to be time to retire and/or replace it soon. Now, in this case, that is clearly a situation that is going to require a formal quote and a signature from them, and possibly even a deposit on the project. However, let's say that you also discussed their need to replace their main network PoE switch, which is going to cost about $1,000 for the hardware plus an hour of labor.

If your company does not require that a project of that size have a formal quote associated with it, and a verbal approval is adequate, then when you get back to your desk you should write them an email that outlines the game plan, including some numbers that are as close as possible to what they're going to be charged, and then ask them to please confirm that this is how they would like for you to proceed.

Once you get that approval, if there ends up being some kind of a "he said she said" later on, you can always go back to that email and point out that you did tell them how much it was going to cost and that you got their approval, even if there was never a signed quote.

Alternatively, if they did not approve the switch replacement, you have that email to refer back to if and when their switch fails and takes them down in the middle of a busy work day.

Mill About Smartly

John Hunt taught me a handy phrase when I was still a new engineer and not very advanced in the skills have a Network Engineer: If there is a client emergency and no senior level engineer is available to dispatch, then send a junior level engineer on site - whoever can get there the fastest - and instruct them to "mill about smartly" while waiting for a more experienced engineer to arrive on the scene.

Teach them some basic troubleshooting techniques that they can go through while they're waiting, but they need to look like they are actually working on the problem, and not simply stalling for time – they can be doing more than that.

I was dispatched on a handful of occasions when I had absolutely no idea what to do once I arrived on site, but I learned how to look like I did and I used every troubleshooting skill that I had acquired thus far. During those experiences, I did my very best to dig into the situation and learn something about the nature of the problem so that when other help arrived I could share that information with them.

In a number of situations I was actually able to come up with a solution before a senior engineer arrived on the scene and that is one of the ways

that I improved my troubleshooting skills when I will still a little green as an engineer.

If nothing else, you can begin the process of investigating the situation and gathering information so that you can pass along that along to a more experienced engineer when they arrive. The most important thing is that a Network Engineer shows up as quickly as possible to start the troubleshooting process, looking like they confidently know what they are doing. (Classic example of fake it until you can make it)

That's all the client is going to remember when everything is back up and running; that somebody responded quickly. And who knows? Maybe you'll be the one who solves the problem before anybody else arrives on the scene.

Show a Little Respect

Can you go into a courtroom and argue successfully in front of a judge the innocence of somebody who has been accused of a crime? Can you diagnose a calcium deficiency and prescribe the proper treatment for it? Can you balance a company ledger, or write up a contract for a real estate transaction?

Well, some of your clients can do that, so show a little respect for their experience and their skills. While it is highly unlikely that you will ever do work for a client who understands business technology as well as you do, almost every single client you do work for will have things that they know that you do not, and you should always keep that in mind. Even if a client doesn't understand the simplest concepts when it comes to business networking, that doesn't mean that they're stupid. It only means that they're ignorant on that particular topic. But over time, if you're a good communicator, you can help to bridge that gap.

If they work with you for many years, they will appreciate that they know a whole lot more about IT-related things for having worked with you if you are willing to share your knowledge and expertise with them, which I wholeheartedly encourage. You should never hold back on showing a client something you're doing or explaining to them how you are going to

accomplish something; please be generous about sharing what you know.

Now You Try It

If you really want to teach another engineer (or a client) how to do something, you're eventually going to have to let them sit in the driver seat. Sure, you can let them watch over your shoulder for a project or two so they get the hang of what you're doing and how you do it, but ultimately you're going to have to get your butt out of the driver's seat and let them grab the steering wheel.

Nothing teaches like actually doing, so let them do.

This applies to both clients and to fellow engineers. For example, if you want to teach a client how to convert a Word document into an Adobe PDF document, then show them how to do it, and then let them take control and ask them to do it for themselves. Then ask them to do it again, and then ask them to do it one more time.

I have found that three is the lucky number. If you can get a client to repeat the same process three times in a row successfully, then you have a winner!

Was It Something I Said?

Speaking of something I said, it is very easy to say something as a joke, or sarcastically, or casually off the cuff, and to have a client take it in the very worst possible context.

Even worse, if you said it in an email, it's something that they can go back and refer to again and again and again. If a client suddenly goes cold on you for no obvious reason, please go back and mentally revisit any recent conversations you had with them, and go back to your Sent Items folder and see what you sent to them that could have caused such a reaction.

One of the indisputable laws of physics is that for every action there is an equal and opposite reaction, and in most cases for every client situation,

there is a direct correlation between how they are feeling towards you and something that you recently said or did. Do not forget that you're only human and that it is possible for you to make mistakes. If you feel that a relationship with a client is starting to go cold, then do your best to go back and figure out why and then rectify it as quickly as possible.

If you have to, just come right out and ask them directly if there's something that you have said or done that may have rubbed them the wrong way. Once you find out what it is, see what you can do to make things right.

Don't Be a Rug

The opposite side of the same coin as Do Unto Others is to not be a rug for other people to walk all over.

You do not want to be tied to the whipping post for your clients to take out their frustrations when they're having a bad day. It doesn't matter how much they're paying you, you do not make enough money to let somebody constantly berate you, insult you, belittle you, or be condescending to you. You are not somebody's Whipping Boy or Girl, and you particularly do not have to put up with somebody throwing profanity at you on a regular basis.

If you find that happening to you, you should take the Samurai approach and deal with it straight on. If you're not comfortable doing that, then you need to bring that to the attention of your employer so that they can do something about it. If you are self-employed and/or running your own consulting business then you need to let your client know in no uncertain terms that if they continue to act in such a fashion, you will no longer be able to provide service to them. If your employer forces you to regularly work with clients that treat you with hostility or disrespect, then you should think about looking for somewhere else to work.

I'm not kidding here, folks.

You have to establish clear boundaries of what you are and are not willing to tolerate when it comes to client behavior and then stand by that line

clearly and consistently. If not, then you run the risk of regularly being run over by your clients and subsequently letting your employees also get mistreated by them if you are running your own business.

If you're not going to do it for yourself, then do it for those around you who deserve to be treated better than that.

Remember: You Are The Expert!

This is another topic that can be a double-edged sword.

First of all, you need to accept the fact that clients are usually paying really good money for your services, and so naturally they expect that you are an expert in anything and everything that is related to business technology. Obviously, that isn't always true, but it should generally be true. Another thing that you should get comfortable with is being able to tell the client that you don't know something if you don't know it; don't just make up some BS answer off the top of your head and lay it out there to them, because they will take it as gospel.

If they ask you a question about something that you don't know or you don't fully understand, then you can let them know what you do know about that topic, but that you'd like to do a little research before you give them a solid answer to their question. Once again, they will respect your honesty, and you will also engender more trust from them because they know that you're not just going to hand them some answer off the top of your head that sounds good and leave it at that.

Don't say it if you don't know for certain that it's true.

The other edge of this sword is that you are the expert in most subject matters relating to their business technology, but sometimes they will think that they know something for a fact that you simply know is not true. You have to find a way to politely explain to them that they are mistaken about that particular thing, and if necessary, find an article somewhere on the internet that backs up your statement. No client wants to be told they're wrong just for the sake of being told they're wrong - you have to be able to show them why they are not correct. If you

can do that, then you will also be gaining their respect and establishing yourself as an expert on that subject matter.

You should also get used to explaining things that may be obvious to you, but may not be to the average business client. For example, the vast majority of clients may have a vague inkling of what DNS stands for and what it does, but most of them will not fully understand what it is. Give them kudos for what they do know, and then take the time to explain it to them in full if they seem interested.

If you're doing an email migration, then take a minute or two and explain to them what the DNS pointers for their email do, which are called MX records, and you will find out over time that your clients will become more and more knowledgeable about the things that you do - and that's a good thing. They will better understand the work you do, and they will appreciate you all the more for that.

Nobody Knows Everything

All right, that's kind of a broad statement, but as a general rule nobody knows everything. I think that our Chief Technology Officer Nathan might be the exception to that rule because I don't think I've ever heard of a topic come up in his presence that he didn't know just about everything and anything that can possibly be known about it. (I still don't know how he does it)

But for the rest of us human beings who were born of normal human genetic origin, nobody can know everything. So, do yourself a favor and don't try to pretend to know everything there is to know about everything technology related, and don't give your clients the impression that you do. That's one heck of an expectation to live up to and I wouldn't want anybody to try to carry that burden.

Don't be embarrassed or afraid or shy about telling a client you don't know something about a particular topic, but by all means let them know that you'll do a little research on it, or you'll ask the rest of the team, or you will try to be more knowledgeable about it the next time that you see

them. Just don't try to give the impression that every time the client brings up anything technology related, you're going to magically know the answer or all of the details about it.

Unless you think that you're Data from Star Trek, The Next Generation, you don't want to try to live up to that expectation.

All Together Now

First and foremost, never lose sight of the fact that you are part of a team.

If you don't feel that way after working within an IT support company for a few months, then you should start considering finding a more team-oriented place to work, but if it is a decent place to work you should try to stick it out at least for that first full year. After that, if you're not finding the team atmosphere and camaraderie that you know will help you to be a more successful engineer, then you might want to start looking around for other opportunities.

Ironically, the more skilled you become as an engineer and the longer that you are a part of a cohesive team, the more autonomous and self-sufficient you will become, but the rest of your team is always there for you whenever you need some assistance. That could mean that you have a large project that involves touching a lot of computers, or that you've run into a brick wall and need some assistance with solving a technical issue.

Likewise, you should always be willing to step in and lend a hand when another engineer needs it.

The Samurai Way – Stepping Into The Blow

As soon as you sense that a client might have an issue with you, a project, or something that you are working on, do yourself a favor and **do not try to avoid it** – address it immediately and directly. That is called

"the Samurai Way" or the "way of the Samurai Warrior," depending on where you hear about it.

The concept is simple.

Instead of trying to deflect or dodge a blow from your opponent's sword, step directly into and attack.

Why?

At its heart, "stepping into the blow" is about timing and manipulating your own and your opponent's center of gravity. Instead of moving away from an attack, which often leaves you off-balance and out of position, you move *into* it. By doing so, you can:

- **Get Inside the Attack:** You close the distance, which can neutralize the power of a long-range weapon like a katana.
- **Take Control of the Opponent's Center:** By moving forward, you force your opponent to adjust their balance. You can use their own momentum against them, destabilizing them and creating an opening for your own attack.
- **Turn Defense into Offense:** The act of "stepping into the blow" isn't passive defense. It's an aggressive interception that immediately puts you in a position to strike.

Now, be clear that I am not advocating for any kind of physical violence – we are simply talking about what typically ends up being a misunderstanding or difference of opinions between yourself and a client. However, most people are so used to having people react defensively to a criticism or negative observation that it completely throws them off guard when you are the one who brings up the subject that they want to approach you with.

So, don't go on the defensive – face the issue straight on and bring it up before they do.

It goes something like this:

You: "I couldn't help but notice that you don't seem very pleased with the way this project has been going."

Client: “Well, um, yes, that’s right. I really feel like you should have been able to complete the server project by now.”

You’ve caught them off guard – they weren’t quite ready to confront you about it, yet.

You: “I can understand why you might feel that way; I did mention before we started that if we ran into any unexpected issues, that things might take a bit longer than anticipated.”

Client: “Yes, I do remember you saying that. I guess I didn’t realize that you had run into any problems like that.”

You: “You’re right. We’ve been so busy trying to get everything knocked out that I forgot to track you down and catch you up to speed. I can do that now.”

You have now gained full control of the situation by “stepping into the blow” before the client had even fully formed their objection or concern into words.

As an added bonus, you have also now established that you are a person of resolution and resolve, and that you are not afraid to take control of a situation or take responsibility for an outcome.

Kudos to you!

Don’t Be a Fluffer

In the realm of providing professional services, it is very tempting sometimes for an engineer to want to add a little extra time when they document some of their billable tasks.

That is referred to as “fluffing your time.”

As a general rule, engineers are encouraged to round their time down to the nearest half hour if they run a few minutes past the half hour mark, but if they get 10 or 15 minutes into the next half hour time block, they should round it up to the next nearest hour. If they do that consistently, then all in all clients get billed fairly for your time. When you round your time up, you need to keep in mind that you’re just recouping some of the

time that you spent prepping for a service call or travel time to a client side, if the company you work for doesn't charge for travel time. Sometimes, a little research is required before you go to resolve an issue, and often that time doesn't get billed for, either.

There will also be plenty of times when you help a client out by providing them with guidance or advice on how to approach a specific project, or perform a quick follow-up task for something that you have already completed and ticketed, but you don't go back and add another billable entry for that - that is where rounding up to the next half-hour increment covers that little piece of extra work.

So, fluffing, or rounding up your time a little, can be completely acceptable as long as you don't take advantage of it.

However, you do need to be careful not to be constantly rounding your time up to the next increment as a general habit, because eventually clients might start to figure out that you're doing that and get a little anxious about it. Even if they don't call you out on it, if they notice that whenever you show up and work for an hour but charge them for 90 minutes, or you're there for two hours and they get charged for two and a half hours, then they're going to start trusting you less - and that's the last thing in the world that you want to do.

Never forget that your client relationships are the solid foundation you have with them.

That habit can become even more obvious if occasionally other engineers come in to help your client when there are non-urgent issues being dealt with, and that engineer also bills them fairly and rounds their time down to the nearest half hour as opposed to up to the next half hour mark. When it comes to larger projects, they may be bid out at a specific number of hours for the total project, and if there is a lot of research and prep work and ordering of parts and such, it is not entirely unfair to add a little extra time into the physical labor part of the project if the number of estimated hours allows for that.

For example, if you're doing a dual server migration and replacement project and it's quoted out at 30 hours of labor, but it only actually takes about 20 hours of work after client site, it is completely fair to add in five

or six hours to account for the time that you spent prepping the server before it went to the client site, helping to choose which server would be their best one to suit their needs, making sure that everything was documented prior to bringing the server on site, and doing any research necessary in order to make sure that it's a smooth migration. Time is money, and your time is valuable, after all.

There are a myriad of different circumstances that can justify charging the client a little more than the actual time that you spent on site or actively working on their project, but you have to be very discretionary about charging for that time. Clients expect you to charge them fairly, and in most cases they are more than happy to pay you for your work - but they don't want to pay you for fluff.

So, please try not to be a habitual fluffer.

Show Them Who You Are

Getting to know a client is a lot like when you were back in high school and went to the first semester of classes at the start of a school year.

If you totally kick butt and get straight A's across the board in all of your classes, then your teachers become conditioned to believe that you are a straight A student by the end of the first semester. For the rest of the year, as a general rule, when there's a judgment call to be made regarding your grade on something it will be made in your favor. If you don't do the greatest job on a report or on a project, you will find that they nudge the needle in your favor.

"Does this report deserve an A or a B?," they might wonder. Well, if you're a straight A student, then it probably gets an A or A-, even if it objectively only deserves a B at best.

The same general rule is true of your clients when you become their primary Network Engineer. If the first invoice or two or three that they get from you are for slightly less than the actual time that you spent on site, then moving forward they will expect that every time you send them an invoice, your time will be fairly charged for and that you are rounding things in their favor as a general rule.

In other words, they will stop watching the clock so closely.

Because this concept is so important to the success of your client relationships, I'll spell it out for you: if your first client visit is for a little less than 2 hours, then charge them for an hour and a half. If your first visit is for 4 hours, then charge them for three and a half hours. If you're there for a little over an hour on one of your first visits, then just charge them for an even hour, and don't include any travel time if they're not that far away from your office.

Within a few weeks or months, depending on how often you see them, they will just come to the understanding that you're going to bill them fairly. And then proceed to do so. To be clear, this doesn't mean that once you've gained their trust you have free reign to start overcharging them after that initial month or two; you have to be consistently fair about it.

What it means, though, is that after that initial "getting to know" you period, you can start charging them fully and fairly for all of your time and you should not find them questioning it or giving you any pushback. Those first few visits will establish the tone and expectations of you that they will have moving forward. That will also provide them the opportunity to get to like you and trust you, which helps to establish that friendly relationship that I spoke about at the beginning of this chapter.

On the other hand, if you give them any reason at all to question the fairness of your billing or the quality of your work early on, then you're going to find that it may take you months or longer to gain/regain their trust and establish a friendly relationship with them. To be honest, if you get off on the wrong foot, you'll need to think of a way to woo them back and win them over or you might want to think about getting another engineer assigned to them, at least for a while, until any negative feelings they have about you have faded away.

Remember: you only have one chance to make a good impression, so try not to screw it up.

I'm Just Like You

Clients really just want to know that you're like them, if not in every way, then at least in some fundamental ways. There are a number of ways to establish that, but above all, your approach needs to be sincere.

Tony Robbins is a strong advocate of "mirroring," which is the technique of mimicking your client in their speech and their mannerisms. While I can testify that there is some merit to that approach, you should be careful to not overdo it.

Mirroring goes something like this:

Start by being keenly observant of the client that you are interacting with, both verbally and nonverbally, and then try to mirror back the way that they interact with you. If they speak slowly and carefully, then try to slow down and match their cadence and style.

For example, if they tend to make a statement and then pause for a few seconds, you should try to do the same - but without being obvious about it. If the client uses a high-end vocabulary and you have the ability to do the same, then do so. Some clients will tend to use four and five syllable words, while others will prefer a more basic level of verbal communication.

There is an old saying: "Don't use a fifty-cent word when a five-cent word will do."

In other words, if your client is not prone to using a fancy or sophisticated vocabulary, then you should follow suit. There's nothing deceitful about that. Likewise, if you were raised in the country like I was, then there is nothing shameful about speaking with your natural rural accent. I can assure you that I have earned the right to speak with an accent from rural Virginia - I'm not faking it. On the other hand, if I speak to someone from northern Virginia, then my accent tends to lean more to the urban side of speaking styles.

You're On The Same Team

You absolutely want your clients to feel like you are on their side regarding all matters. You don't work for Microsoft or Adobe or Intuit, and you should always be taking your "client's side" when they have a beef with a software vendor, hardware manufacturer, or anybody outside of their or your company.

Let me clarify how that works:

Imagine your client is upset about having to replace half of their computers because they are too old to be upgraded from Windows 10 to Windows 11. They are frustrated and a little angry over the situation, so they might say, "What a ripoff. Microsoft is only doing that to force people to buy new computers."

Now you know and I know that computers don't last forever, and any computer that needs to be replaced is likely going to be at least 6 or 7 years old, if not older than that. Instead of pointing that out, you should take the client's side and say something like, "You're absolutely right – it really isn't fair, especially for smaller businesses who may not have the budget for it."

If Microsoft releases a bad Windows update that causes a client to have issues printing, then you are welcome to say, "Freaking Microsoft – looks like they put out another bad update."

You always want to take your client's side, and there may even be times when you have to go to bat for your clients against another vendor who is treating them poorly; that is great way for you to show them that you are looking out for their best interests. If their ISP is overcharging for Internet service based on what you know other clients are paying for the same service, then offer to get on the phone and speak to someone about getting their bill adjusted downward.

It may take a bit of time and effort, but if you consistently demonstrate that you're looking out for your clients, they will come to trust you and appreciate you for it. Patience and consistency are the key.

Stay In Perpetual Motion

The next piece of advice falls squarely in line with the one about clients watching your every move: learn how to stay in perpetual motion, or at least give that impression.

From the moment you arrive at the client site until the moment you leave, the client knows that you're on the clock. That means that they need to see you moving with intention and purpose the entire time that you are working on their computers and network. If they have 10 computers that need a software upgrade, I can guarantee you that most clients will get really, really annoyed if you sit down at the first computer and kick off an upgrade that's going to take several minutes and then just sit there and stare at the screen while it shows you a progress bar until it's completed. Even worse would be to sit there and fiddle around with your cell phone while the computer is doing its thing; clients don't want to pay you to read the news or check your Facebook account.

Remember what I said previously about taking bathroom breaks or taking personal phone calls?

Well, the same rule applies when you're sitting in front of a computer waiting for something to happen; you could be moving on to the next computer and kicking off the same process. This is especially true if, while you're sitting there waiting, you're checking your email on your cell phone, or reading the news, or doing anything other than providing billable service to the client.

You should always try to take the round robin approach when performing the a series of tasks on multiple computers:

Sit down at the first computer, kick off the first process, and then get up off of your butt and go to the next computer and kick off the first process. Rinse and repeat until you get to the point that the first computer has completed that first process, and then go back to it and kick off the next process, or wrap up the installation, or reboot the computer, or whatever needs to happen next.

Then return to the second computer and the third one. Rinse and repeat until all of the computers have been completed. You can make this

process go even faster if you stage the install files in a location on their server or a shared network folder that you can quickly and easily access from every computer, rather than running around with a thumb drive and having to plug it into each computer in order to run the installation or install the update.

There are some less-than-reputable IT support companies that intentionally slow this process down by doing one computer at a time and waiting until each one is finished before moving to the next, or by using the thumb drive method which adds an extra couple of minutes to each computer you need to work on. Do yourself a favor and don't fall into that greedy little habit. Will you get less billable time if you run more efficiently? Yes, but the client is going to love you and think that you're a rockstar.

If you show up at the client site and you're in perpetual motion from the moment you arrive until the moment you're ready to leave, they will feel like they've gotten great bang-for-buck and appreciate the fact that you were hustling for them the entire time that you were there.

Now, that doesn't mean you have to be running around like a madman and breaking a sweat as you dash from computer to computer; that's going to make you look frantic and disorganized. All that you need to do is move consistently and intentionally from computer to computer until all of your tasks have been completed. Your client will appreciate you for that effort, and it will make you appear more professional and organized.

It will also help to improve how much they like you as a person and as an engineer. You want to walk into each client site with a clear game plan, knowing exactly what you need to do on each computer and in what order to do it so that you don't look like you're a pinball bouncing around from computer to computer performing Random Acts of Technology in no particular order. You are not that person: you are The Consummate Network Engineer, you know what you're doing, you do it with Intention, and you methodically knock out every task until everything is done before you have the client sit down and test everything out with you.

Always remember to have the client test *everything you do* before you consider the task successfully completed. (You'll be hearing that a few more times from me.)

Which brings me to my next topic...

Until The Client Says So

You cannot consider any task successfully completed until the client has tested the application or the hardware and tells you that they are satisfied with the results.

Period.

It doesn't matter how many times *you* test something that you have done; it is imperative that the client themselves sit down at the computer and test the application or the printer or the Internet connection and tell you that it is working properly and that you have fulfilled their request.

There is no getting around that.

There is no taking any shortcut; you absolutely have to have the client sign off on what you have done before you can call the job complete and send them an invoice. If you do not, I guarantee you that you will not get very far in your career before you find yourself regularly going back to fix things or to redo things that you *thought* had been taken care of, but when the client sits down to try them out something doesn't work as expected, or you forgot some setting, or you forgot to bring something over from their previous computer, or something else that you didn't expect happens.

The job isn't done until the client says it is done.

However, if you have them test it for themselves and then look you in the eye and tell you that it's working the way they expect it to, then consider the job done. If they end up calling you back later to tell you something isn't working properly you can honestly say, "I'm so sorry about that - thank you for letting me know. When you tested it you told me that it was working correctly, but I'll be happy to come back over and take another look at it."

You always want the responsibility to go back on the client if something didn't turn out the way they wanted it to. That makes it extra *extra* important that you have a clear understanding of what their *expectation* is for the final outcome.

For example, if you go into a client site to install a new network printer, you want to be very clear about whether or not every user on the network is supposed to have access to it, or just specific users. That may sound like an odd statement, but if you're putting in a fancy color network printer that uses expensive ink toner, the client may only want a few people on their staff to be able to print to it.

Do yourself a favor and do not make the mistake of giving access to every single user on the network without confirming that's what they want. If you do, you run the risk of ticking off your client because you gave people access to a printer that they didn't want to have permission to use.

Which smoothly leads me into my next topic...

Communication

Most of the advice that I have to offer on the topic of becoming a Consummate Engineer will fall into two main categories: Communication and Client Management.

Communication is a core component of client management, which is why it is part of this chapter, and you will probably notice how many of the concepts that I am presenting in this book boil down to being components of good communication habits and skills.

I will start with a core principle that every good engineer should strive to follow:

Get It In Writing

At my company, we have a saying: "If it isn't in writing, then it never happened."

Time and time again we encounter situations where we have made recommendations to clients, but they conveniently forget that when something goes wrong that could have been prevented.

Engineer: “Don’t you remember when I told you last month that your switch needs to be replaced?”

Client: “Nope”

Engineer: “I stopped by for your monthly server checkup, and then I came to your office to let you know that the switch was starting to show signs of having issues.”

Client: “Doesn’t ring a bell.”

Well, now it’s just a case of “he said, she said.”

What you should always do when you make any kind of recommendation to a client, even if it is during a passing conversation, is to follow it up with an email the first chance you get. That is especially true if they decline your recommendation.

That looks something like this:

> Client:
>
> I just wanted to confirm that you have decided not to replace your main network switch, even though it appears to be showing early signs of failure. If that switch fails in the middle of a work day, it will bring the entire network down until we can get somebody over there to replace it for you.
>
> I have attached a quote for a replacement switch, so that you know how much it will cost when you’re ready to replace it.
>
> Please confirm that you do not wish to replace that switch at this point in time.
>
> Best Regards,
>
> -Engineer

That's it - you've covered your butt. It doesn't have to be long or complicated; just get it in writing.

They may decide to go ahead and approve the quote, in which case you have successfully guided your client into making the right decision, or they will decline your advice, in which case you have your recommendation in writing. If that switch fails and they conveniently forget that you told them it needed to be replaced, you can forward them your original email (or their reply) to establish the fact that you tried to get them to do the right thing.

...and Also Within Your Team

If you ask someone on your team to do something for you, follow it up with an email reminding them what they agreed to do for you. If another engineer's client needs something that you have become aware of, send the engineer that information in an email. If your boss promises to give you a raise at the end of the year, send them an email thanking them for recognizing your worth to the company, and let them know that you're looking forward to getting that pay increase at the end of the year.

Personally, if someone calls me on my cellphone to ask me for something while I'm away from my desk, I will ask them to follow up our conversation with an email reminder. If you want to be able to hold others accountable for things that that have said or agreed to, then always try to get it in writing.

If it isn't in writing, it never happened.

Thou Shalt KNOW Thy Client!

It seems like this should be fairly obvious: you should really get to know your clients.

If you're doing things right, your clients are going to be with you for many, many years, so take the opportunity to have genuine interactions with them to gain a little insight into what their interests are, what their family situation looks like, and observe how they respond to different situations. In a nutshell, that really just means being observant and

occasionally asking questions that will provide you additional insight into how their mind operates.

How do you get to know more about them without having to ask directly?

Look around their office. Are there photos of them in military uniform with fellow service members? Is there a signed photograph of their favorite baseball player? Are all of the photos on the wall pictures of them with their family out on camping trips or visiting national monuments?

Their office will usually be full of photographs and mementos from their personal lives, sitting in plain view for all the world to see. Why? Because they are consciously sharing their personal interests and their pastimes with anybody who walks into that workspace. So take a moment to observe and to learn about them.

Look for things that you may also have an affinity for, or a similar interest, and then casually open up a conversation about it:

> "I see that you were in the Navy; I spent some time in the military, too."
>
> or
>
> "I've always wanted to visit the Grand Canyon with my family; I bet that was quite an experience."
>
> or
>
> "I see you're a Michigan State fan, too. It looks like they're off to a great season."

Wait to see if they give you a reply or ask you a follow-up question. If they don't, then they're probably not interested in your chit-chat or not in the mood to talk about it, so just let it drop. This is going to be a long-term relationship, so there's no need to rush it. Even if you never get an opening to start that dialogue with them, there is still so much you can learn just by looking around their personal workspace.

Important: Do yourself a favor and *do not* try to engage them in a conversation about a topic that you know nothing about, or try to BS

them. If they sense that you're just saying things to butter them up or to gain their trust, then you might lose any chance of ever having a real bond with them - and you do want to establish that bond. If their workspace is cold and barren and devoid of any personal context for you to glean any insight from, then that speaks volumes about their personality.

That means that they have chosen not to share any of their personal life in their workspace, which means that they are probably not all that interested in sparking up a personal conversation with you or becoming lifelong buddies. It's also possible that they are not allowed to display personal items at work, so bide your time until you figure out how to best interact with them.

Think about how much easier it is to interact with people that you know well. If you know what somebody's pressure points are, then you can learn to avoid them. If you know what somebody's pleasure points are, or what makes them happy to think and talk about, then you can make a point to bring those up from time to time, especially when you see that they're not in the best of moods. However, you also need to be aware that some people will not want to be friends with you.

That's okay - it's their loss.

In those cases, you should just respect their wishes and not tread where you are not wanted. It's common sense, that's all. It certainly doesn't mean that you cannot have a highly functional business relationship with them and earn their trust and their respect. Please keep in mind that the effort to get to know them better is not supposed to be some kind of sales tactic or trick to gain their confidence; you should try to have a genuine interest in getting to know them better, which will facilitate a better work relationship all the way around.

Measure Twice

Many people think that for some reason if they have Adobe Acrobat Professional installed on one of their computers and then they buy a new computer, you can somehow wave your hands over the new computer and it will absorb Adobe Acrobat off of the old one.

Well, maybe that's an exaggeration; they think that you can copy the program over like you do with their data files. You will need the install files and you will need a license code in order to get the program properly installed and registered, but you need to let them know all of that before arriving with the new computer, not when you show up to do the work.

Get a complete list of all software applications installed on a computer before you estimate the time required to replace it, and then go through that list with the client to confirm which programs they want installed on the new computer and which ones can be left behind. Then make sure that you have access to the installation files (usually available from the vendor's website) and the license/registration information for each application. (Hint: That can usually be found in a confirmation email the client received when they purchased the software.)

You Cannot Overcommunicate! (seriously)

Clear and concise communication with your clients is going to be the linchpin that holds your relationships in good standing and makes sure that you're always doing exactly what the client wants and expects of you. You know what they say about assuming anything: when you assume, you make an @ss out of Yumee. (Poor Yumee!)

Seriously, though, you probably wouldn't believe how many problems I have seen engineers have that could have been avoided by simply having more and/or better communication with a client. Never forget that you and your client are both on the same side; you both want for everything to work properly and to go smoothly.

First of all, you need to clearly understand what the client wants you to accomplish.

Then, you have to give the client a clear expectation of exactly what you can and are going to do. Sometimes they are expecting you to pull off some kind of miracle or to do something that simply can't be done, such as taking an application that's installed on one computer and magically getting it installed on another computer without the installation files to do that with.

It is your responsibility to make sure that the client understands what you need from them in order to accomplish a specific task, and to let them know what you need from them in order to do it successfully.

Setting Proper Expectations

This is another really, really important topic to discuss, and it is at the very core of managing clients successfully.

This one is HUGE - right up there with client communication. A fundamental rule that I learned early in my career (but still a few years in) and that I teach every engineer when they first join our team is that you *absolutely have to set proper expectations* with the client for every project you do for them, and for every solution that you implement, and for every piece of equipment that you deploy. If you do not do that, then you will almost invariably run into problems, because the client will expect something different than what you have delivered for them, and that always spells trouble.

Always.

Every Engineer Is a Salesman

Whether you like it or not, if you're a Network Engineer and you're meeting regularly with clients to support them and make recommendations, you're a salesman.

I do not hate sales people; they serve a valuable purpose for many organizations, especially larger ones. There are honorable ones who are trying to provide value to potential clients and customers who are searching for necessary products and services. My company just happens to be small enough and selective enough to not require a sales team, because our reputation and fairly minimal advertising efforts draw new business to us regularly without having to cold call anyone (we have never done that) or to purchase email marketing lists and spam the crap out of everyone (we have never done that, either.)

It's pretty amazing that after almost twenty years in business, PJ Networks has neither a sales team nor a single sales person in the entire company. I am personally a part of the initial interactions with every potential client leading up to us becoming their managed support provider. The reason why I do not want a sales team is that many sales people will promise things and sell things to a client that engineers cannot possibly deliver.

I'm not kidding about that.

Because sales people generally work for commissions, they will often promise a potential client everything and anything under the sun in order to seal the deal, and as a general rule they're going to get paid money for making those sales.

I understand that - they have families to feed, after all.

The problem is that if you tell a potential client that you're going to guarantee that X, Y, and Z is going to do something 100% of the time absolutely and without fail and exceed all of their expectations, then it's not the sales person who has to make that happen. It is the engineers, and because of that, we tend to be suspicious of salespeople in our industry.

However, I do not wish to paint ALL sales people with the same broad stroke of a brush. Some of them are noble, trustworthy, and genuinely try to look out for the best interests of their clients and customers. I'm just not sure how much of a temptation it would be for someone who desperately needs to close some deals in order to be able to pay their mortgage and feed their family; I would never want to find myself in that position, personally.

At PJ Networks, that is where I come in.

We do not have any sales people. We do not have a sales team. We sort of have a marketing division that gets the word out to the public that we are an outstanding IT support company with Managed Services that they really would benefit from having, but beyond that we do not promise the

moon or the stars above. We just tell everybody that we'll do a kick-butt job at supporting their organization and then wait for them to call us to schedule a meeting.

At that point, it is up to me to convince the client that we're going to always go the extra mile for them, and after all of these years we still have clients that have been with us for 15 or more years that we have never let down. All of our clients know that I will personally respond to the whenever they have a concern and that we will always make things right for them.

The point that I'm trying to make is that as an engineer for any IT support company, you are a salesperson, and everything that you say that your company can do they need to be able to do.

Otherwise, please do not say it.

Earning The Client's Trust

Another big one.

Many of the subsequent topics - bite-sized snippets of wisdom - play directly into this one. Some are longer than others, but I tried to keep each talking point down to just a few paragraphs. The ones that needed more than that are a bit longer, but there are so many to cover that I'll try to keep each one short and to the point.

Bite Your Tongue

If you're the kind of person who tends to have knee-jerk reactions to unexpected things, then you're going to have to learn to control those urges. If you have children, then you learn pretty early on that when you stub your toe, you can't just blurt out "Sh*t" or some other piece of profanity that comes to your lips. For some folks, that's a hard thing to get used to, but if it is important enough to you, then eventually you master the skill of holding your tongue.

You will want to learn to do the same thing with your clients.

When you're working on something and then it suddenly backfires, or breaks, or crashes, you can't just blurt out a string of cuss words and not expect your client to be offended. Even when the client isn't around, you should still bite your tongue and keep your profanity on the inside of your head, not let it escape your lips.

You never know when a client might be right around the corner, and if you're regularly cussing eventually you'll drop an f-bomb or other expletive at the wrong time. If you get into the habit of simply not spewing out expletives every time something doesn't go as expected, then after a while it becomes second nature to keep your mouth shut when you get rattled. In fact, over time you may even find that your reaction to negative situations becomes more subdued and you'll learn how to simply take things in stride and keep on going.

So, do yourself a favor and learn how to control your temper. A good place to start is to learn how to bite your tongue.

Do You Want To Know a Secret?

This is the exception to the rule about overcommunicating.

Over the course of time, if you do develop solid relationships with your clients, you are going to hear things and see things that the common person who does not work for that company would not be privy to.

You will hear gossip about employees or the owners, you will hear secrets that are whispered from one employee to the other when you're working on their computers and they're so used to having you there that they forgot that you were within earshot, or you may stumble across a document or some information and their data systems that clearly should not be made public knowledge.

Do yourself a favor: keep it to yourself and keep your big mouth shut, no matter how big or juicy the gossip is.

If clients lose their faith that they can be themselves and relax around you and trust you not to share information that you are exposed to, then

over time that's going to sour your relationship with them entirely; they won't be comfortable whenever you're around. So, whether it's that Susie Q is pregnant and she doesn't know who the father is, or the owner of the company has been sneaking around on his wife, keep it to yourself, don't spread the rumor either inside or outside of the organization, and just pretend like you did not hear it or know about it in the first place.

Not only will that serve you well throughout the course of your career, but it's also the right thing to do.Don't Bottle It Up

This is the other side of the same coin.

If you have grievances with your employer or with your clients, then you should deal with those head-on, face to face, and follow the guidelines that I have offered to decide whether or not the situation can be made better, or if it's time to just walk away and find a fresh start elsewhere. If you have a toxic relationship with specific clients, try to work through the issues together or see if your employer can move them to a different engineer.

If you have a really awesome boss, they may even be willing to step in on your behalf and sort the client out for/with you - or just let the client go altogether.

If you simply cannot make a happy spot for yourself as a part of any particular company, then do yourself and everyone else a favor and just go find somewhere else that you like better. Don't Grumble and Mumble and hang on tooth and nail if they try to let you go - just make the decision to go on your own. Not only does it show that you have a little backbone, but it also shows that you're willing to do whatever it takes to look out for your own best interests.

And that's a good thing.

Just be careful not to bottle it all up inside and allow it to eat away at you until you either snap or just quit out of frustration. You deserve better than that.

Bring a Freaking Notebook!

Okay, so this is kind of a pet peeve of mine regarding the engineers that work for me, but For the Love of All that is Good please bring a freaking notebook to a client meeting, especially if it's one of your very first meetings with them. It doesn't really matter what you actually write on the pages of the notebook, or if you're just scribbling Doodles of SpongeBob SquarePants; the client needs to feel that you are listening to what they're saying and taking notes. I cannot stress that strongly enough. Write down all pertinent information they give you and at least look like you're taking them seriously. (Hopefully you are!)

I do not mean that flippantly, and if any existing or future clients of PJ Networks Computer Services are reading this book and see this section, I want you to know that when I am taking notes, I am writing things that I think are pertinent to the relationship that we are about to establish with your company. And, in fact, I usually parrot that information back to you as a prospective client in an email summarizing everything that you said to us when we were meeting with you, while also trying to explain and confirm the way that you expect things to move forward with my company at the helm of your technology.

The Notebook is important for multiple reasons.

For one thing, I do not expect any engineer to remember every single word that is mentioned or everything that is spoken about during an initial client meeting, so I think it is important for us to take notes about those things. Second, it is very valuable after that initial meeting for a client to hear you echo back to them all of the things that you discussed during your meeting so that they know that they are important to you. If you do not feel that the client is going to be important to you or that your interactions with them are not going to be relevant, then you're in the wrong line of work - this book is not meant for you.

I'm speaking to the engineers out there who really want to make a difference in the world by helping small businesses to prosper and grow, and who want to provide outstanding service to the point that one day they may be referred to as a Consummate Engineer.

Casting The First Stone

If you walk into a new client site and everything is a total disaster, then it is really easy to start ragging on the company or person who was taking care of the network environment before you got there. I would like to caution you to please restrain yourself from launching into a tirade about how terrible the people before you were at managing a network.

There are two reasons for that.

First, if you don't solidly know who the client was working with, it could easily turn out that whoever it was a member of the owner's family, or that the business they were using to manage their networks is friends with somebody at the client's workplace, and that's how they got the gig in the first place. Always remember that you may be ragging on somebody's cousin or nephew or uncle.

Second, it's going to make you sound petty if you start going off on a litany of things that you're seeing that were done wrong or poorly. Unless you think that you'll never make a mistake, or that your work is perfect, then please don't be a hypocrite and start pointing out all of the mistakes that the former network administrator or support team made. Leave the criticisms and the hypocrisy to your competitors and always choose the high road.

Besides, they already know how bad things are.

You'll probably find that you don't have to say a word about what condition the network is in; that's why the client brought you in to begin with! If they were perfectly satisfied with the way things were running, then there wouldn't have been any reason for them to call you in to talk about taking over the management of the network, would there? So, just relax and let the client go on and on about how terrible the service was with the other company, about how much money was spent with them, and about other concerns and criticisms that they may have. You can express your sympathies (lightly), but don't join in on the bashing.

If you are wise, then you will listen carefully to everything the client complains about and take notes so that you know what their trigger points are, and the specific issues that caused them to want to leave that other company in the first place.

Keep It Light

Please don't make the common mistake of feeling like you have to be all super-serious during that first client meeting. The client is probably already very tense about making the decision to drop the support company or person that they've been using for the last X number of years, so don't add more tension to that situation.

Try to do the opposite.

Keep the conversation upbeat and light-hearted so that they can relax and be open and honest with you. You want to sound positive and optimistic, but without sounding glib or flippant about their situation.

You want them to like you - remember?

If you start off with a serious and somber tone, then it's either going to make you seem inexperienced and nervous, are you going to come across as being mechanical or impersonal. You don't want to do that.

If instead you are good-natured and easygoing as you talk about their current issues and their plans for the future, then they will get the impression that you are going to be pleasant to work with and that you are competent at what you do. If your ultimate goal is to end up working with nothing but clients that are pleasant to work with and enjoyable to be around, then the last thing you want to do is establish a tone in a relationship that is going to be all business and serious conversations.

That doesn't mean that you should come through the door laughing and joking and acting like this is some sort of a big game for you; you want the client to know that you are taking their needs seriously. If you do your best to have a positive and upbeat meeting with them but they still seem dour or skeptical or pessimistic that anything is going to get any better, then that's the first red flag that this may not be a relationship you want to have. That doesn't mean that you have to write them off if they don't

go along with your friendly and jovial ways, but it is a good sign that they're not going to be the easiest client to win over and gain their trust quickly.

But that's okay.

As long as they're not rude, belligerent, or downright cranky with you, then just have faith that over time you will win them over and they will come to think of you as being a friend to their business.

Keep It Simple

In addition to keeping things upbeat, you also want to avoid another common mistake, which is to get too technical when having your initial meeting with a client. Clients prefer to have things explained to them in general terms without getting all of the nitty-gritty details of how something actually works.

For example, you can tell a client that you recommend a VPN firewall with advanced security that will allow remote users to connect into the office, and also provide enterprise-class Internet security for the local network; that's all that they really need or want to know. You don't need to delve into what kind of encryption protocols are being used or explain how deep packet inspection works. If you try to do that, their eyes are just going to glaze over and you're going to lose them.

Just give them a good solid understanding of the basic concepts, and if they ask questions or want more detail then you can provide it to them knowing that it's what they want.

Always Bring Your Gear

Not all of your first client meetings will require you to fix anything - but some of them certainly will. In fact, that may even be the reason why the client asked you and to meet with them, because their current it support team hasn't been able to fix things that really need to be resolved. Because of that, you should always bring your basic set of troubleshooting gear with you when you arrive for that first meeting.

You don't need to bring it with you through the door when you arrive, unless you're aware that the client has some sort of a red hot emergency that needs to be fixed before they'll even want to sit down and talk to you. But you should at least have it in your vehicle so that when they do tell you about their issues and show you what needs to be fixed, you have the necessary equipment to take care of it. Such equipment might include a cable tester and toner, a crimping tool, a laptop with your basic troubleshooting software installed and ready to go, and any other core engineer gear that you normally carry around with you.

If you walk through the door for the first time to meet the client and leave there having resolved issues that somebody else could not, that's a very good sign that you're going to win them over as a client and that they're going to think fondly of you moving forward.

So try to follow this one basic rule: bring your gear with you.

ee-NUN-see-ate

Clear and concise communication with your clients is going to be a core requirement if you want to be a successful engineer. One thing that often gets overlooked is whether or not an engineer has the ability to speak clearly - meaning that they enunciate when they speak, they don't jumble their words together, and they don't mumble their words down at the floor.

So, practice speaking slowly and precisely, especially when discussing something that is technical in nature with the client. Keep in mind that unless they are technically oriented (most clients are not, but some actually are), they will need a moment after each statement that you make in order to fully process it. So, pause after each sentence and watch them as they catch up with you, and then proceed with confidence that they are still following what you are saying. If you see a look of confusion or total lack of comprehension in their eyes, then you may as well cut it short and get to the point, skipping most of the technical details.

More importantly, if you are a mumbler or you speak too quickly for most folks to understand you, then please try to slow down and enunciate your words clearly.

Why So Serious…?

Always remember that if you look worried, the client will pick up on that and get worried, too. When I was a new engineer at CompuVision in Santa Barbara and still learning the trade, I took my job very, very seriously.

So seriously, in fact, that I had a tendency to walk around deeply absorbed in thought and looking very serious, especially when I was working on or dealing with something that I was unfamiliar with. I was very uncomfortable touching new technology or working on equipment that I'd never worked with before (John Hunt can verify that) and I had a tendency to look very uptight and anxious when doing such things.

One day, when John and I were both out at a client site during my first year working for him, he happened to catch sight of that and he brought it to my attention.

He told me something that I remember to this day, and I teach it to all of our engineers: if you look nervous or worried about something, then your clients will be worried, too. Even if you were thinking about something that is entirely unrelated to that client or to your work in general, if they see you looking serious they will assume that something is wrong. If you walk out of their server room with a scowl on your face or a worried look on your brow, then they are prone to start thinking that something is wrong and wonder what it is.

In fact, if you look worried enough, they will even come over and ask you what's going on.

So, try to walk around client sites with a confident look on your face, and a smile if you can manage that. Some people simply don't smile naturally, and their neutral face is, well, less than happy. And that's okay; to each his own. However, you can at least make the effort to not look overly serious, concerned, or troubled by anything. You will also find that

clients enjoy being around you a lot more if you're generally happy than if you walk around with a scowl on your face all the time, so lighten up a little bit!

Every Problem Has A Solution

There is no such thing as a problem that cannot be solved, fixed, or resolved in some fashion. Period.

Don't let anyone ever convince you otherwise.

Even if a server has crashed hard, and the motherboard is dead, as long as you have good backups everything is going to be just fine. (Don't forget that you're responsible for those backups!) So, even if you have to tell your client that their server is dead, you still can offer a plan of action and initiate an Emergency Disaster Recovery.

Emergency Disaster Recovery scenarios are extremely rare if you take good care of your clients.

In my three decades as a Network Systems Engineer, I have had to initiate full-blown emergency disaster recovery procedures fewer than a twenty times. That is mostly due to making sure that client servers have redundant power supplies, hard drives, memory, and whenever possible, redundant CPUs - and making sure they get replaced in a timely fashion. A good and properly chosen server can provide a solid 7 years of service, but that's about as long as you want to push it.

As long as you follow Best Practices, recommend quality products and solutions, insist on having good backups, and implement as much redundancy as possible for critical systems, then there will always be a way to get a client back up and running, no matter how bad things get.

Where Are You Going…?

The main point that I am trying to make is that you never, ever, ever walk away from a client site leaving an unresolved issue behind and tell the client that you don't know how to solve it. There is always going to be a next step, and you have to tell the client what you're going to do next.

Here are some examples:

- "I've researched this issue thoroughly, but haven't found the solution, yet. I'm going to run it past the rest of the team and then let you know what we're going to do next." And then do that.
- I've never seen this particular issue before, but it looks like it is related to _____. I'm going to research that and then get right back to you." And then do that.
- "I've texted our CTO about this problem and he said that he'll help me figure out the solution."
- "I think I know what to try next, but I want to do a little more research before I do."

The most important thing is that the client knows that you are actively working on their problem, and that it's at the very top of your to-do list if it is urgent, or at least it's on your radar screen if it is less critical. Most importantly, it means that they don't have to worry about it because they know that you are on top of it.

Stick With What You Know Works

Over the course of the years, my company has tried many different makes, models, and brands of computers and network equipment. We have learned that you're not always looking for the most expensive or the least expensive solution, but one that's going to last and work reliably with a minimal amount of reactive support.

So, when we come across a brand of wireless access point or firewall that works consistently well, we give it a few years to prove that it can stand the test of time and then we make that brand the only one that we will sell to clients. If they want to buy something else on their own and have us set it up for them, we're happy to do that as long as we know it's a reputable product with a good reputation. Otherwise, we will ask them to please our recommended solution because we are the ones who end up having to support it. If it's going to regularly have issues or cause problems, then those are going to be *our* problems to deal with.

Since I founded PJ Networks back in 2005, my company has almost exclusively recommended and dealt with Dell servers, workstations, and laptops, so I can tell you from personal experience that their servers are extremely reliable. Out of over 100 client servers that we support, it is rare that even a single one that is still covered by a Dell warranty has any kind of hardware-related issue. If there is a hardware failure, then Dell will have the replacement part on site by 10AM the next morning. That is why we *strongly* recommend (practically require) that all client servers are kept under warranty for the entire time that they are in service, which is typically for a full 7 years.

Moving right along...

Be Nice About It, But Don't Sugar Coat It

Ever since computers became a regular part of the business office environment, there have been jokes and memes about the condescending Computer Guy who likes to make everybody around him feel stupid.

Don't be that person.

There is never a situation where you are justified in acting like a know-it-all and talking down to your client, regardless of what the message is. You have a choice in every situation that arises to be nice about it or to be a jerk about it. Choose the high road and always be nice, professional, courteous, and respectful.

Always, no exceptions.

However, that is not an excuse to sugarcoat bad news, or to take a bad situation and distort it to make it sound better than it actually is. You don't have to be an alarmist and you can certainly be gentle about it, but don't spin it to the point that it no longer properly reflects the reality of the situation. Otherwise, your clients will lose faith in you and they'll stop believing you when they hear you say things about their business network or their computers.

Be nice, but don't sugarcoat anything you say to them.

Blunt Force Trauma

There will be times during the course of your career when you have to deliver bad news to a client - sometimes extremely bad news, such as when a server operating system gets horribly corrupted and you have to perform an emergency restore job in the middle of their business hours.

While computer hardware and firmware has dramatically improved over the years so that there are many forms of self-healing and auto recovery to help minimize the occurrence of emergency disasters in areas, there may still be an occasion or two during the course of an average year when something goes sideways and you have to respond to an emergency situation.

This is where you need to apply that pound of cure that we will speak about later. But first, you have to deliver the bad news to the client. Time to earn your Jedi Master points! These are the types of situations that help to forge you into a Seasoned Veteran Engineer; don't shy away from them. Embrace them, instead.

Don't be sheepish about it or dance around the subject: get right to the point. Remember the Samurai Way that we discussed earlier: YOU take the lead in this situation and go speak with your client about it right away.

If their firewall has fizzled out in the middle of a work day and your client relies heavily on the Internet, then with any luck at all you'll have an old firewall laying around that you can quickly spin up as a temporary replacement, or a spare one in your vehicle that you can pull out and slap into place as a stopgap fix until you can get the proper solution in place.

Dial a Friend if necessary, but you definitely want to come up with a game plan BEFORE you speak with the client about the situation. Just approaching them to say "stuff's broken" is not going to come across very well. However, if you tell them "Stuff is broken and here's what we're doing to fix it," well, that's good client management!

As Joel Osteen once said in one of the stories he told his congregation (paraphrased), "If the building's on fire, I don't want someone to come and tell me that and then run out of the building. I want them to come and tell me that the building's on fire, that they've called the fire department, they've gotten everybody moving outside, and that I need to come outside, too, so that I can be safe. In other words, I want to be surrounded by people that have a game plan *and* a solution, not just people that can point out problems that are obvious."

So, be the engineer who always has a plan, not the engineer who's always coming to the client with bad news and that's all you have to offer.

Worst Case Scenario

The worst case scenario would be that a client has a complete server crash, and you cannot get connected into it remotely, so you send someone onsite immediately - preferably a senior level engineer. If that engineer determines that the motherboard on the server is dead, or the RAID controller went belly up, then there is not going to be any easy way to get it back up and running quickly unless you have a virtual image stored in the cloud that you can fire up quickly, or a spare server sitting around that you can slap in as a loner and try to restore an image to it.

But, hey - who ever said that our job is easy..?

The worst case scenario is that you have to go to the client and tell them that their server has died, but then you immediately tell them what you're going to do next to fix the situation.

If the server is still under warranty (remember - we are adamant that every client server has an active manufacturer's warranty), then in the case of Dell we know that they will have the replacement part delivered by 10AM the following morning. If the client can afford to be down until then (like the server dies at the end of a workday), then usually they will be fine with waiting for the part to arrive before they can resume operations (imagine hearing cheers in the background as their employees are sent home early for the day.)

If their firewall has died, bringing them to a grinding halt, then slap something else in place temporarily to get them back up and running until a proper replacement can be obtained. If their entire network has been hit by ransomware and all of their files have been rendered unusable, then be honest with them about it and begin the recovery process from their most recent backups.

The point here is that you can always get a client back up and running, but you need to be honest with them about what has happened and how long it is going to take; remember the importance of setting clear expectations.

I Feel Your Pain

When a client is facing a bad situation or a major unexpected expense, like the sudden need to replace an expensive piece of equipment, you want to be sympathetic and empathetic to the client's situation. Let them know that you feel their pain, that you understand how this information is probably coming to them without any warning, and how upsetting or frustrating it might be for them. Let them know that you're not just a robot or a heartless person.

In addition to being a Consummate Engineer, you should always strive to be a Compassionate Engineer, as well.

Whenever I Call You Friend

This is just another reminder that you're not just a service provider for your clients - you actually want to develop solid relationships with them.

At the very least your goal should be to have pleasant interactions and conversations with your clients. In many cases you will find that you can develop really good relationships with them, and ultimately that is what you want, but that doesn't mean you have the right to be rude or unfriendly to them even if they don't seem to warm up to you. If you're able to consistently establish those kinds of relationships with your clients, then every day that you're out in the field it is pretty much a day that you're out visiting friends and helping them with problems and requests.

That's not a bad lifestyle to be living!

I have worked with and trained dozens and dozens of Network Engineers over the years, and the ones that truly seem to enjoy their jobs and the career path that they have chosen are the ones that have learned to make friends with all of their clients, at least as much as is reasonably possible. There will absolutely be a few businesses you work with that want absolutely no kind of actual friendly interaction with you, though; they only want you to take care of their computers and their business technology and then be on your way. Every time they see you all they really see is dollar signs representing the money that they're spending on you, and lost productivity whenever you have to get employees off of their computers while you perform whatever tasks are required of you.

I will be honest and tell you that we have a very low tolerance for that kind of client at PJ Networks, but as long as the client is civil and polite about things, then we can deal with it.

Now, being the primary engineer for a client like that isn't usually a whole lot of fun, but nobody said that every minute of every day that you work as a Network Systems Engineer is going to be a hoot. There are always going to be tasks that you have to perform and clients that you have to deal with that don't bring you copious amounts of joy, any more than

anybody's life is filled with endless perfect moments of Glee and Happiness.

Please Answer Your Phone!

One of the conditions for being a Field Engineer at PJ Networks is that you have to answer your phone 24/7.

I know that feels a little demanding, but I founded my company on the guarantee that clients would always be able to reach an engineer. Even though we have a team of engineers, now, you never know when a client might be trying to reach their Primary Engineer, and it is your obligation to be available to them. It's not the end of the world if the client doesn't reach their primary, because they can always call our business support extension and they will get an engineer.

However, the client may actually need something that only their Primary Engineer fully understands or is aware of, even though we do our best to document every little detail about every single client. If a client is having an emergency on a Sunday afternoon and they need something specific that only their primary knows, then it is very important that we be able to assist them. Our preference is that clients try to contact our help desk team, but having them call an engineer's cellphone directly is definitely something that we try to avoid.

One of the reasons why we discourage engineers from handing out their cell phone number to their clients is because we want them to always be calling their engineer's extension, which will forward through to their cell phone after a few rings. When it does, it indicates that it's coming from our business line and not a direct call to their cell phone, which makes it easier to screen out telemarketers and other spam callers.

The other important reason why you want your clients to call your work extension is that when you are on vacation or out sick, your extension can be forwarded to another engineer. Not only does that keep phone calls off of you when you're not feeling ell or are trying to take a well-deserved break from work with your family, but it makes sure that your

clients get assistance when they need it. After all, you don't really want clients anxiously awaiting a callback from you when somebody else could have assisted them with their needs.

Another reason to make yourself available to the rest of the team is that if a client has a server go down over the weekend or late at night, then someone will need to be out at the client site when they arrive for work the next business day, if not sooner. Before that situation can be properly addressed, the team needs to know who will be going to pick up that support visit. If you're not answering your phone on a Sunday night, then you won't be of any value to the rest of the team or the client if their server goes down that evening.

If the client ends up reaching another engineer instead of their primary when they call, then that engineer will likely be trying to reach out to the primary engineer to let them know what's going on, but if you don't answer your phone, then we have a problem.

So when your phone rings, please answer your it if you possibly can, especially if you see that it is a client or somebody from work trying to get in touch with you. If you don't have the time to take the call right then, then simply answer it and tell them that you'll call them back shortly.

Punctuality Is a Virtue

If you can't always make it on time to a client meeting, it's not the end of the world. And, if you end up being the primary engineer for a company who regularly wants you to come in for scheduled meetings and you just can't seem to make it there exactly on time, then hopefully they will eventually come to understand that's your modus operandi and they will be forgiving when you don't make it there on time for every meeting.

That is not an excuse for always being late, though.

Even though this is a common challenge that many engineers struggle with, you really need to learn how to try to make it to client meetings on time. All that really means is that you need to start moving 10 minutes earlier than you would normally get moving and you'll usually get there

on time. My experience has been that if a Network Engineer is typically 10 to 15 minutes late for every meeting, if they head out 10 to 15 minutes early, they should make it to all of their meetings right on time.

That's not rocket science - just good common sense.

If you do end up running late for a meeting, then at least be considerate enough to call them to let them know. That's not an excuse for not making it to meetings on time, but you should make a sincere effort to let the client know that even though you're running late, you really did mean to be there on time. If you do good work for them, you've saved their butts a few times from serious problems, and you always respond when they really need you, they will probably be forgiving.

Clients who love you will be forgiving of most things; try not to abuse that privilege.

I've managed to get to the point that I am now either right on time or less than 5 minutes late for most meetings - a serious improvement! As I've already mentioned, *The Consummate Network Engineer* is not a destination, it's a journey, and I am still a work in progress.

Time Is On My Side

When onboarding a client, it is important for our engineers to remember that regardless of how much or how little work there is going to be required to get a client into good working order, our standing policy is that we have 90 days to get a client into "Maintenance Mode." That is when everything is generally working well, all critical issues have been addressed, badly outdated systems have either been upgraded or replaced, and any recurring issues have been properly dealt with.

It is easy to go into a new client site that is in really poor condition and feel like you need to clear your schedule for the next 30 days in order to get everything done, but you have to resist that urge and map out a 3-month game plan for them. You want to compile a complete list of anything and everything that does not live up to best practice standards

and then prioritize it. The most urgent issues/concerns should go on the list of things to be addressed within the first 30 days, followed by the medium priority items that you can tackle during the second month, and then the lower priority items that can be dealt with during the third month.

By the end of the first 90 days the client should have a minimum number of remaining issues (if any), and for the most part, you are addressing any new support requests from the client and keeping an eye out for other things that can be improved over time.

Make sure that the client is fully aware of the game plan once you put it together and avoid being rushed into anything that doesn't warrant an expedited response. Just keep assuring them that by the end of the first three months, your goal is to have them in "Maintenance Mode."

Fool Me Once, Shame On You

Many of the clients that you work with will be coming to you as a result of negative experiences with their current and/or prior IT support company, and they will be wary of everything you say and most of your recommendations.

And that's okay.

Keep in mind that they may have been sold solutions that they don't even need, or paid twice as much for a server as they should have, or have issues that were never resolved by the team that was there before you. While this may make it more challenging for you to win their trust and get them to start believing you when you make a recommendation, it shouldn't take very long before they start to recognize that you actually know what you're doing and that you make solid recommendations to them based on what is in their best interests, and not your own.

Over the years, I have had to deal with some clients who were extremely suspicious and distrusting of everything I said to them, but that's just

human nature: “Fool me twice, shame on me.” Some of our very best clients today were clients who had been badly burned (or at least seriously misled) in previous interactions with other Network Engineers, so please be patient and understanding with them if it takes a while for a new client to warm up to you.

They Don’t Know What They Don’t Know

As a general rule, clients simply don’t know what they don’t know, and often when you bring up something that needs to be done they will be totally surprised to hear about it.

For example, many clients mistakenly believe that if they have a Microsoft 365 account, Microsoft is automatically backing up their data for them every day, and that they can recover data from those backups anytime that they want. The truth of the matter is that Microsoft clearly says in their online agreements that they only guarantee recovery of your data for 14 days, and after that it is up to you to back it up.

Therefore, when you tell them that you have a third-party backup solution for their Microsoft accounts they will often act surprised, like you’re trying to sell them something that they don’t need. All you have to do is find one of the many articles that explains that Microsoft does not back up their data for them, and then provide them with a link so they can read it for themselves. The best time to do that is when you’re presenting them with your recommendation for your backup solution.

Once again, over the course of time, if you can prove time and again that you know what you’re talking about and that your recommendations are good ones, they will usually stop questioning you and just go along with what you suggest they should be doing.

Forgive Them, For They Know Not What They Do

Clients often say things or do things completely out of ignorance. It is easy for us as Network Systems Engineers to take those actions out of context and to imagine that they did them out of spite, or out of

intentional ignorance, or just to be difficult, but trust me - they probably only did it because they didn't know any better. I don't know if there's ever been a company in the history of mankind that intentionally infected themselves with ransomware and brought down their entire business network just to be spiteful to themselves.

Okay, maybe that's not true. I can certainly imagine that a disgruntled employee might try to wreak havoc down upon their employer and intentionally bring ransomware into a business network to bring the entire company down. I would like to think that those cases are very few and far between. (I haven't seen that personally, yet)

As a general rule, though, you seriously have to understand that most end users are trying their best just to get their work done, to use the software and the tools they've been given in a positive and productive manner, and to cooperate with everything and anything that you've asked them to do in your support of their employer. So, when they occasionally make mistakes, or they just don't understand what you're asking of them, please take a deep breath and consider them to be like a small child who's been asked to do a relatively basic chore, but just doesn't seem to get it: forgive them for what they do, because they usually mean well.

Try to be patient and remind yourself that you're both on the same side. If they powered off a computer right in the middle of a BIOS update because it seemed like it was taking too long, and they bricked the computer, well, it's their computer and it wasn't your fault. Things happen, sometimes.

Mostly, this is an exercise in patience and understanding, so try to be easy with them.

Don't Believe a Word Of It

In their infinite desire to be helpful, clients will often provide you with information that they think will be useful to us, particularly regarding a piece of equipment or a software application that they heavily use, and they usually state it as fact. Here's a word for the wise: never believe

anything a client tells you, or at least don't take it at face value. If it has anything to do with anything technical, and they're not also a Network Engineer, then in their mistaken confidence about knowing what's going on with their own systems they will often tell you X when the truth is actually Z.

For example, you ask a client if they're running Windows Home or Windows Professional, and they confidently tell you Windows Professional. If you take that at face value, then you may approach a troubleshooting process incorrectly, because a wrong assumption was made. You will always want to verify what a client tells you in such a way that it doesn't embarrass them or make it look like you're doubting them. After all, you want to get along with them - they pay you good money for your work!

Just try not to make any major plans or decisions based purely on something that a client tells you, because they are often mistaken.

That may sound trivial, but I want to share an example that happens quite frequently when dealing with a client that is not fully onboarded or managed by my company.

We'll ask an employee of theirs to reboot their computer, and they'll tell us that they did - three times already. If you take them at face value, then you may go down a path of troubleshooting without having done the most basic of initial steps, which is to reboot the computer for them. If you look in the Task Manager and then click on the Performance tab, it will tell you exactly how long the CPU has been running since the last time the computer was rebooted. If the client recently rebooted the system, it should indicate that it has been running for less than an hour, but what you will often find when you look is that it's been up for three or four or five or ten or twenty days.

How does that happen?

Well, there's a setting in Windows that tells the computer to use a feature called Fast Startup, which means that when you tell the computer to shut down, it doesn't actually shut down - it goes to sleep instead. (that's why it starts back up faster)

Even though the computer may seem turned off, it does not count as a reboot and the system will not recognize that it has been restarted. You absolutely want to turn off the Fast Startup feature and change the power button settings to be shutting down the computer and not putting it to sleep when the power button is pressed. That will save you a whole lot of grief over time, and it's one of the default settings that my company uses every time we set up a new computer - **always turn off Fast Startup**.

The client will tell you all kinds of things to be helpful, but Don't Believe a Word Of It.

Don't Leave Them Hanging Like A Yoyo

You will want to be checking in on your clients on a regular basis.

That may seem like a very obvious thing to state, but as you pick up more clients in your client base and you become responsible for more businesses, it is very easy to let some of the smaller ones or the ones that need less work from you fade into the distance, until you forget to check on them at all. In my experience as a Network Engineer, you should never let a client go more than 30 days without direct a check-in from you.

Please don't delegate that task off to other members of your team if you want to maintain a soli relationship with your clients – make time to do that yourself, like when you're driving around if you have hands-free phone capabilities, or when you're grabbing a bite to eat between appointment you can send them an email. Bigger clients or clients with more recurring needs, will need to be checked in on more frequently than that, all the way up to as frequently as once a week in some cases, but once a month is usually a good rule of thumb.

It is best if you can make that check in with an on-site visit so that you get to chat with your client for a few minutes and poke around to make sure everybody's doing okay, but if you can't do that, then a phone call would be the next best thing, or even just an email if you don't have the opportunity to call them.

However, if you're going to do it by email, you want to put a question in your email message or something that they need to respond to so that you know that they actually read it and will recognize that you made the effort to see how they're doing. Spam filters have become much more aggressive than they used to be, and you never know when an email is going to randomly end up in their Junk folder, or simply get overlooked entirely if they receive more than 100 messages every day, like I do.

So, do yourself a favor and as your client base grows, put a recurring monthly appointment in your calendar with a list of all of your active clients as a reminder for you to check in on them. If you only have a few clients, or you have a few large clients that you absolutely don't want to overlook, then you can create an individual calendar entry for each one of them and make it recurring. Otherwise, a single calendar entry that is set on a weekday every month is going to be your best bet and just put a bullet point list of all of your clients in it. Wednesdays have typically been a good day for me, but you can choose whatever day you think would work best for you.

Look Them In The Eyes...and Smile

Another key to being the best engineer you can be is to exude confidence in everything you do, everything you say, and everywhere you go.

A core component of that is the ability to look your clients in the eye when you're talking to them, or when they are talking to you. This is no secret - it has been known for hundreds (really thousands) of years that looking someone in the eye is a show of respect, communication, and confidence, so do yourself a favor and take advantage of it. If you're not the type of person who feels that confident in your life (yet), then you're in luck, because I have a little cheat for you that I think you'll find extremely useful.

Instead of looking in their eyes, stare at the bridge of their nose directly between their eyes. It's that simple.

Don't look directly at either eye - just stare at the space between them, and there's a 99.9% chance the client will not even notice the difference.

Obviously, you can dart a quick glance over to one or the other eye throughout a long conversation, but if you steadfastly keep your focus directly on the bridge of their nose, you will find it less uncomfortable, but still make that connection.

When did I learn this little trick?

Actually, it was when I was a very young child, probably before the age of 10. My father was a career military man with a very direct way of communicating and he had a very forceful presence; it felt especially like that to me especially when I was a little child. Whenever I would get into trouble, or either one of my brothers would, when he gave us our lecture and verbal reprimand it was almost always in a very forceful and intense manner. He wasn't yelling, and he probably wasn't even really raising his voice very much, but he was very clearly calling you out on something. When he did this he would look you directly in the eye with a stern look on his face and you were expected to look straight back at him.

In fact, if you tried to glance away or look down at the ground, he would ask you to look at him when he's speaking to you. It was then that I realized that all I had to do was look at the bridge of his nose, right between his eyes, and that would satisfy the requirement.

I hope that little tip helps you out as much as it has helped me!

Learn To Read Their Faces

This is a continuation of the last piece of advice.

If you're speaking with a client in person, please do yourself (and them) a favor and look at their face when you're speaking to them, because people can tell what you're saying not just by the sound of your voice, but also by the movement of your lips and the expression on your face. Eye contact also helps to keep a good strong relationship going, and it gives you the opportunity to see for yourself whether the client looks pleased with what you're doing for them. If they tend to look away from you or just seem to not want to look you directly in the eyes, then there may be a problem.

Obviously, if there is a problem, then you need to find out what it is.

It could just be that they're not the type of person who's comfortable looking somebody directly in the eye, but you still want to pay attention to the expression on their face and make sure it doesn't look like there's anything troubling them. Furrowed eyebrows or tightly pressed lips are going to indicate that something is going on that the client is not pleased with; make the effort to confirm that it isn't with you.

You can even mention to them that they look concerned about something and ask them if it might be something that you have said or done. If it is, then of course you want to know what it is. If it is not, then you are giving them an opportunity to share something with you of a personal nature, and that will help to strengthen your bond with them even more.

This is *not* an invitation to pry into their personal business, though.

If they tell you that they're fine, or that their apparent dysphoric mood has nothing to do with you, then take it at face value. If you're doubtful of what they're saying, you can always conclude the conversation by saying, "Okay, thanks for letting me know. If you ever have a problem with me or anything that I do for your company, I hope you know that you can tell me. I take pride in my work."

Remember: your clients are your friends, not just a source of income or people in need of computer support.

How Am I Doing..?

You do not want to be shy about asking your clients on a regular basis how you're doing. If you don't feel comfortable doing that, then that usually indicates that you don't feel confident that you are doing a great job at supporting that client, or that you do not have a solid relationship with them and you're afraid they're going to be critical of you. Learn early on not to be afraid of that.

If the client indicates that they're happy with you, that's great; accept their praise graciously and go on about your business.

However, if they tell you or if you sense in any way that they're not absolutely pleased with what you've been doing for them, then be proactive and ask them what you could be doing better. Sometimes that is the question that will shake loose an honest answer from a client, and in the end, you really do want to know what you could be doing better as an engineer, either for that client or in general. So, get comfortable early on in your career with asking clients how you're doing and ask if there's anything that you could be doing better.

What Could I Be Doing Better..?

That's a great question to be asking each of your clients, occasionally. Refer to the previous section.

Don't Bring Me Down

This falls in line with the previous recommendation to "Keep It Light."

Do everyone a favor and try hard not to be a bummer, a Debbie Downer, a Negative Nellie, or to interact with clients in the style of Eeyore from Winnie the Poo. Your coworkers deserve better than that, too.

If you walk around with a scowl on your face and a pessimistic attitude all the time, mumbling things like "this is never going to work," "that client is impossible to deal with," or "I'll give that a try but it's going to fail," then nobody is going to want to be around you. Not your clients, not your coworkers, and maybe not even your family.

I have worked with engineers who did not realize how dark and negative they were until it was pointed out to them. They always look so serious, angry, or upset, but if you ask them what is wrong or what is bothering them, they will usually answer that nothing is wrong and tell you that they are actually in a good mood.

Really?

“Well, somebody should let your face know,” is my typical response to that engineer.

Clients aren’t mind readers. If you look like you’ve been sucking on a lemon, then they’re probably going to assume that you’re not in a particularly good mood and they may even assume that it’s because of them. So if you want them to be happy to see you and enjoy your company (which you very much want!), then try putting a smile on your face and be prepared to be amazed at what a difference that makes.

Tell Your Boss

As you’re out and about during your daily activities, you will be doing a handful to a dozen acts of helpfulness and kindness for your clients every day. When you find that an employee at one of your client sites seems particularly pleased with the work that you’ve done for them, don’t be shy about asking in a friendly fashion: “Please be sure to mention to your manager that we took good care of you.”

Clients love to return the favor when you’ve helped them out!

I sometimes remind them that the owner of the company is the one who signs the check, but since they don’t actually see you very often, the only way they know that you’re doing a good job if it’s if their employees tell them that you are. Not only does that make them feel important, but it also makes them feel like they have the opportunity to do something nice for you after all the nice things that you’ve done for them.

When that word does make it back to the owner or manager of the company, when they’re signing that check every month for your managed services they will remember that multiple employees keep telling them what an awesome job you’re doing.

Can I Ask You a Favor…?

This falls squarely in line with the previous section.

Another well-known way to increase your likeability factor with your clients is to occasionally ask them for favors. I know that sounds counterintuitive, and you might think that doing *them* favors is how you engender a good relationship, but scientific research has proven exactly the opposite. If you ask somebody for a favor (hopefully a small one if it's a client of yours), then it will automatically cause them to like you a little bit more. Go figure.

If you don't believe me, go on the Internet and look it up for yourself.

Here's an easy one: ask one of them to send your boss an email expressing their happiness with your work (assuming that they are indeed happy with you). The best time to ask that request is when they have just indicated that they're extremely pleased about something that you've just done for them. You saved the data from their failing hard drive, you recovered a deleted document from their cloud storage account, or you found them a great deal on a personal laptop purchase - something along those lines.

Here's how that might look:

Your client accidentally does something that wipes out all of their contacts in Microsoft Outlook. So, they reach out to you and ask you to help to recover their Contacts. You have to do a little digging to figure out where they went, but you power through it and recover everything successfully.

You are their hero - they are ecstatic with you!

Take that opportunity to tell them that when you have your annual employee review, your boss will want to know that your clients are pleased with you. The easiest way for them to help you with that is to send your boss an email expressing their happiness with your work. Not only will that look good to your boss, but it also cements *in their own mind* the fact that they like you and feel that you are taking excellent care of them.

That also means that if anything ever happens that causes them to get upset with you and report a complaint to your boss, he can refer back to the positive email or emails that they previously sent expressing their

appreciation for you. That will remind them that even if they're a little upset with you now, in general they have been quite happy with you in the past.

All of this is common sense - it's not rocket science. With a little effort and focus, you can bring all of these little recommendations together to accelerate your path to becoming The Consummate Network Engineer.

Sometimes The Answer Is No

Over the course of time clients should become more and more comfortable with your advice and recommendations, and therefore as a general rule they will agree to most of the upgrades or improvements you suggest to them. However, they are not legally, morally, or ethically required to do so. If you think that a client needs to replace a workstation that is starting to get a little old, but there's no compelling reason to have to replace it, such as the operating system reaching end of life or a failing motherboard, then sometimes the client will not agree with you and they'll simply say no.

Get over it.

On the other hand, there will be times that a client needs to replace something, like an aging server that has reached the end of its life expectancy and can no longer be covered by warranty. That's when you will have to convince them that replacing it is in their own best interest. There have even been times at PJ Networks when we've had a client who just did not want to do a replacement or an upgrade when it needed to happen, and therefore they were running on a retired server operating system months after end of life had been reached.

While we do have a little bit of compassion and tolerance for clients who are on a tight budget and cannot afford to replace an expensive piece of equipment as soon as it should happen, we also do not need the legal liability of having a client run on an operating system that is no longer receiving security updates. And so, we have had to draw the line a few times over the years and force a client to either make the right choice and follow our recommendation, or to find another IT support provider.

I know that sounds harsh, but there are multiple reasons for needing to do that when a client is putting their own business at risk, because you have a certain amount of risk as their IT support company, as well. If they get compromised because of an outdated OS and the data breach is severe enough for the FBI to be called in to investigate, the first thing they're going to want to know is why you were allowing that client to run on an unsupported server operating system.

So choose your battles wisely.

Be willing to accept a "no" and take your losses when it's not a critical situation that is needing to be dealt with, but know how to stand firm when the consequences are simply unacceptable.

Well, What Did You Expect...?

I am well aware that I like to use the phrase "one of the first things you should learn as a Network Engineer..." and then follow it with some amazing words of wisdom. (well, words of wisdom, anyway)

I am trying very hard to use that phrase more sparingly, because if everything is important, then nothing is important. However, I feel that it is very important that everybody reading this book understands that your expectations will shape your experiences with your clients. If you walk into a client meeting with a positive expectation that things are going to go in your direction, then they usually will.

People can sense moods and honesty and sincerity without a single word being spoken, and if you have that positive expectation about you, they will sense that as well. If you are expecting good things to happen for them as a result of interacting with you and the company you work for, then that expectation is contagious and they will feel that as well. On the other hand, if you feel anxious, or resistant, or pessimistic that anything is ever going to go your way, well, then don't be surprised when that's the way things go.

Besides, having positive expectations is an excellent way to keep yourself in a good mood and grooving along on a positive vibration - so why not give it a chance? If you don't like the results, then you can always

go back to being a bummer. Nobody will probably want to be around you, but if that's what really makes you happy then by all means, you do you.

Learn How To Juggle

No, not literally - although that would probably be pretty cool!

Being an outstanding Network Engineer is a lot like being an outstanding waiter or an outstanding Master Chef or an outstanding job foreman; you need to learn to juggle a lot of simultaneous activities and actions and resources all at the same time. If you can literally only keep one thing in your mind at a time and only focus on that, then you are going to have a very linear experience in the world of supporting business network environments.

Regardless of what you are working on at any given moment in time, there will almost always be other clients who have requests waiting on you, projects that you have either in progress or waiting for you, tickets that you need to write, and a myriad of other things that need to be attended to.

The sooner you can learn to master the art of multitasking (which you definitely need to do), the better it will serve you in the long run.

Excuse Me, But I Have An Emergency

If you are a Field Engineer, throughout the course of your career there will be plenty of times when you will be at a client site working on something of a non-urgent nature when a call will come in from a different client who has something of a much more critical nature, and you will need to respond to it swiftly. The easiest way to do that is just to be straightforward with the client that you're currently working for and tell them that you just received an emergency call from another client to respond to, and then let them know that you really need to leave immediately.

Most clients are savvy enough to understand that if they were in the same situation as that other client, they would expect you to drop what you're doing and come running to the rescue.

Don't be shy about mentioning that to the client if they seem annoyed or peeved by the fact that you need to leave in the middle of an unfinished task. Obviously, you don't want to leave work unfinished that will leave folks unable to get their work done, so if you've gotten halfway through a workstation replacement or other task that is going to leave people hanging, please expedite the process of wrapping that one up before you hit the road. If it was a workstation replacement you were in the process of doing, then the quickest way to expedite your departure is to slap the old workstation back into place and then return later to finish the transition to the new one.

If your clients like you and respect you, you shouldn't get a lot of grief over having to take off at the spur of a moment, especially if you come back later to finish up the job that you began earlier.

Don't Forget to Circle Back!

This is just a quick reminder that you do, indeed, need to circle back to that client that you left in mid-stride to complete the work that you began earlier.

If your emergency task takes you until the end of the day, then please be considerate and reach back out to the original client before the end of their work day to apologize for not being able to get back to them, and assure that you will returning at the first available opportunity to complete the work that you started on. (Hopefully the very next morning - please don't leave them hanging.)

If you feel that you lost time or productivity because you had to disengage and then come back and re-engage the original client, then I also encourage you to be generous about writing off a little bit of that time. If you were putting in a new workstation that would normally take you two hours, and you were halfway through it before you had to pull away and come back, make sure that you don't charge them more than you would have originally charged them, even if your redirection caused you to lose a little bit of progress during the task.

Actions and Consequences

All right, this is a concept that most of you hopefully learned at a young age: there are actions and there are consequences that come from those actions.

You need to learn how to take responsibility for those consequences, and therefore hopefully make better decisions about what actions you take in the future. For example, if you try to take a shortcut on an email migration and you rush through the individual user profile setup, you may skip something like bringing over their Microsoft Outlook rules or verifying that all of their contacts came over properly.

There are consequences.

However, not all consequences are bad; there are good ones, too. The consequences of being a diligent engineer who is loyal to their clients are that you will develop good relationships and your clients will appreciate and respect you. Those are the good kinds of consequences that you want to facilitate whenever possible.

One of the most enjoyable parts along the path to becoming a Consummate Engineer is that week after week, month after month, year after year, you will see and feel the results of the improvements you are making in your chosen career. Don't forget to give yourself credit where credit is due, and to take a few moments every now and then to stop and appreciate what you have done and what you have accomplished both for yourself and for your clients.

Otherwise, what are you really working towards?

Hold Your Clients Accountable

As important as it is to hold yourself accountable, it is every bit as important to hold your clients accountable for their words and their actions, as well. If you tell a client that their server operating system will be reaching End Of Life by a certain date and will need to be replaced

prior to that, and the client agrees that they are willing to do that, then **hold them to it**.

That is one of the true tests of how good you are at client management, and how honorable they are in their business dealings with you.

One of the most important things that you can do in order to help you to hold them accountable is to email them a message recapping the conversation that you had with them and reminding them that they agreed to replace that server prior to the EOL (End Of Life) date. Then, as that date approaches, preferably two full months in advance, you need to remind them that if the server is going to be smoothly migrated over to a new system or retired in some capacity, that plans need to be put into motion a full month in advance of that date. That is especially true if you need to order a replacement server.

If the client still hasn't moved within a few weeks, then be proactive and send them a quote for the new server purchase and forward them the email you originally sent that included their commitment to replacing the server before the specified date.

If they *still* haven't responded or started moving on anything 30 days before the deadline, you may have to start getting a bit more aggressive.

Face it - if you have a client who absolutely refuses to follow your advice and professional recommendations, and who will not follow through on things that they have given their word on, you probably don't need them as a client - they are likely going to continue to cause you trouble. If you can't afford to get rid of them right away, then at least make the decision that you will be replacing them as soon as you have another equally-sized client come along to take their place.

And then do it.

Be firm, and you will be respected. A famous quote that I have always attributed to George Washinton (but I may be wrong about that) is: “One cannot demand respect; one must command it.”

Your clients should treat you with the courtesy and respect that you deserve as an Information Technology Professional. You are the only one who can ensure that happens. One way that you can do that is to...

Hold your clients accountable.

I Just Called To Say I Love You

Once again, I want to emphasize how important it is that you check in regularly with your clients - all of them. No client should ever go more than 30 days without seeing you, or at the very least, hearing from you. Remember that your job is not just to provide technical support to your clients, but also to establish solid, long-term relationships with them. The best way to do that is to see them and speak with them regularly, even if it is just a friendly visit on your way across town to grab a cup of coffee and say “Howdy.”

Stopping by client sites is also an excellent way to pick up extra work if you have a light schedule on any given day. Back when I first started PJ Networks, there were many days where I did not have a full schedule of work, and so I would look at a map and plot out a nice circuitous route that I could follow, stopping by client sites along the way. Typically, you can expect one out of every three or four client visits to result in billable work.

That means that if you have a really tight schedule, you probably don’t want to do this circuitous route technique because you will almost inevitably end up getting sucked into some kind of client request that you simply don’t have the time for. You also need to remember that if you stop by a client site just to say hi and they have more than an hour’s worth of work for you, you want to be scheduling that for another visit, so that you’re not cutting yourself short on time or doing shoddy work because you’re in a hurry.

If you have the time, then sure - stay and do the work. Otherwise, let them know that it was nice to see them, but you're on a tight schedule and you'd be happy to come back the next day to get the work done for them.

It's Getting Better All The Time

When you pick up a new client who has a network that is a total mess, which unfortunately happens more often than not, then the first thing you have to do is start speaking a vision of optimism and improvement unto your client.

Give the network a good and thorough review, and then write up notes on all of the different aspects that need to be improved and changed over time, and then prioritize them. Once you have done that, you can share that list and your vision with the client, which will not only help them to mentally prepare for the expenditures that they're going to have to make, but it should also hopefully get them a little excited about how much better things are going to get as the changes and improvements get implemented.

For example, if you're going to be putting in a Remote Desktop Server for your client so that multiple employees can connect in to that server and run all of their business applications remotely, then there's a good chance that they have all been using workstations on the network to connect into as their remote desktop solution. There are a number of ways that having an RDS server is going to improve things, from how much effort it takes to keep software applications up to date to controlling the security and the permissions of the users, so you should make sure that the client understands those benefits.

Also, if the only reason that an employee has a workstation at the office is to remote into it, then having an RDS server is going to replace that need, so that extra workstation can go away. Obviously that isn't going to work if they come in and work at the office from time to time, but if they work entirely remotely and you put an RDS server into place for 10 users, then you can remind the client that once those employees have settled into the new RDS solution, ten workstations will be able to either be

retired or be allocated to other in-house employees to replace older systems.

The fact that things are getting better all the time is easy enough to show a client if you're ticketing your work appropriately, efficiently, and in full detail. For example, if you are 2 years into a managed support plan for a client who was a mess when you first took them on, then you should be able to run a ticket report for the first year and then run a second report for the second year and compare the two. In most cases, you're going to see at least two to three times as many labor hours that went into that first year of support, because you were fixing everything that was in need of immediate attention.

It sometimes helps to bring reports with you like that to a client if you're doing an annual or a quarterly review so that you can clearly show them how much progress is being made, and how much better things are getting. However, just the fact that their systems are running better and more efficiently should be obvious to the client without you having to constantly point that out to them.

You Are My Sunshine

This is in line with of the previous Rule. Maybe it's obvious, but I think that it still deserves a quick mention.

Many, many years ago I waited tables at several different restaurants, and one thing that I picked up on pretty quickly was that people love to be in the presence of someone who is happy, smiling, and radiates positive energy. I would literally make twice as many tips on days when I was upbeat and feeling on top of the World, as opposed to days that I wasn't feeling well or didn't get a good night's sleep the night before.

People *really* enjoy being around positive energy, and even without speaking a word, most people can sense what kind of energy you're putting off. So, take a moment before you begin each workday to put your personal worries and concerns aside, focus on all of the positive things that you have going on in your life (a job, a house, a family, a good career,

good friends, etc.) and then head into the day with that positive wind in your sails.

The more you do that and the easier it will get, and over time that positive energy will slowly build upon itself to eventually become the default framework from which you operate, and that is a very enjoyable place to be!

Cold As Ice

If you are an independent engineer or you run your own IT support company, then you do have some control over which clients you work with and which ones you don't. If you have clients that absolutely do not appreciate anything you do and are always grumbling, then please take my advice and replace them as quickly as you can with clients that are friendlier to deal with.

If you do not have that luxury, then you will need to figure out a way to win over client that is cold and unfriendly – or win them back if they once seemed to really like you. I do want to stress that you should only need to do this if you truly feel that the client is being unreasonably difficult to work with or unpleasant toward you or your team; don't lose hope. Try to remember that everybody has a bad day once in a while, so please don't overreact to an isolated incident where a client seems difficult or unreasonable.

Kill them with kindness, be pleasant even when they are not, and do not take any harsh words too personally. If their attitude does not improve over time, then try having a one-on-one conversation and just ask them directly if there is something that you did to offend them: remember the Way of the Samurai.

Ultimately, your job isn't just about making money, but hopefully it is about enjoying your life and your lifestyle while you earn a living.

Slip Sliding Away

Very few solid relationships, either personal or professional, will turn sour all at once; there is almost always going to be a gradual leading up to a situation that then requires some kind of remedial action. Try to keep a finger on the pulse of your relationship with each client and if you start to sense that anything at all isn't harmonizing or vibrating very well with them, nip it in the bud. If you see a concerned look on your client's face or furrowed brows over something you've done, do the right thing and ask them what it is that's concerning them.

If you're a good engineer, then you will often find that there's nothing wrong at all with anything that you've done; it is simply them having a bad day or they have personal problems going on at home, and you're seeing it in their face. If you feel comfortable enough with the relationship, then you can express some empathy for them and even maybe ask if they'd like to talk about it. Otherwise, take their answer at face value and move along.

Goodbye To You

This is a lead up to the next section.

You will almost certainly reach the point with some clients during the course of your career when you have to tell them goodbye. If you're lucky, then you will either be an engineer who has been empowered by your employer to make that judgment call (although you should always check with them first), or you will be the owner of your own IT support company and you're the one who gets to say "goodbye to you."

Just remember to be gracious, considerate, and never let anybody feel like they've been a bad human being for the way that they've acted. That is not your job.

If you have absolutely decided that there's no way to salvage the relationship and you have to part ways with a client, then please find a way to politely and professionally say, "goodbye to you."

Which leads into our next topic…

“This Is No Longer a Good Fit”

If there is anything that you need to learn about managing client relationships, it is how to tell a client that you can no longer work with them. I learned very early on from John Hunt that the proper wording for that is to tell the client that “our services are no longer a good fit” for the client’s needs. There are slightly different ways of saying that, but they all end up with the same message: you do not wish to continue providing IT support services for that client.

Here are a few examples:

“I’ve noticed that lately, whenever we provide support for you, you never seem to be satisfied with the end result, so I think that our services are no longer a good fit for your business needs.”

“The last few times we’ve sent you invoices, you seem to have found reasons why you don’t think that we should be charging you for our work, so perhaps we’re no longer a good fit for your business technology needs.”

“I recently assigned our very best engineer to your account, but even he/she seems to be unable to earn your respect or appreciation for the work that we do, so perhaps we’re no longer a good fit for your business technology needs.”

As the CEO of PJ Networks, it might go like this: “After you expressed your concerns a few weeks ago, I have personally been taking an interest in assisting with the work that we’ve been doing for your company, but it seems that we have still been unable to earn your respect and appreciation. I think that perhaps we’re no longer a good fit for your business technology needs.”

Do you see a pattern here?

All of those statements are basically calling out the fact that the client doesn’t seem to appreciate your work, and then end with the fact that you are no longer a good fit for their needs. There are no accusations,

there's no name-calling, there's not even any situation where you're telling them that they're wrong.

You're simply letting them know that you don't seem to be a good fit for their business technology needs.

It may take you years to come to the point where you realize that it is far better for you as an engineer and/or a business owner to simply walk away from a client that doesn't appreciate the work that you do, but the sooner you learn that lesson, the better.

If there's nothing else that you learn from reading this entire book, it is that. You can always replace an unpleasant or ungrateful client with a nicer one if you have a little patience, and if you are positive that you have done everything within reason to make that client happy before you cut them loose.

Wrapping Things Up

I think that we've covered most of the core components of good client management, but there are dozens and dozens (and dozens!) of individual bite-sized pieces of advice I have to offer on just about every aspect of being a successful Network Engineer. When assembled together, they become what I refer to as "The Rules of Engagement."

Like so many endeavors in Life, such as painting or gardening or even performing on stage, your mastery of your chosen career as a Network Engineer will not hinge on any specific one of these items; each one is like a single strand in a tightly woven rope. As you bring more and more of them together and weave them into your engineering methodology, your foundation as an engineer will become stronger and stronger.

It is upon this rope that you will climb in your ongoing path to becoming The Consummate Network Engineer.

CHAPTER SEVEN:
Managing Projects

Chapter Seven

Managing Projects

If you don't know what you're doing, then please step out of the way and let somebody through who does.

-PJ

The previous chapters have been intended to provide good advice and guidance for Network Engineers in all stages of their careers, from deciding whether it is the right professional path to take all the way through becoming accomplished in Client Management.

So, even though I think the recommendations and guidelines for Project Management will be helpful for anybody who becomes a successful Network Engineer, these really are a bit more specific to the way we run things at PJ Networks. I'm only including them to give you an idea of how project management might work inside of whatever company you end up working for. However, if your employer does things differently than we do, then by all means please follow their rules and guidelines because, well, I'm not the person signing your paycheck!

At PJ Networks, I occasionally send out an email with a shortened version of the core "The Rules of Engagement" for engineers to follow as a part of our organization. As I've already stated, unlike the previous chapters in this book, they are intended to be the rules that I expect our Network Engineers to follow, and not just pieces of wisdom and general guidelines. They are usually sent out shortly after a new member joins our team, but they also serve as a good reminder to everyone else on the team what our established protocols are.

They have been incorporated into our engineer training materials and employee handbook, as well.

However, one of the main purposes that I have for writing this book is to have a complete and comprehensive training manual for all engineers that come to work for PJ Networks, regardless of their background, skill set, or level of expertise. The principles and concepts that I put forth in this book are meant to help the employees within our company, but I hope that they might also serve a greater purpose.

I have used these guidelines for the basis of this chapter on Project Management, providing some elaboration and expanding on some of the core principles that have been in place since I started PJ Networks back in 2005.

There is definitely one hardcore rule that every engineer should follow at the beginning of every project engagement:

Rule #1: Identify the Gotchas Early On

Just about any project of any complexity is going to present potential stumbling blocks for you unless you can learn how to identify them at the outset and figure out how to avoid them, usually by addressing them in advance.

It has become a standard practice of mine when working with any outside vendors to simply ask them up front, "So, what are the gotchas that we need to look out for? What are the most common mistakes you see during deployments of your software (or hardware) solution that could have been avoided if the company managing the project had known about them?"

You would be amazed at how quickly those vendors come up with a helpful list of things to do, and things not to do, during the implementation of their product. Those are the kinds of issues that, if you do not account for them in advance, will bog a project down, take up unnecessary time, and delay a successful project completion. So, don't be shy about asking others around you who might have more familiarity with the solution that you're implementing to share with you some of the horror stories they have from past experiences, and then use that information to cruise easily around third base and come sliding safely to the home plate like The Consummate Network Engineer you are becoming.

You Have to Break Some Eggs

Let's face it - major projects can get a little messy when you're right in the middle of them, like doing a major multiple server migration or replacing a bunch of workstations at one time.

Set clear expectations for yourself and with your clients.

Let me say that again: **Set clear expectations for yourself and with your clients.**

If you know that you're going to need to commandeer a workspace at a client site for an afternoon or a couple of days in order to coordinate workstation staging for system replacements, then first you need to get the client's approval for that, and then you need to let them know how long you'll be needing that space.

If you're migrating huge volumes of data from one server to another and that will span the course of more than a few hours, warn the client that it may be a little difficult to find specific files or folders until the migration process is completed. An ounce of prevention is worth a pound of cure, so try to get out ahead of these potential client concerns and address them proactively.

Project Preparation

Estimating Time

The client needs to have a clear expectation of how long you're going to take to get a job done; always keep that in mind. Before a quote even gets prepared, you need to have some idea of how much time a project is going to take and the client will want to know how much labor they're going to be paying for.

That's only fair.

If the client has a piece of software that they need installed on 20 computers, they usually don't have any real idea whether it's going to take you one hour or ten hours to get all of the work done, and they often underestimate that number. Yes, there are ways to roll out some software applications across an entire network, but only if the environment is right and it provides you with the mechanisms for doing that. Otherwise, you're going to be doing the round robin approach and going from computer to computer.

Even if you *can* push an application out to multiple computers on a network, there is usually some level of configuration that needs to be done on each system after the software has been deployed. What you can do to help reduce the total installation time is to stage the work so

that you can be working on more than one computer at a time - the round robin approach we talked about earlier. That means that if the client asks you to get one computer done every day for the next two weeks, you should convince them that if you can have access to all of them for a few afternoons, the work will go faster and it will end up costing them a lot less.

Often that kind of work needs to be done after hours in order to give you full unfettered access to their systems, anyway, so why not schedule it in the evening or over a weekend and just knock all of the work out in one fell swoop? This isn't just a way to be able to get the work done more efficiently, but it's also an exercise in client management. Clients like it when their engineer figures out ways to save them money and to minimize the interruption to their business workflow.

How you estimate labor will depend greatly on how you schedule the work.

A Reminder About Expectations

Another thing you need to communicate to a client is whenever a project or task is going to take longer than you originally expected it would, which is usually something that happens for a specific reason. For example, you go to a client site to install a new piece of software, but then you find out that before you can do that, every one of the computers needs some kind of a Microsoft upgrade or another software component to be installed, first.

As soon as you run into that kind of situation, do yourself a favor and let the client know about it right away.

Let them know that there's going to be extra labor required, and since it's probably going to make the time that you're charging them for run longer than you originally estimated, let them know that and explain why. If you do that, then in most cases they will be understanding. Don't put that conversation off or avoid it because it's awkward, because that will only lead to trouble and can potentially cause trust issues, especially when they receive the invoice.

What you do not want to do is to wait until you're done with all of the work and then tell them that you'll be charging them for 6 hours instead of the 4 hours that you quoted them, or even worse, not even telling them and just sending them an invoice for 2 more hours of labor than they originally agreed to. If you have a signed quote with them, then I can almost guarantee you that they're going to push back on the final bill if it's significantly more than they signed off on.

Be a Samurai Warrior and step into the blow, deal with it head on, and put it behind you.

It's Just Common Sense

So far, everything that I've been saying should seem very much like Common Sense things to know and do, but you would be surprised how many engineers are caught off guard when they run into some of these situations. Once it has been fully explained to them why and how the process works, then suddenly a light bulb turns on in their heads. I'd like to turn that light bulb on for you right now and give you a head start - assuming you didn't realize all of these things, already.

But, we're not quite done speaking about communication, yet.

Preparing Quotes

Quote Requests

These are the guidelines we use at PJ Networks for generating quotes.

- If you need a quote, even a basic one (new workstation(s), wireless deployment, etc.) then send your request in an email and not just verbally.
- In your request, include exactly how many products you need, including makes and models. If they are not standard in-stock items (like Ubiquiti access points), then include links to the products that you want to include in the quote.

(from any online source; we will shop it around for the best price and add margin as needed)

- Specify how many hours of labor you want (always buffer in an extra 20% to be safe) and a brief description of the work, like this:

Labor to perform a site survey of the restaurant network, including the following:

  - Review and document network infrastructure, including:
    - Switches
    - Modems
    - Firewalls
    - Routers
    - Wireless access points
    - Computers
    - POS terminals
  - Identify any equipment that is no longer actively being used
  - Test any cabling that has experienced connectivity issues
  - Log into any equipment that client can provide credentials for in order to review configurations
  - Compile this information into recommendations for optimizing and stabilizing the network environment

You should be given the opportunity to review the quote and request any changes before it gets sent to the client.

Once approved by the engineer requesting the quote, it will be sent to the client for approval and the engineer will be CC'd.

- The engineer will be informed if/when the quote gets approved, when the product is ordered, and when it arrives.
- The engineer coordinates the scheduling of the project directly with the client and then proceeds on that schedule.

- The engineer should let other engineers know as early as they can if their assistance will be needed in order to allow for proper scheduling.

Quote Approval

ALL projects over $500 require a formal quote to be signed by the client, especially clients that have been with PJ Networks for less than one year. (exceptions can be made only by managers)

Deposits

Clients must pay any required deposits prior to PJ Networks ordering hardware or scheduling the project. (managers may allow for deposits to be waived under certain circumstances)

That last rule can be a very valuable tool to use when clients are dragging their feet about signing a quote and paying the deposit on a project. If you remind them that the products won't get ordered and the project can't be assigned to an engineer until the project deposit has been paid, they are usually very prompt to get that squared away. Make sure that the quote gets sent along with clear instructions or links to pay the deposit so that doesn't become a stumbling block for getting final approval.

One of the core skills of client management is being able to get clients to approve quotes and pay deposits so that everything can keep moving forward.

Server Deployments

- **Use the appropriate checklist(s) so that your work is done consistently.** (mandatory at PJ Networks)
- Server builds and prep work should be completed TWO DAYS prior to deployment, and looked over by another engineer.
- All products need to be activated/registered prior to delivery to client.

- All software is to be installed and configured as much as possible before the systems go to the client site.
- **NOTHING ELSE should be scheduled for an engineer during the time that they are working on a project – decline all other work unless it is an emergency.**
- ALL SERVICE REQUESTS that come to you during the deployment phase should be redirected to someone else – nothing takes priority over project time except an emergency call that only you can handle.
- If you need to work late to keep the project on track, then work late.
- Ask other engineers several days or a week in advance if you think you will want their assistance, especially for evening/weekend work.
- **Bring in as many engineers as possible** if the project is large enough to warrant it.
- Have an organized plan ready for the team to follow when the deployment phase begins and they show up to assist you.
- Do not walk away from the project until it is completely finished, or until the current phase has been successfully completed.
- **BE CAREFUL OF SCOPE CREEP!** Do NOT let the client add additional items to the project task list if they are clearly not part of the project or don't logically fit in as part of a successful project completion.
- Test all applications, printers, and network functionality with the client before you assume that any component has been properly installed and configured.
- Once the new server has been fully deployed, turn the old server off for a day or two to make sure that everything works properly without the old one being operational. If anything breaks, or if anything doesn't work as expected, then turn the old server back on and figure out what still needs to be done in order to remove the old server from the network environment.
- Properly demote/decommission the old server and then TURN IT OFF.

- Plan a follow-up visit the day after project completion to see if there are any remaining issues or items to be addressed.
- Plan on ANOTHER follow-up visit with the client a few days later to confirm that everything has been done to their satisfaction and that everything is still working as expected.

Tracking Your Time

You need to be fair to the client and fair to yourself when documenting the time that you have spent working on a project.

For example, if you're backing up data or creating an image from a client computer to an external drive and the entire process takes you 6 hours, and you're only checking in on the process periodically to make sure it is still progressing, you would normally only put in a time entry for the actual time that you spent kicking off the process and then checking in on it every so often. Usually that would be about an hour of your time, or maybe two, unless you're performing a tricky data recovery from a failed hard drive and need to continually relaunch the scans, or if you have to recover data in small sections at a time.

The simple rule: Your time entry should only reflect how much time was actually spent with hands and eyes on the computer, data, or project you were working on.

If you had to spend the entire time at the client site while this process was happening, then do your best to find other productive work to do while you're waiting on the task to complete.

Often, you can remote into another client site to do some work or into your ticketing system in order to document the work that you've done so far, or work on other billable tasks that are not related to the client site that you're working at. However, if you literally have nothing else you can be working on and you're stuck at the client site waiting for the entire process to complete, then you should ticket for all of your time.

We're not implying that anybody is trying to game the system – we just want for everyone to be clear on how to properly document your labor. If

this is work that you can do at the shop while you work on other things, or even a system that you can take home for the evening and be watching a movie and eating popcorn while you wait for certain processes to complete, then that's even better. The client does not have to be charged for every single minute, especially if you want to keep a good working relationship with them.

It is easy sometimes for us to forget that newer members of the team don't automatically know and understand everything that the more senior members of the team do and how they do it.

Closing Out Projects

When a project has been completed, whether it is a large one or a small one, you need to let the client know that you have finished what we told them that you would do:

- Review the quote with the client and confirm that each task has been completed.
- Ask them if they have any questions/concerns/comments about the project or the final results.
- Tell them that the project is officially complete and that you will go ahead and close it out so that it can be invoiced.
- Watch and listen carefully for any indication that the client does not agree that they are ready to be invoiced, and if you see any hesitation at all, ask them about it. Address any concerns immediately – do not ignore or push those concerns aside.

For emphasis: **Tell the client that the project is now complete and that you will go ahead and close it out so that it can be invoiced.**

Don't just grab your stuff and head out the door to your next appointment when you get everything done, unless the client has left for the day and you were left in their office to lock things up when you're finished. Seek out the client, meaning your main point of contact, and let them know that you're finished; make sure that you've done everything that they expected you to do.

Ask them to confirm that.

If your main point of contact isn't there, then find the person who's next in command and let them know that all of the work is done, and then ask them to pass that information along to your POC. Sometimes that person won't want to take responsibility for calling the job a success, and they will want to call your main contact - and that's fine. Whatever makes the client feel more comfortable is always going to be in your best interest, so please just go along with the flow.

When a major project is finished, such as a server migration or an email hosting migration, then you want to meet with your client in person, if possible, to tell them that the project has been successfully completed and that you will be sending them the invoice for it. Shake their hand, **look them in the eye** and look for any sign on their face that they're not satisfied with the work that you've done.

Words can deceive, but you will see it in their eyes if they're happy with the finished project - or not.

Not everybody is as forthcoming and direct as I am; some clients are insecure or not comfortable telling you that you have not done everything they wanted you to do the way they wanted it done, so you have to ask them to confirm that for you. You may find that some clients are hesitant to sign off on The successful completion of a project, either because technology totally baffles them, or because they're not really the person with the authority to make that decision. If the latter is the case, then try to get the manager or owner of the company to meet with you briefly to close out the project with them.

If necessary, pull out the original quote that they signed; it should be itemized in full detail. Go through each line item one at a time letting them know how it was completed and checking it off with a little check mark to show that it was done. When you get to the end of the list, they can either tell you that they thought that there was more that you were going to do for them, or they will agree that the project is done and that they are ready for the final invoice. This is your opportunity to address any misunderstandings about what the project was going to include and what the end results were supposed to look like.

That is so important that I want to say it one more time: **the client has to acknowledge that the project has been fully and successfully completed to their expectations *before* you send them the final invoice**.

If you don't do that, then you're running the risk that it might bite you in the @ss when they get that final bill, and they may challenge it. If you manage your clients and your projects well, it will be *extremely* rare that a client ever questions an invoice you send or refuses to pay it. That is one of the easiest ways to tell whether or not an engineer is good at what they do: their clients always pay their bills happily, promptly, and without question - and they often thank you for a job well done!

Client Onboardings

A client onboarding is when one IT support company takes over the support and management of a client network and computers, usually taking over from another IT support company, but sometimes it will be a client who has never had any kind of managed services in the past.

Those two scenarios will roll out a little differently.

The onboarding process is very similar to the Server Deployment process:

- **NOTHING ELSE should be scheduled for the lead engineer during the time that the onboarding will be taking place – decline <u>all other work</u> unless it is an emergency.**
- **TAKE CONTROL OF THE ONBOARDING PROCESS.** Be considerate of the client's needs and work schedule, but do not allow them to dictate the onboarding process or the speed at which it takes place.
- **Use the appropriate checklist(s) so that your work is done consistently.** (mandatory at PJ Networks)
- Meet with the client prior to the onboarding to compile a complete list of all of the applications that they use and get them to identify any of them that are mission critical to their ability to conduct business.

- **Ask the client to make ALL of their computers available either on the same day or within two days of the onboarding kickoff.**
- The gathering of all network and device credentials should be done PRIOR to deployment, after confirming everything that you will need admin access to.
- Client RMM and Endpoint Protection agents need to be fully configured before the onboarding process begins.
- The prior IT Support company should be informed that all of their applications and agents will need to be removed PRIOR to us beginning our onboarding process, preferably at about the same time that we kick off the process.
- Identify any applications or agents that we may need to rip out manually if the prior support company is unable or unwilling to remove them for us.
- ALL SERVICE REQUESTS that come to you during the onboarding process should be redirected to someone else – nothing takes priority over the onboarding except an emergency call that only you can handle.
- If you need to work late to keep the onboarding project on track, then work late.
- Ask other engineers several days or a week in advance if you think you will want their assistance, especially for evening/weekend work.
- **Bring in as many engineers as possible** if the onboarding is large enough to warrant it.
- Have an organized plan ready for the team to follow when the onboarding begins and they show up to assist you.
- Do not walk away from the onboarding until it is completely finished, or until the current phase has been successfully completed.
- **BE CAREFUL OF SCOPE CREEP!** Do NOT let the client add additional items to the onboarding task list if they are clearly not part of the project or don't logically fit in as part of a successful onboarding. Those requests might include:
    - Upgrading operating systems

    - Upgrading other software not necessary to complete the onboarding
    - Upgrading hardware in computer systems
    - Replacing network hardware that is functioning properly
    - Running additional network cables
    - Adding additional printers or network devices
    - Migrating data or applications (unless specifically included as part of the onboarding)
- **Test all applications, printers, and network functionality with the client** before you assume that everything has been properly onboarded .
- Plan a follow-up visit the day after onboarding completion to see if there are any remaining issues or items to be addressed.
- Plan on ANOTHER follow-up visit with the client a few days later to confirm that everything has been done to their satisfaction and that everything is still working as expected.

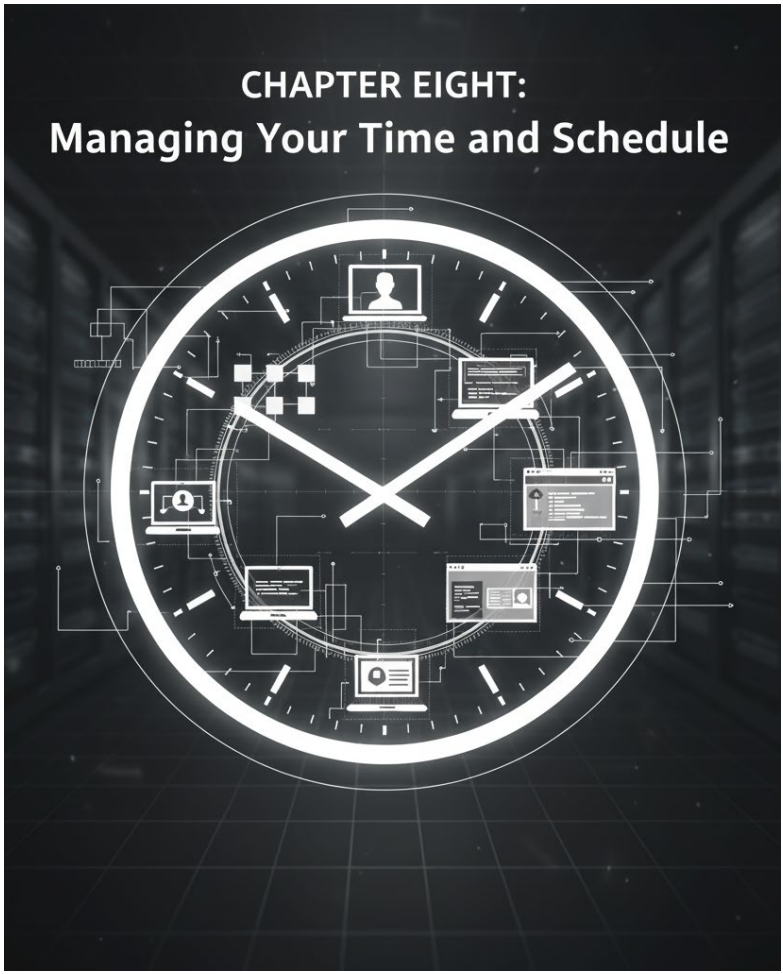
Follow Up

And finally, on the topic of communication, always try to take the time to circle back to the client the day after you have done something for them to make sure that it is still working properly and that they are satisfied with the end results. You don't necessarily have to physically go to the client site and check in with them unless you happen to be driving by their office, but at least give them a call while you're driving around throughout the day or a quick email to make sure that everything is working the way they expect it to be. If it's a larger project, check back in again a few days after that, before you finally close out the ticket and send the client the invoice. (Yes, that was from the Department of Redundancy Department)

Have you ever had a dentist or doctor's office call you up the day after you made an office visit to make sure that you're feeling okay, or that whatever they did for you helped the situation? Well, that's the kind of feeling you want to give to all of your clients. It lets them know that you care, but it also allows you to mentally close the door on that work and move on without having to look back over your shoulder. That is one of

the core tenets of being a Consummate Engineer: knowing that your clients are truly happy with your work.

No news may be good news, but positive feedback is the best news of all!


CHAPTER EIGHT:
Managing Your Time and Schedule

Chapter Eight

Managing Your Time and Schedule

Don't be the Tool, be the Hand that wields it.

-PJ

Once again, I am sharing the guidelines that we use at PJ Networks in order to provide some recommendations for task management. Some of these items are company rules that everyone at PJ Networks must follow, while others are just good recommendations based on my many years of experience managing not just my own schedule, but also helping other engineers to maximize their efficiency.

Managing Tasks

The same general rules apply as for the project management:

- Create custom checklists for tasks that you perform often for a client, like workstation deployments, and save it to the Admin folder on the client server.
- Also add the custom checklist/instructions into your preferred documentation management system for that client.
- DO NOT walk away from a client site and "leave the rest for later" unless you have a really good reason. DO NOT plan on leaving the client site and then "connecting in remotely" to finish up later unless it makes sense, the client is okay with it, and you have planned for the additional time. (In other words, stay until all of the work is completed)
    - If you perform any work after hours, you must check in with the client at the *beginning* of the next work day to make sure that everything is working as expected.
- **TEST ALL APPLICATIONS, PRINTERS and NETWORK FUNCTIONALITY WITH THE CLIENT** and have them verify that everything is working properly
- It is better to have four active client tasks that all get completed fully and successfully than to have eight tasks going that never get to full completion.
- Ticket your work within 48 hours of completion, even for work in progress.

Become A Creature Of Habit

Many habits - maybe even most of them - are bad ones.

Smoking, drinking, picking your nose in public - there are so many habits that are bad for you or just generally not socially acceptable. But there are certainly many good habits that you can develop that will benefit you throughout your entire career. The nice thing about habits is that you literally do not have to think about them - you just do them automatically, like brushing your teeth in the morning after you get up or flushing the toilet after you go to the bathroom.

One of the biggest benefits of developing good habits is not just the consistency of it, but you don't even have to put any effort into doing them because are coded into your brain to do them without thinking. I can't tell you how many things I automatically do throughout the course of my work day because I literally don't have to think about them.

So, develop some good habits and you'll find your path to becoming a Consummate Engineer a little bit easier to navigate.

Read 'Em and Weep

Do yourself a favor and resist the urge to read every single email as it arrives and respond to it immediately. This is actually a nasty little habit that I have struggled with, myself, on and off for the last thirty years.

When I first became a Network Engineer, I felt woefully inadequate due to my lack of expertise and experience, so I doubled down on the things that I knew that I *could* do as well or better than anyone else. One of those things was to constantly be checking my email, and then responding to senders as quickly as I could. When I first started my own business and I was a one-man show, it was an easy way to impress clients with the fact that even though I didn't have a team of engineers working with me, they would still get prompt and responsible replies to their requests and inquiries at all hours of the day and night.

That has been a difficult habit to break.

However, what I have realized in recent years is that every time I stop what I am doing to read and reply to emails, I am breaking my workflow and my chain of thought, and it takes a few minutes to get "back in the groove" of whatever I was working on. Now imagine that happening three

to ten times every hour and you can imagine what a hamper that can be to overall productivity.

The healthy balance that I have found is to check my email once every hour, usually on the hour, respond to the ones that require a swift response, and just flag the remaining ones that merit my attention for follow up. Then, at some point in the middle of the afternoon, I will take a break from my active task list and respond to everyone before continuing whatever I was working on.

I try very hard to not let any of those follow-up emails go unaddressed by the end of the work day, but when that does happen, I simply drag the message from my Inbox and drop into my Calendar as a reminder on the following morning.

Tag It and Bag It

At the end of each day, before I call it quits, I look back over my Calendar and take every task I had scheduled but did not complete and I simply drag it over into the next day.

I follow this routine religiously, because I have very little patience with engineers who regularly let things fall off of their plates and their active radar screen. I absolutely hate getting blindsided by a client who reaches out to me directly, usually via email, to let me know that they've been waiting for days (or weeks) to hear back from an engineer of ours regarding a question or a request that they've made.

So, do yourself a favor and never let anything fall completely off of your radar screen until it has been fully and successfully taken care of to completion. Once you do get it done, document your work and close that ticket, and then move on. If you follow this methodology, then you won't have to be constantly looking back over your shoulder trying to remember if you've forgotten anything.

Pack 'em In Tight

Here is a good general Rule of Thumb to follow when filling in your schedule:

When a client requests a support visit, try to fit that into your schedule at the earliest opening in your Calendar. Calendar appointments should always include enough time to handle all client requests while on site, followed by a 30-minute gap to allow for time to travel to your next appointment - but that's all. That's why it will be to your advantage to let a client know at least a full day or two *prior* to an onsite visit, which allows them to gather any additional support requests from their staff and get that back to you - ask them for that. You can't schedule enough time for a visit if you aren't aware of everything that they want you to do while you're there.

The next component of keeping a packed schedule is to place your first appointment on any given day to be as early as you can comfortably schedule it - preferably no later than 9AM, accounting for travel time to get there.

So, if your first appointment of the day is at 9AM and it is expected to be a 2-hour visit, then you should try to schedule your next appointment for 11:30AM. If that one is a 90-minute client visit, then leave yourself a little room at 1PM to grab some lunch (unless you like to eat while on the road, like I always did) and schedule your next one around 2PM. That will probably leave room for one more appointment that day, but if not, then finish out your day by writing up all of your service tickets so that when the day ends you're fully caught up and ready to roll into the next day bright and early.

You'll figure out over time how to adjust your scheduling practices to match how you operate as an engineer. If you find that you're always running late for your next appointment, then start scheduling an additional 30 minutes for each client visit. If you find that you always have extra time available and you often are killing time before your next appointment, then tighten up those visits a little. Your goal should be to get 5 to 6 billable hours out of an 8 or 9-hour work day.

Most employers should be happy with that.

It's not brain surgery, and there is no magic rule that you have to follow - figure out what works for you to pack the most billable hours into a day without stressing yourself out and provide enough time to get all of your ticketing and documentation done, and then follow that routine religiously.

Adjust as needed. You'll figure out what works for you. If you're making a career of this, then you want to get settled into a routine that is comfortable and will serve you for many years to come.

Keep in mind that any extra time between appointments could be used to connect into the ticketing system and catch up on your tickets before you leave one client site and head for the next one. You can also use that extra few minutes of time between appointments to call back clients that you saw the previous day and make sure that everything is still working well.

Clients really love it when they know that you're taking the time to check back with them to make sure that everything is working properly after you've done work for them.

Send It Off In a Letter To Yourself

If you don't have an easy way to connect into your ticketing system in order to enter your billable time as you go throughout your day, an easy way to get ahead of the game is to email yourself the same notes that you would put into a client ticket. That way, when you get back in front of a computer, all that you need to do is cut and paste the relevant information into your time entries and save them.

Little time-saving habits like this can make all the difference in the world over the course of a work week.

The Next Thing...

You should always have a "next thing" that you have in mind to do for *every client* in order to keep their network up-to-date, running smoothly,

and hopefully getting better with each passing year. If you have 10 clients that you are managing, then each one of them should have one main thing that is next on your list to do for them, and you should be regularly reminding them about it. These aren't things that you make up in order to sell them products or create more work for yourself; these are things that they either need, or that will genuinely improve their business environment.

It could be replacing a workstation or two, planning for a server migration, getting UPS's connected to every single computer on a network, or getting the client a better firewall. There is always going to be something that you could be doing for each client you are responsible for, so do yourself a favor and identify what that next thing is so that when the client finds a little surplus in their budget, or you just want to keep things in good working order, you know what the next thing is to recommend to the client.

Always make sure that you have a "next thing" in mind for every client that you are responsible for and regularly remind them of what that thing is.

Pencil It In

Another good habit to develop is to put anything and everything somewhere on your Calendar as a reminder to try to get it done on the day that it needs to get done, which is often going to be a few days after you put it in your schedule. Instead of trying to send yourself endless texts or email reminders, or trying to manage some sort of a neverending to-do list, simply drop tasks into your Calendar - and don't forget that you can drag emails in Outlook directly into your Calendar to create an entry, as well. There's no reason why you can't put multiple tasks into one calendar entry, either, but they should be similar or related to each other so that it makes sense to look at them at the same time.

Drag and Drop

One of the handiest things about keeping your active task list in your Outlook Calendar is that you can easily drag any item from one time slot to another, or to another day.

As I mentioned previously, at the end of each work day I look over my Calendar for that day and anything that did not get completed can be easily dragged and dropped into the following day - in a matter of seconds. That also allows you to easily move something that was just a reminder entry into a specific time slot when you plan on taking care of it. Because of that, I take advantage of the ability to assign a "Category" to every item in my Calendar to indicate whether it is just a reminder, a personal item, a client-related matter, a cybersecurity-related issue...or anything else that I have assigned a Category to; I have about 10 categories in all. You can also mark any Calendar entry as "Private," so that others can see that you have that time slot blocked off, but they cannot read the actual contents of it.

To make things work even more efficiently, I also created a Category named "DONE!" with a color coding of dark grey so that when I have completed an active task, I can right click and recategorize it as having been completed. That allows me to go back and see what I worked on that day, and since it is "grayed out," I know that it isn't an active task on my to-do list.

I hope that you'll find that some of those tips help you out with managing your schedule and your work day in an organized and efficient manner.

Now let's talk about some basic troubleshooting tips that may send you a little time and effort.

Rock Around The Block

I'll give you a little advice that many engineers never realize on their own no matter how many years they are on the job: take a break every now and then and go for a walk.

If you're a busy Field Engineer who is always on the go then this may not be necessary on most days, but even the most active engineer will

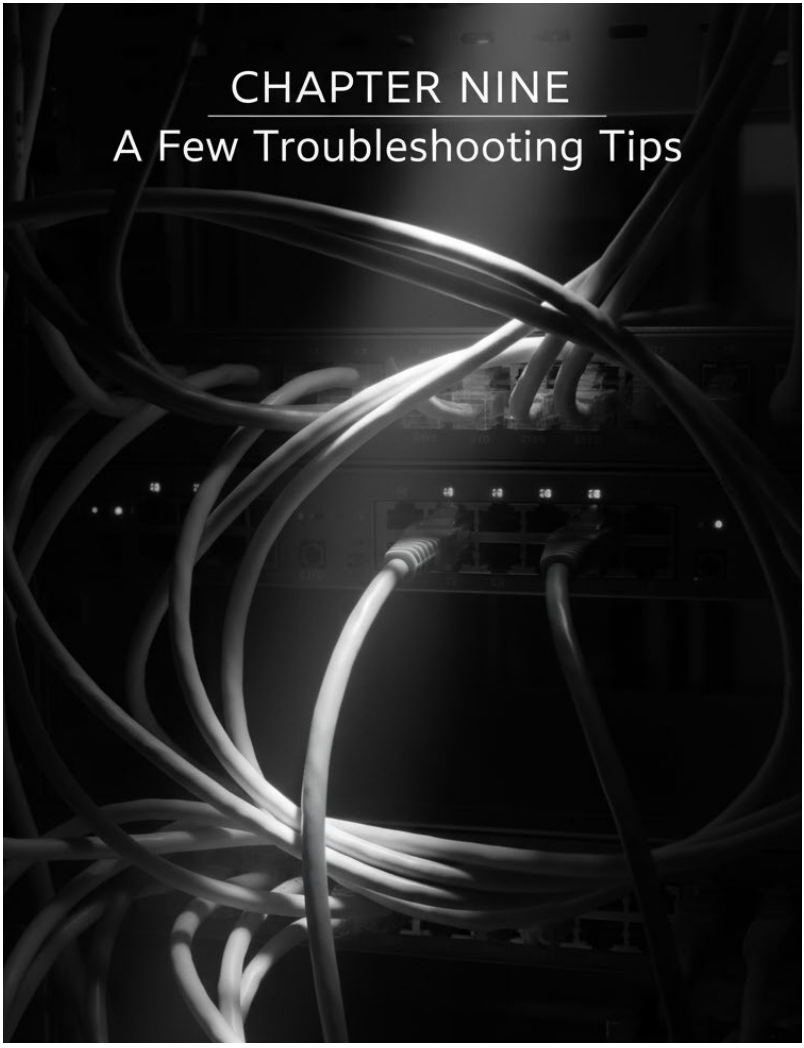
sometimes get stuck for hours cooped up in a tiny server room, or chained to their desk researching something or working on their ticket entries. My recommendation is that after every hour or two of nonstop focused stationary work you should stand up, look around, and take a nice little five or ten minute break away from your desk.

If the weather is nice and you live in an area where you can take a walk around the block, then take advantage of that. Otherwise, just get up and wander to another part of the building, say hi to your coworkers or the clients you're visiting, or find a set of stairs that you can traverse to get your blood flowing.

The main goal is to get your face away from the computer screen and to give your brain a chance to relax for a few minutes. That can be especially helpful if you've been focusing really hard on a problem trying to find a solution – just stepping away for a few minutes can sometimes give you a new perspective on the situation. You can also use this opportunity to run the problem past others on your team, either in person or on the phone, to see if they might be able to help get you pointed toward a solution.

It is far too easy to sit in front of a server for hours, all bunched up with tunnel vision on a specific problem and not even realizing how much time has passed. Get in the habit of noticing when you're tensed up or falling into a negative mindset and do something about it.

Just get up and take a break – you've earned it.


CHAPTER NINE
A Few Troubleshooting Tips

Chapter Nine

A Few Troubleshooting Tips

Intelligence is better seen than heard.

-PJ

General Troubleshooting Tips

Okay, so I've said multiple times throughout the course of this book that I'm not going to dive into technical troubleshooting, but I can definitely offer a few tips that might perhaps be helpful to you as you navigate your way into this career field.

The biggest one has already been provided: just get really good at searching the Internet for the solutions to anything you need to do as a Network Engineer, whether it's installing, configuring, deploying, or troubleshooting something. You can find manuals, forums, videos, and a wealth of other resources online with the answers you want. A lot of the troubleshooting that you do throughout the course of your career is really going to come down to simply using some common sense - we'll assume you have a healthy dose of that.

Oftentimes, there is no serious technical knowledge that's going to be required to solve a problem, although that definitely is an advantage if you're troubleshooting something complex. However, the vast majority of issues you troubleshoot will be really basic ones, like a user who can't print, a mapped network drive doesn't appear on somebody's computer, an application that stops working, or a peripheral that isn't working properly.

All of those kinds of issues can be solved with some pretty basic common sense and methodology.

Only One Thing at a Time

While it's true that I'm a big fan of pulling out the double barrel shotgun and blasting everything available at a problem when there is a red hot emergency going on, in the vast majority of situations where you're troubleshooting an issue, you should follow this one Cardinal Rule: only change *one thing at a time,* then check to see if the problem has been resolved.

You've probably heard that before, so let me explain what it means.

If a user is having trouble running a specific application and it's not displaying properly on the screen, then there could be a number of

different causes. It could be that there's a video card issue or a video driver issue. It could be that the software application needs an update. It might have something to do with the refresh rate or the resolution settings being used on the monitor while the application is being run. It might be a compatibility issue with another program that's already running. It's possible that the computer recently got a Windows security update or other application update that's causing the problem.

There's a logical order to use when troubleshooting a problem like this, but the main thing is to not attempt them all in one fell swoop, because if that works you won't know which change you made is the one that solved the problem, will you? Therefore you really won't know what the fix was, and you really do want to, so that you can document it.

Like I said, Common Sense.

Instead, approach the problem in a logical and orderly manner, trying one fix at a time and then testing the application between each change, but not making more than one of those changes before testing the application again.

The process should go something like this:

- Reboot the computer (do not assume that that has already been tried)
- **Check your cables** - swap out the video cable if the issue you're troubleshooting is display related.
- Look and see if an update to the computer has recently been installed since the last time the application has been run. If there has, make a note of what that update was and then try uninstalling that update and reboot the computer.
- Look at the System and Application event logs on the computer to see if an error is being generated whenever the problem displays itself. If so, research the error message and apply any solutions that you find posted online. Be sure to provide plenty of details in your search, such as the name of the application and what version the computer is running, what version of operating system you're running, and any specific details from the error message in the event log itself.

- Check and see if there's an update available for the application, which can usually be done from within that application using the Help pulldown menu. If there is an update available, install it and then reboot the computer.
- If the issue seems to be related to the display, then go and find the latest drivers for the video card and install them, then reboot the computer. If there is no update available, then you can roll back to the previous video driver, reboot, and then try the application again.
- If there's an antivirus or endpoint protection application installed on the computer, try temporarily disabling it and then see if the application runs normally again.
- Assuming you have access to the software installation files and license key, try completely uninstalling the application, reboot the computer, then reinstall the application from scratch. (Be careful not to accidentally lose any locally stored data or configuration settings that you might need in order to reinstall the program the way it was before.)

Remember to check whether the problem has been resolved after each one of these steps before proceeding to the next one.

I think you get the point, which is that each and every one of these changes should be done individually, and the application should be tested between each attempted fix.

This can be a challenging task if you're a younger or newer engineer and you tend to get nervous working in front of a client, because they could potentially be standing there in front of you tapping their toe asking you when their computer is going to be ready for them to use again. At that point in time you have to stay calm and practice your client management skills.

Patiently and politely tell them that this may take a little while, and that if they have something else they could do while you work on it that would be to their advantage. Do not feel compelled to hurry the process by trying three or four changes all at once to see if one of them works

because, once again, you will not know what the fix was, so you won't be able to document it for future reference.

In other words, stand your ground! The situation will be in your control as long as you manage it properly, so keep your cool, work slowly and methodically, and demonstrate that you are a seasoned veteran at fixing these kinds of things.

CHECK THE CABLES FIRST!

I almost put a duh in parentheses after that section title because to me it is that obvious, but you would be surprised at how many engineers skip right past it.

This is easily the single most overlooked troubleshooting step by both newbie engineers and seasoned veterans: check the freaking cables first. If you're having a network connectivity problem, you should absolutely not do anything else before you physically replace the network cable that connects the computer to the rest of the network, or at least run a cable tester on it. If that doesn't resolve the problem, then you should next replace the cable in the switch closet that connects the patch panel to the network switch.

I was at a client site in Ventura, California with a team of Network Engineers connecting an additional floor of the building to a client's network because they were expanding, and the fiber connection between the two floors wasn't working properly. A very experienced Network Engineer spent two whole days troubleshooting the problem while the rest of the team waited patiently to be able to continue our work. He spent hours and hours reconfiguring switches, checking network card settings, running network protocol tests, and generally trying everything under the sun. All the while I had been mumbling under my breath that he really should check to make sure that the cables were good. In the end, that's what it ended up being; one of the fiber cables had to be reterminated on one end because it initially hadn't been terminated properly. It was a 10 minute fix that took 2 days to accomplish.

If a client is having a display issue, then try a different video cable before you do anything else.

HARDWARE, HARDWARE, HARDWARE

Right up there with cables being overlooked are basic hardware issues or failures. It's really easy to spin yourself in circles for hours troubleshooting a network connectivity issue, especially if it's inconsistent or sporadic, which eventually turns out to be just a bad network card or a failing port on a switch.

The easiest way to troubleshoot a network card issue is to simply carry around a USB network adapter that can be plugged into a computer to check and see if that restores network connectivity. If it does, then you know that you have a bad physical NIC in your computer and you can replace it. If it doesn't fix the problem, then you can move on to the next troubleshooting step. (I will assume you've already checked the network cables!)

Ports on network switches are also notorious for going bad and causing the strangest network issues as they fail. You can get anything from sporadic ping responses to slow application performance and everything in between if a port on a network switch is going bad. Because the symptoms tend to be random and they don't seem to be connected to any one particular thing, it can be really easy to overlook the network port as being the culprit, but that will be one of your first clues: The problem will seem sporadic and varying in nature, and not consistent in any way.

A lot of new engineers will think that if a network port is going bad the computer will simply lose network connectivity, but that is often not the case. A dying port on a network switch will typically start acting up by having weird intermittent connectivity issues that will magically go away when you take a moment to look at them. Don't let them throw you for a loop. Either try another port on the same switch, or try plugging into a different switch if you have one available. That will quickly let you know if that is the root cause of the problem.

Also, be aware that if a single port goes bad on a switch the entire switch really should be replaced even, if all of the other ones seem to be working just fine. A failed or failing port on a network switch is a good indication that the device is starting to fail completely. It's like failing sectors on a hard drive - once a single port goes bad on a switch, it's usually not very long before additional ones start to fail and then you'll have a complete switch failure before you know it. Murphy's Law dictates that will conveniently happen in the middle of a busy work day for your client. Be proactive and replace it before that happens.

This is an excellent opportunity to utilize the "never say I told you so" approach.

Recommend that the client replace the switch, give them a price for it, and let them know you'd like to replace it as soon as possible. If they refuse because they're trying to save a few dollars, or they are unrealistically optimistic that that failing switch is going to last another year or two, then just humbly mention that you were simply hoping to avoid having them experience a complete network outage in the middle of a busy work day, but that you will respect their decision. That's what you will want them to remember when the switch does eventually fail in the middle of a busy day.

Unfortunately, during the process of failing completely, it is likely that one port at a time will gradually go bad which means that you will make multiple trips to the client side to troubleshoot the problem. Hopefully, after two or three ports have gone belly up on that switch the client will understand that this is going to be really expensive if they don't just go ahead and let you replace the switch for them.

We have a saying in IT, or at least I have one that I probably picked up from my days back at CompuVision: **"A lack of planning on the client's part does not constitute an emergency on our part."**

If they push something until the very last minute or delay well beyond a reasonable timeframe and then the crap hits the fan and causes a minor (or major) emergency, it is entirely on them if you made good recommendations that they chose to ignore or to postpone. Your job is to make the client aware of what they ought to be doing, but ultimately

it's their choice as to whether or not they do it. Just make clear to them that you take responsibility for your recommendations and the work that you do, but they have to take responsibility for their own decisions.

Anyway, in your eagerness to identify and resolve issues for your clients, please don't blow past a thorough examination of the hardware part of the equation.

An Ounce of Prevention

Another thing you're going to want to get good at is seeing the first signs of something that could develop into a major problem, and then doing something about it early on.

I call that identifying the "gotchas."

For example, if somebody's computer is running slowly, one of the first things you should do is to run a hard drive scan to verify that the hard drive itself is in good shape. Even if you only find a few failing sectors on the entire hard drive, you should take that opportunity to clone it while it is still possible, because most cloning software will fail if it encounters too many bad sectors. Cloning (or at least replacing) that hard drive as soon as you find that it has some physical issues developing is going to save you a lot of grief, as opposed to just ignoring it and waiting until the drive fails completely, which will cause downtime for your client and potential data loss if they were unwisely saving files to their local drive.

That's what proactive support is all about.

Identifying and taking action early on gives you the opportunity to be the hero, to schedule things at your convenience, and to make sure that everything goes smoothly, as opposed to having to provide an emergency response to a situation after a hard drive has failed, a switch has gone completely bad, or an Internet connectivity issue has manifested into a full-blown internet outage.

Example:

If you have a network switch and one of the ports goes bad - even just one of them - that is usually going to be an indication that the switch is starting to go belly up on you. The first instinct of many inexperienced engineers is simply to plug the network cable into another port that is still functioning and then go on about their business. That's fine as a short-term fix in order to get the client back up and running. However, please trust me when I tell you that you do not want to leave them like that for any length of time, because it will probably bite you in the @ss.

A client may never notice that you smoothly replaced a failing switch in a timely fashion before it cost any major downtime, but I can guarantee you that they will notice if that switch completely fails in the middle of a workday and you failed to catch that problem before it manifested into an interruption in their business operations. Take this opportunity to get them a quote for a replacement switch, preferably better or larger than the one they had before, and then tell them that if one port on their switch has gone bad it won't be long before other ports do the same. If you've established a trusting relationship with them, then they will believe you and they will be receptive to your recommendation.

If they don't trust you, yet, then leave them on that failing switch and patiently wait as it slowly continues to die on them one port at a time.

Oh, well. At least you tried.

A Pound of Cure

So, what happens when you miss that opportunity for an ounce of prevention and you end up with a disaster on your hands?

That is when you need to hit it with everything you've got - I call that the double-barrel shotgun approach. If your client's network is completely down and they are dead in the water, you need to move quickly. Get somebody over to the client site as quickly as possible; if you can't get there in less than an hour, then send somebody who can.

If you're dealing with a problem that's specific to a particular type of technology, like a network switching issue, or an Active Directory problem, then you want to call in an engineer from your team who is the most experienced with that so that you get it dealt with quickly and efficiently. The main thing is that the client sees you actively doing everything humanly possible to get them back up and running.

If you're a good engineer then you shouldn't find yourself in need of a pound of cure very often, because you employ an ounce of prevention on a regular basis, right?

Having clients regularly run into showstopping issues or major problems is a good indication that you're not as good as you think you are, or you have allowed your clients to get into a state that is not easily sustainable. As soon as you hit them with a pound of cure, you want to proactively look at what other things you can improve, upgrade, or replace in order to prevent another emergency from happening again. You have a captive audience once you have fully recovered a client from an emergency, and they are usually eager for words of wisdom or advice that can help to prevent them from falling into a similar situation again in the future - so take advantage of that.

If a client is regularly experiencing issues that impact their productivity, they will hold you responsible - even if they have repeatedly declined your recommendations for improving their network infrastructure. It will be up to you to remind them when their main network switch fails that you recommended replacing it a month earlier and sent them a quote.

During the course of your relationship with any given client, the odds are in favor of them running into some kind of a major dilemma at some point in time, but hopefully not more than once over the course of a handful of years. If they do, you will probably find that they lose their patience with you and start looking for a company that can actually keep their systems up and running.

Anyway, the point here is that when the situation calls for a pound of cure, give them a pound of cure. Don't hesitate or falter. Be decisive, call in any favors with other engineers if you can, and get that client back up

and running quickly so that they can go back to doing business and making money.

Be A Copycat

If you arrive at a client site to set up a new user or a new computer and you don't have full documentation on everything that needs to be set up, what do you do?

The answer is simple: look at another computer on the network to see what applications are installed, what network drives are mapped, what printers are installed, and the desktop shortcuts that the other user has. You don't have to reinvent the wheel or run around asking everybody at the client site what needs to be installed or configured.

Just find another user with similar job responsibilities (not an owner or a manager) and set up the new user just like that one is configured. Then just make sure that you have somebody thoroughly test out the computer once you're done setting it up.

Common Sense and Intuition

I warned you earlier in this book that at the discretion of the Department of Redundancy Department there would be some messages that you would see more than once. In most cases those have been quite intentional and they are emphasizing concepts and ideas that I think are cornerstones to the entire concept of becoming a Consummate Network Engineer.

Common sense and intuition are two of the most valuable resources that you should carry around in your toolkit and use everywhere you go. While it is true that you can troubleshoot a lot of problems by using online resources and researching them thoroughly, over time I believe you're going to find that often you already knew the answer before you found it elsewhere.

That is going to come from one of two sources.

The first one will usually be intuition. A hunch. A gut feeling. Call it what you will, but it is an answer or at least a direction that will come to you without having to even think very hard about the problem; you will just have a sense of what you should try next. The more you do that and the better you will get at having good hunches. If you examine the best engineers that you have the good fortune to work with and watch how they do their magic, I believe you will find that they very rarely do anything more than pause for a moment to think about a problem and then having an idea of what to do next. That comes from both experience and having good intuition.

The other valuable tool you should always be carrying with you is common sense.

If something somebody else recommends just doesn't make sense to you, then it probably isn't a very good idea to pursue it. Alternatively, if there is a simple and straightforward answer to a problem, then you should quickly try to verify whether or not it is the correct solution.

For example, if a client suffers the failure of a piece of equipment after a major thunderstorm blows through their area, and then within the next day or so another piece of equipment is found to be having issues, common sense should tell you that it was likely also damaged by that same storm. Don't waste a whole lot of time trying to figure out how or why the equipment failed when it is very likely a result of a lightning strike nearby.

The good news is that common sense will become easier to follow, as will your intuition, the longer you do this for a living. So relax, don't try to rush it, and try to enjoy the ride along the way!

Mastering "The Google"

My favorite search engine has been Google for many years, and Google Chrome is my preferred browser - but I'm not a browser snob. Microsoft Edge has made some nice improvements in recent years, especially with the advent of Copilot, and Firefox seems to be a favorite of many of our engineers. DuckDuckGo has become a favorite search engine of many IT

professionals because it allows for more privacy in Internet searches and can allow browsing with a high degree of anonymity.

And that's all just fine with me.

I like Chrome and Google's search engine because I have become quite proficient at getting the results that I am searching for, usually on the very first try. For many years, I have been known within my company as the "Google Master" because I am usually able to find exactly what I am searching for on the very first try, even when another engineer has spent 30 minutes looking for the same results. (that's only a slight exaggeration)

Maybe I'm just consistently lucky. :-)

My methodology for performing web searches using Google Chrome is really very simple: just ask your question or specify what you are looking for *in plain English*, just like you would ask another engineer. Don't try to get fancy or try to come up with the perfect query - don't overthink it. Just focus on what you want to find and then ask for it.

For example, if you want to know how to create a VLAN on a Ubiquiti Edgeswitch, then here is your query: *how to configure a VLAN on Ubiquiti Edgeswitch*.

If you want to watch a video that shows you how to do that, use this: *how to configure a VLAN on Ubiquiti Edgeswitch Youtube*.

If you have a Windows 11 computer that keeps locking up, and you find a DistributedCOM Event ID 10016 in the System Event Logs, then I would use this: *Windows 11 locking up DistributedCOM Event ID 10016 error.* You probably don't want or need a YouTube video on that - you just want to know how to fix the problem.

If you want the answer to come from Reddit, then add "Reddit" at the end of the query. If you want it to come from YouTube, then add "YouTube." If you find too many answers that all seem to address different causes for your problem, then add in the make and model of the computer: *Windows 11 locking up DistributedCOM Event ID 10016 error Dell Vostro 3020.*

Don't overthink it - that's usually what trips people up. It's not brain surgery, after all.

Anyway, I'm telling you all of this because I'm not going to dive any deeper into technical skills and general troubleshooting tips, other than an occasional insight throughout this book about a technique for approaching a problem. You can find everything you want to know about technical issues on the Internet.

You just need to "Master the Google" first.

Banging Your Head

If you're a headbanger and you go to a heavy metal concert, then by all means, bang away!

But please don't spend hours banging your head against a problem or situation without making any progress and then just keep on struggling on your own. Fifteen minutes is the general limit to how much time you should spend working on something without making any progress or having any new ideas about how to accomplish the task or overcome the challenge.

At that point, it is time to pick up your phone and dial a friend.

Dial A Friend

As I just mentioned, we strongly encourage our engineers to not spin their wheels for more than an hour (at most) without making any progress before they dial another team member for assistance. In fact, over the years we have lost more engineers due to their apparent inability to admit that they need help and then ask for it, than we have because an engineer called too often to get assistance.

Now, there is a limit to that rule.

If an engineer calls for backup, but they haven't even spent a few minutes searching the Internet for a solution to their predicament, then they aren't even really trying, in my opinion; they're being lazy. When we hire a new engineer, we're not looking for someone that needs to be on Remote Control whenever they go out into the field. They need to at least

demonstrate that they have an aptitude to learn our ways and methodologies, and that they can apply what they learn from one situation to other similar scenarios.

For example, many printing issues can be resolved by simply replacing the printer driver that a client is using with another version from the same vendor, such as using a PCL driver instead of a Postscript printer driver. If it is a local USB printer, then you should try swapping out the USB cable and plugging into a different port on the computer. If it is a network printer, then you should try swapping out the network cable. Using that same logic, if a client is having issues with their computer display, the first thing that you should do after checking all of the cables (and even replacing them if you have a spare on hand) is to try installing a different display driver.

Once the engineer has swapped out cables, tried a different driver, and done a Google search on the symptoms (or any specific error messages in the System event Logs), that's when they should call someone else for a second opinion.

Don't flail away for four hours on a problem before you Dial a Friend.

With a Little Help from My Friends

I will gladly admit that I never would have been able to succeed as a Network Systems Engineer without the help from my first employer and help from my fellow engineers.

Not in a million years.

Not only do I not think that I am that smart (although I could have eventually figured out most of the things I needed to know on my own), but more importantly, I felt comfortable asking those around me for assistance.

This was especially true when I was a brand new engineer.

Nobody expects the new guy to be an expert in anything, although sometimes they'll surprise you and they'll actually be quite

knowledgeable on one specific aspect of their job, such as wireless networks or firewall management. But as a general rule, they don't know diddly about what it means to be a competent Network Engineer, so they need you to take them by the hand and gently walk them down the path of successful engineering.

I find that to be both rewarding and satisfying at the same time.

The point I'm trying to make is that if you're the new guy on the block and you don't know much and you need people to show you around, then you need to speak up and ask for some training. If you're the seasoned veteran and the new guy on the block shows up eager and willing, but they really don't know enough to engineer their way out of a wet paper bag, then realize the potential you have to help them and act accordingly.

If you're the new kid on the block, then figure out really early on who are the members of your team that you can go to and ask for assistance who are happy to give it to you - there will almost always be one or two of those.

On the other hand, if you've been doing this for ten or twenty years and you know the ropes, then for Pete's sake please have a sympathetic bone in your body and help the new guy out. There's no need to be snooty or condescending about it - just offer assistance when you think that it's needed and then provide that assistance graciously.

If you get some level of appreciation and gratitude from the lesser experienced engineer, that's great; you can practically live off of that kind of good energy.

If you don't, then you'll need to figure out a way to tactfully let them know that you would appreciate a little gratitude every now and then. Perhaps you need to remind them that you were the one who bailed them out of their last few jams, and suggest that they might want to show a little bit of appreciation if they want you to continue to assist them in the future.

Just don't be cocky or condescending about it, that's all.

Don’t Forget - AI Can Be Your Friend

In this book I have mentioned a number of times how handy it is to be able to look something up on Google or to find a YouTube video to show you how to do something, but keep in mind that in this modern age of AI you have some extremely handy tools to not only get answers to questions, but to also obtain step by step instructions for accomplishing a task. I’ve been using Gemini a lot lately, but there’s also ChatGPT, Claude, Copilot, and many other flavors of AI that are all capable of doing pretty much the same job when you need technical assistance: giving you instructions for accomplishing a task, or helping you to troubleshoot a problem.

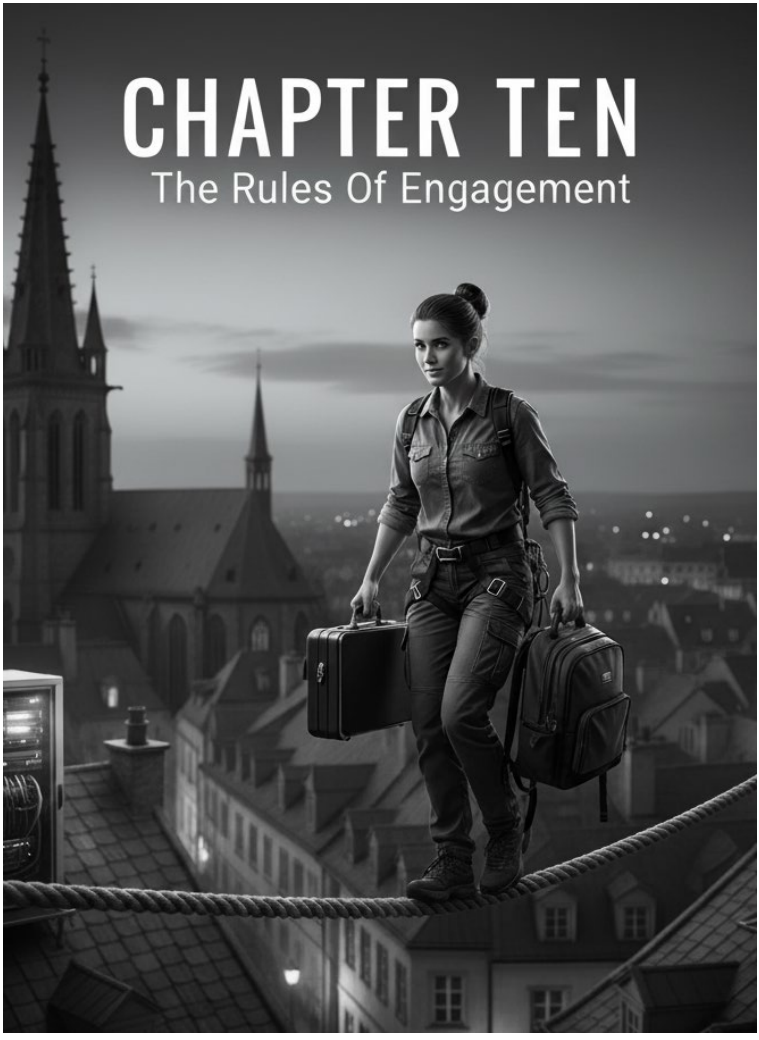
When I want to know the exact process for doing something, I simply ask Gemini to provide me with step-by-step instructions for accomplishing x, y, and z, using such and such a software platform in a specific type of scenario, and if it doesn’t give me exactly what I need it usually points me in the right direction. Once I’m headed in the right direction, I refine my prompt and ask it a different question that’ll give me precisely what I need.

While I’m not particularly concerned about AI taking over my job or the profession of Network Systems Engineers, it certainly knows a whole lot about the jobs that we do and it’s capable of searching throughout an amazingly extensive database of information to come up with precise instructions for accomplishing what you need to do.

I absolutely think it’s a tool that we should be taking advantage of whenever the situation is appropriate.

So, you probably won’t lose your job directly to Artificial Intelligence, but you risk losing it to someone who knows how to use and work with AI, so don’t shoot yourself in the foot by holding a grudge against it.

I can assure that that it does not hold a grudge against you!


CHAPTER TEN
The Rules Of Engagement

Chapter Ten

The Rules of Engagement

If you worry incessantly about how you appear to others, then to others you will appear to worry incessantly.

-PJ

There are far too many tips, tricks, and recommendations that I have to offer you that don't necessarily fall within one specific category. I couldn't quite find a chapter for each of them, so I have compiled them into The Rules of Engagement.

That's what this chapter is all about.

The Rules of Engagement is a list of dozens of snippets of wisdom, advice, and insight that have been gleaned from my thirty years of being a Network Systems Engineer. They have slowly been accumulating within my brain, but now the time has come when I can put them all in writing and assemble them in a (mostly) organized fashion for human consumption.

For the first time ever, they will finally see the light of day!

Whether or not they make the World a better place, it makes me very happy to finally accomplish that. Even if they only help a small handful of engineers to improve themselves and enjoy their careers more, it will all have been worth the effort. Besides, I really needed to get them out of my head and onto paper, so to speak.

I have poured over them many times, moving one here and tweaking one there until I was satisfied enough to expose them to the rest of the world. Even with all of those reviews and edits, I am sure that there are still plenty of improvements left to be made. After all, I may have been a Network Systems Engineer for three decades, but this is my first attempt at writing a book, so please be understanding if you see something that could have been written better.

What I refuse to do is to keep pouring over them endlessly, moving them around and tweaking a word here or there until I have achieved perfection, because Perfection is an illusion. It never hurts to strive for perfection, but please don't kid yourself and think you'll ever achieve it. Just like becoming a Consummate Engineer, it's more about a journey than it is a destination, and sometimes you just have to be satisfied with the ride while you're moving down the road.

Try to enjoy it while you can.

Moving Right Along...

Unless you borrowed this book from a friend or a library, feel free to highlight the bits and pieces that you think would be particularly helpful for you to master so that if you ever read back through them again you can easily find them.

Most of all, try to relax and not take any of this too seriously. I'm not kidding when I say that this adventure is supposed to be an enjoyable one, so if you can integrate the advice that I am giving in this book into your daily workflow it should help to reduce the number of situations you encounter that cause you stress and discomfort.

At the end of the day, there are well over a hundred different micro-topics covered within this book, and you don't have to memorize all of them - as far as I know, there isn't going to be a test on it later. If you make it to the end of the book and you come away feeling more confident and optimistic about your future as a Network Engineer, then I think that will have made it worth the price of admission.

Onward and Upward!

Message From The Department of Redundancy Department

There will be a handful of topics included in this book that you will see more than once. The reason for that could be one of several:

- I am providing a slightly different perspective on the topic
- It is important enough to warrant writing about more than once
- I've been writing this book for many months, and I forgot that I already talked about that subject

Hopefully, after going through an army of editors and proofreaders, the last one won't be the reason you see something more than once in this guidebook. However, I do believe that certain things are worth repeating;

if you do see a little repetition, it almost certainly wasn't something that escaped my notice - I left it in here for a reason.

So, if you see something that comes from the Department of Redundancy Department, please take the time to give it a little extra consideration.

PILLAR 1 – THE ENGINEER'S CODE

Integrity and Accountability

Do Unto Others

The golden rule, the Golden rule - what could be simpler than the Golden Rule?

Do unto others as you would have them do unto you. That's pretty doggone straightforward. Don't say something to somebody else that you would not appreciate them saying to you. Don't treat somebody else with disrespect or in any way that you would not want to be treated, yourself.

Adopt and follow the Golden Rule early in your career, and you will find that it serves you well for all the days of your life.

Your Word Is Your Bond

Whether you just started off with a new employer and you're the low person on the totem pole, or you're the owner of your own IT support company and represent it from the highest level of authority, you need to establish and maintain that when you give your word on something, it is sacred. If you are not absolutely sure about something, or are not certain that you will be able to do something for a client, then don't tell them that you can or that you will.

It's that simple.

It only takes a few instances incidents of you not keeping your word or forgetting to follow through on a commitment, before the client will stop having faith and the things that you say. So, even if you have to take a hit on something because you misquoted the amount that it would cost, or have to provide twice as much labor to accomplish a task than you told the client it was going to take, you need to take the loss and keep your word. The longer you work with a client and the more they will learn to trust you IF you are someone who always tells them the truth, follows through on your obligations, and keeps your word.

Your Word is Your Bond.

A Handshake Is As Binding As A Contract

Maybe I'm old fashioned, but I have always believed that you should not have to have a written contract in place in order to force someone to honor a commitment; a handshake should be just as powerful as a legal agreement.

Now, that doesn't mean that you shouldn't put everything in writing when establishing business contracts and agreements with your clients, but if you tell the client that you're going to do something and you shake hands on it, then that should be just as binding as having put it into writing and then signing it. If you follow the philosophy that your Word is your Bond, and you treat a handshake as being every bit as credible as a legal contract, then you will establish the reputation for being honest, trustworthy, and reliable.

Be Consistent

I have always believed that it's better to have an engineer working for you who is consistently a 7.5 on a scale from 1 to 10, than to have one who is a perfect 10 on some days and only operates on about a 5 on other days.

That makes it really hard to count on them to be consistently taking care of their clients, and it means that on their bad days they have to go back and redo work and fix their mistakes or clean up sloppy work. Yes, on their perfect days the world loves them and they're awesome to be around and you might even learn something from them, but if you can't consistently count on them to deliver perfection, then you're better off getting a little less than that, but at least getting it consistently.

What Did I Tell You To Do?

Another important rule that we have at PJ Networks is this:

If I tell an engineer to do something for a client and I do not specify the way that I want it to be done, then the engineer gets to choose how they want to accomplish the task - as long as they follow our established practices for doing things, use the appropriate checklist(s) if there are any specific to that task (like configuring a firewall), and the end result is that the work gets done properly and the client is happy.

HOWEVER, if I or another manager assign a task to an engineer and tell them how we want it done, then the engineer is required to follow our instructions as precisely as possible. If I take the time to explain how I want something done, then there is always going to be a reason for that.

Always.

The engineer is welcome to ask why I want it done in that particular way.

If I simply ask them to accomplish something for a client, then I trust them to do it on their own following our standard practices and using their best judgment.

If for some reason the engineer disregards my specific instructions and does the work "their way" - even if they follow PJ Networks' best practices - and things turn out badly, then that is entirely on them. There will probably be some negative consequences - there will be hell to pay. However, if they follow my instructions to the letter and things turn out badly, then that's on me, and the engineer will not be in any trouble.

The lesson here is this: If an engineer is given specific instructions to follow for doing something, they cannot get in trouble if they follow them, no matter how badly things go.

The Road To Hell Isn't Paved At All

I have always had a problem with the saying that the road to hell is paid with good intentions. I absolutely do not and cannot believe that statement.

I do understand that much damage has been done to the world and many bad things have been done in the name of something that was supposedly a good intention or was supposed to have a positive outcome. In fact, if I'm not mistaken, Adolf Hitler did exactly that when he led the whole Nazi movement back in World War II. He thought he was making the world a better place. The problem is that he was crazy and he was evil.

Most of the people I have known were neither of these.

Therefore, as a general rule I do not believe that seriously bad outcomes can come from people that have sincerely good intentions, although I have to admit that in modern political times perhaps that statement can be challenged. But, generally speaking, if you're an engineer who means well for your clients and doing your best to protect them and serve them honorably and professionally, then I believe that very little bad can actually come out of your actions.

So, have faith that as long as your intentions are good, the outcome of your actions will tend to be good, and try to believe that the Universe is looking out for you on a much greater level than you could ever fully comprehend. (I can't prove that's true, but it still feels good to believe it)

Did I Do That?

If you make a mistake - if you screw something up and there's no way to quickly and completely correct the situation, then don't act like a guilty

child and try to hide it from the client. Figure out the best possible outcome that you can deliver after you make the mistake, and then go to the client and own it. Be Samurai about it.

More on that next...

Own Your Mistakes or Someone Else Will

If you make a mistake, then there's no sense in trying to not own up to it.

Sure, throughout the course of your career you will make thousands of tiny little mistakes that nobody else will know about that you can quickly fix. No harm, no foul, or so the saying goes.

However, it is almost inevitable that from time to time you will make a mistake that has consequences, and for those you must step up and take responsibility. Even the little ones can come back and bite you in the rear end if you don't go to the client and let them know what has happened and what the possible ramifications are.

Let me give you an example.

Let's say that you're making adjustments to a client's MX records that direct their inbound email to their mail server, and somehow you put a typo in the name of the server or pointer. You don't notice it, so you commit that change and that gets replicated out across the Internet in a matter of minutes.

Two or three hours later, you get a phone call from the client telling you that email isn't being received by anyone in their company and they would like for you to look into it. When you investigate further, you realize the mistake that you made and you correct it, but it's going to take a few minutes for that to replicate out to the world and allow their email to flow properly.

You now have a choice to make: do you tell the client that you fat-fingered their email records, which caused the temporary outage, or do you pretend like it was some sort of a glitch with the hosting providers and you fixed it - you figured out what it was and, being the hero you are, you have saved the day?

I would strongly suggest that you just own up to the mistake.

They will respect you for being honest with them, hopefully they will forgive you for being human and not being able to do everything perfectly all the time, and ultimately all of the people who tried to send them email should have their messages come through because most email servers will keep trying to deliver for at least a half a day or more before giving up and sending an NDR to the sender..

Could you have BS'd your way through that one and gotten away with it?

Most likely.

However, if you start down that dark path, then before you know it you'll be lying to the client about other things that are more important. Even if you get away with it most of the time, eventually you will probably get caught doing it and then you're nothing but a big liar to the client, and they may no longer trust you to tell them the honest truth in the future.

Your clients are smarter than you think - always remember that.

Oops, I Did It Again

It's important to understand that while clients will be forgiving of you making a mistake once in a while, they don't want somebody who's constantly fumbling and bumbling their way through their business network regularly making mistakes - especially the same mistake multiple times. If you work with a team of other engineers, you will also find that they will become intolerant of you if you continue to repeat the same mistakes that you've made before, especially if other engineers have to keep coming in after you to fix things that you didn't do correctly.

This doesn't mean that you need to beat yourself up if you make the same mistake twice, like Chris Farley in a Saturday Night Live skit saying "stupid stupid stupid" and punching himself in the head - but you need to figure out some way to make a clear mental note to not repeat the same mistake more than once, or twice at most. If you repeat the same mistake twice, such as fat-fingering a client's email pointers, your client will eventually start losing faith in you and consider you to be incompetent, and your fellow engineers will become increasingly less

inclined to want to assist you when you need a hand because it will seem like you're not capable of doing anything right.

I believe that the best way to accomplish this goal is to take every mistake as a learning experience and engrave it in your brain in such a fashion that you're not likely to do it again.

Please take a minute or two when you identify or become aware of a mistake that you have made, and ask yourself, "What do I need to learn from this experience?"

Everybody's brain works differently, so I can't tell you what's going to work for you, but you will absolutely want to figure out some methodology that will consistently keep you from repeating mistakes over and over again. In my experience, these kinds of mistakes occur when an engineer is rushing through the configuration of something like a firewall or a network switch, and they simply don't take the time to carefully review the configuration before they commit it to the device.

Measure twice, cut once.

Nobody's perfect, but please be diligent about doing your absolute best to not make mistakes in the first place. When you do - and you will - commit to your brain that you're not going to make that same mistake again.

Then forgive yourself and move on.

You're Only Human, After All

Which brings us to our next topic in a timely fashion: you are not a robot, you are not an Artificial Intelligence, you are a human being, and therefore it is inevitable that you will make a mistake from time to time.

First of all, I would state that you do not really want your clients thinking that you're perfect, because that's one hell of a thing to try to live up to. Secondly, remember that you have to go home at the end of the day, look yourself in the mirror, and try to believe that you're a good person. You can only do that if you truly are a good person, or if you're so good at BS that you can even fool yourself.

If you want to be *that* person, then you have my sympathies. However, it's never too late to try to be that first person and do the right thing, consistently and conscientiously and deliberately. And you have to allow yourself to be an imperfect human being, as well.

PILLAR 2 – THE MENTAL GAME

Attitudes and Decisions

Get Out Of Your Comfort Zone Once In A While

If you really want to grow and evolve into the best engineer that you can possibly be, then you're going to have to be willing to step out of your comfort zone and stretch your abilities a little farther than you've ever done before. Tackle projects and tasks that you've never done before. Deal with clients who may have intimidated you in your younger days, but now you're all grown up and ready to stand toe to toe with them.

And you're going to need to do that regularly.

Not every day, maybe not even every week, but often enough that a month may never go by that you haven't tackled a new challenge and emerged victorious.

Maybe it will be when you successfully configure your first VLAN segmentation, or when you implement your first fully cloud-based Microsoft Azure Active Directory environment, but you should actively seek out and volunteer for work that you've never done before and then ask for assistance if you think you need it. When you first learned how to ride a bicycle, you probably had training wheels and somebody right there beside you holding onto the handle bars for the first dozen feet before they let go and allowed you to soar off into…well, maybe the nearest ditch.

But you got out of your comfort zone and covered a few feet of ground on your own.

Be Intrepid

It is not uncommon for new engineers on our team to have their doubts and insecurities about their own abilities. When sending them out on a task that they have never done before, I've gotten really good at noticing that look of fear in their eyes when they suddenly realize what they are expected to accomplish.

My advice to our newer engineers: Don't worry, we've got your back.

I remind them (or inform them, if they are really new to the team) that we have never failed to complete a task successfully for a client. Ever. Sometimes that comes as a surprise to them, but it's true. Any engineer on our team can call any other engineer - including myself - for advice or technical assistance if they get stuck while working on something.

From Day One, they are encouraged to not just bang away on a problem that seems unsolvable for hours, hoping that some kind of miracle or sudden inspiration will magically come along and they'll know exactly what to do. If an engineer has put best effort into a task and still comes up short, then we tell them to just dial another team member and get assistance.

Hopefully you will end up working for a company like ours where everybody on the team is always willing to help anybody else, but if you don't, I at least wanted you to become aware of the fact that companies like ours do exist and that should be what you're seeking to find before you settle into a place to call home for a while. If you're not getting that sense of camaraderie and teamwork, then be aware that you at least deserve to find that someday and keep your eyes open for that opportunity.

Confidence Comes Over Time

On a related note, once an engineer has been with PJ Networks for a full year, the easiest way to alleviate their fears when you see that look of uncertainty in their eyes is to simply ask them, "When have you ever been assigned a task or project that did not get completed successfully?"

Whether they did it on their own or had to call someone for assistance, they always end up with a successful resolution or deployment - always. It may take a little longer than originally expected, but because we have *persistence*, and we can rely on each other for help when we need it, we never fail to complete a project or task successfully.

Whether you have team members who help you successfully complete your tasks or you are just persistent and diligent enough to knock them all out on your own, I'd be willing to bet that after a full year out in the field you will be able to look back and realize that few (if any) of the challenges that you were sent to work on did not get successfully resolved.

Listen To Your Intuition

Every adult is expected to reach milestones in their Life where they realize that whatever they've been doing up until now isn't working, or whatever they have planned for the future isn't necessarily going to work out the way that they wanted it to. I painted houses for almost 10 years before I realized that was not what I really ought to be doing for the rest of my life.

The biggest disservice you can do for yourself or to yourself is to not listen to your intuition and then make changes as needed or appropriate.

So, if you have a big old voice inside of your head that's telling you enough is enough and things cannot go on the way that they've been going, then for goodness sake, please listen to it and make the necessary adjustments. That voice probably started a long time ago as a tiny little whisper that just got ignored.

That doesn't always necessarily have to mean that you change employers or employment, just that changes need to be made in order to make your current situation acceptable. You're a good person. You work hard, your intentions are good, and you go the extra mile for your clients, so why shouldn't you also deserve to have some extra consideration and the right to be happy with your life?

It's hard for me to explain this concept, especially after being in this line of work for so many years; it is ingrained into me on a subconscious level.

When you start to choose paths and decisions that will make you happier in the work that you do (and Life in general), you are also doing a great service to your clients. You want to provide the highest level of service you can possibly give them, right? That means giving them outstanding consideration, respect, and the benefit of your years of experience in exchange for you being able to actually enjoy your Life.

You deserve to live from day to day without feeling like you're always stressed out, under the gun, or trying to make a square peg fit into a round hole. You're better than that; you deserve better than that, so proudly declare enough is enough if you feel pushed beyond your capacity and figure out how to make things work so that everybody is happy, especially yourself.

That is absolutely possible, and I am living proof.

Make Up Your Freaking Mind

Try not to be one of those perfectionists that hovers between two possible choices and never feels comfortable making a decision to go with one or the other.

After you've studied the situation thoroughly take a deep breath, clear your mind, and just go with your gut feeling; that's the best advice I can give you in situations like that. The main thing is that you actually make a decision and go with it, rather than hovering on the fence indefinitely, holding up a project and annoying fellow engineers while you try to make up your mind.

So, just make a decision and put 100% of your energy behind that, and don't look back unless you run into a brick wall that forces you to reconsider your decision. If that happens, deal with it and don't feel guilty or have any regrets - just switch tracks as quickly and smoothly as you can and keep on keeping on.

No Regrets

I'm a firm believer that you shouldn't go through life constantly looking over your shoulder and second-guessing the decisions you've made, because that can only lead to self-doubt and regret. Regret is one of the biggest wastes of time and sappers of energy that you can experience.

Perhaps a little regret might prevent you from making bad decisions in the future when faced with similar choices, but it really serves no purpose other than to distract you from the things that you should be focusing on and slowing you down when the time comes to make an important decision. I have learned that making any decision is often better than making no decision at all, even if it's a bad one, and sometimes you just have to accept the fact that you've made a bad choice, forgive yourself, and move on down the road.

If you truly take the time to think through every decision you make and then go with your instinct when logic won't give you a clear path to take, then for goodness' sake do not look back over your shoulder and wonder if you made the right decision.

Living a life of regrets is a horrible existence, and being an engineer who's constantly second-guessing himself and wondering if they made the right decision makes for a very indecisive and uninspiring engineer. Clients will not want to follow you, your fellow employees will get frustrated with your lack of confidence and clarity, and you will find that you end up making more bad decisions than good ones.

So stop second-guessing yourself.

Just go with your initial gut instinct and plow headfirst into the implementation of it.

This may sound a little frivolous, but when I have been in situations where I absolutely couldn't make a decision, I flipped a coin to make a choice one way or another and regardless of what the results of the coin toss were, I put myself clearly in line with it and proceeded as if that was the obvious answer in the first place. However, it is not uncommon that after flipping the coin and having a decision presented to me, that I

realized on an intuitive level that it wasn't the right choice and I was therefore able to choose the other path.

I think that the most wonderful thing about following your intuition is that the more that you do it, the better you get at it, and the clearer your intuition will become.

I have seen that happen so many times with engineers who were insecure and indecisive early on, but (with a little coaxing) over time they were convinced to just start going with their intuition and their gut feelings. It only takes a few successful projects that were based on clear and concise decisions to start giving an engineer a sense of comfort and confidence in their decision-making process, and from there "the better it gets, the better it gets."

However, the opposite of that is also true, as well.

If an engineer who's always second-guessing himself (or herself) makes a few bad decisions and then beats themself up over that, it can make them start second-guessing the next decision, and then you get a chain reaction. This can create a domino effect so that "the worse it gets, the worse it gets," and things start spiraling downward. Before you know it, you have an engineer who's pretty much paralyzed with the decision-making process, and nobody wants to work with that engineer - neither clients nor teammates.

So, if you make a mistake, own up to it and put it behind you. Pick yourself up, dust yourself off, learn what you can from your mistake, and then push forward with confidence. If you truly believe in yourself, then others will start to believe in you, too.

When You Stumble...Be Sure To Kiss The Ground

If you regularly get out of your comfort zone, then you should expect to have the occasional misstep, and you may even stumble and fall. Be sure to kiss the ground while you're down there, then say a quick prayer of gratitude and appreciation for the opportunity that you've been given to grow, and then get back up and get back at it.

Remember - persistence is everything.

Count your blessings

How you go into your workday will largely depend upon what frame of mind you're in when you go to sleep at night, and what you are thinking about when you get up in the morning. Personally, I have found that having a few moments of mindful gratitude and appreciation can go a long way toward ensuring that the coming day will be a successful and satisfying one.

I suggest spending a few quiet minutes as you are waking up each morning focusing on those things that you are grateful for before you launch headlong into your busy workday, and also to preview in your mind your schedule and activities for the day with an expectation of a positive outcome for everything that you do and touch.

Keeping the Faith

Another core personality trait of an excellent engineer is their faith and expectation that everything they do and every challenge that they face is going to work out successfully in the end.

In simple terms, it's simply having Faith that the Universe is conspiring on your behalf.

It is easy to lose that Faith over the course of many long years spent working with dozens and dozens of different businesses, constantly having to face new challenges and making a few mistakes along the way. If you actually are a good engineer, you should find that the vast majority of the time that everything works out and you have a successful completion to your efforts. If you have no faith going into a project that it is going to go well, then you have dramatically reduced the chances that it actually will.

So, how do you keep that Faith alive and burning in your heart? Through the constant reinforcement of positive thoughts and expectations.

Tell yourself before you engage in each and every project that everything's going to work out well, and mentally run through the steps required to do just that. Remember that you have teammates (hopefully) that will jump in and help you if you get lost in the weeds. Remind yourself that you are a competent engineer and that things generally go your way if you put your effort and your heart into it.

Keeping the Faith is more of a personality trait than an engineering skill, and it is one that will serve you very well throughout the course of your career, so learn how to nurture it and keep it alive and healthy.

Positive expectation goes hand in hand with Persistence, and I encourage you to nurture them both.

The Power of Faith (and Prayer)

There will definitely be times during the course of your career when you find yourself with your back against the wall and all hope seems lost that things will work out well. For me, those times came at 2:00 or 3:00 in the morning when I'd been struggling with a server that had crashed hard, and I was trying to resurrect it from backups that didn't seem to be cooperating. After the third or fourth unsuccessful attempt to restore the server and make it functional again, you're just about to give up.

Please don't.

If you're a religious person, then I encourage you to turn to prayer as a solution. Simply close your eyes and pray to the powers of the Universe (some of us call them God) in whatever form you envision them to be and ask them to lend you a hand - to tweak the circumstances in your favor in order to make that server come back up successfully, or for that firewall configuration to take, or for a data migration to complete successfully.

The key here is that you have to believe that it's going to work; Reality tends to conform itself to our expectations.

If you're not a religious person, but you are spiritual in nature, then close your eyes for a few moments during those stressful times and pull together whatever spiritual energy or meditative flow you use when you're feeling particularly in tune with the Universe, and then gently ask those energies to work on your behalf to help you to get a successful resolution.

Fall back to the things that have helped you throughout your entire life to assist you with the tasks that are related to your job as an engineer. The important thing here is that you need to believe that you are capable of the job, and that there are powers beyond your senses that can assist you with achieving your goals.

If you have no religious beliefs and no spiritual beliefs and no Faith in anything beyond physical reality and what you can do with your brain and your own two hands, then you're going to have to just have some faith in your own abilities.

And that's okay - there is no rule or regulation that says that to be a successful Network Systems Engineer you have to be some kind of a spiritual Guru or religious zealot; you'll just find it helpful if you have a deep-rooted faith in your own capabilities if you don't have faith in anything outside of yourself.

Muster that Faith together and power through the problem with the expectation that you're going to succeed!

You Can't Please All Of The People All Of The Time

There is a golden piece of wisdom in that old adage: "You can please all the people some of the time, and you can please some of the people all of the time, but you can't please all the people all of the time."

Or something like that - it's close enough.

Accept that and get used to it. There will be days where clients who normally love you are in a bad mood, or have personal problems going on at home, and it doesn't matter what you do or how you do it - they simply aren't going to be happy with you.

And that's okay.

If you can confirm in your own mind that you've done nothing wrong and that it's simply a matter of the client not being in a very appreciative mood, then figure out a polite way to acknowledge what they're telling you and move along - do not dwell on it with them. Disengage quickly, but politely, and ease on down the road.

However, if a client of yours never seems to be pleased with you or happy with your work, then there is a deeper problem there that needs to be identified and addressed. Do yourself a favor and don't ignore it - ask them what the problem is and then work it out, or try to have another engineer assigned to them if it is simply a matter of bad chemistry between you and them.

To Everything, Turn, Turn, Turn

Even though you don't want to lie to your client or misrepresent things (or sugarcoat them), you almost always have some way that you can "tweak" the bad news so that you highlight some kind of silver lining or help to minimize the anxiety that you're about to inflict on your client. By pointing out the bright side of a situation, you are softening the blow a little.

We call that "spin."

Spin is a bad thing if you are using it to regularly mislead your clients into believing something that isn't true, or to keep them ignorant of a situation that may have a negative impact on them. If you are a fairly new and inexperienced engineer, I recommend that you stay away from spin and just stick to the facts. Do not be an alarmist or exaggerate the facts just to achieve a desired effect or outcome.

However, over time, if you are observant, you will start to recognize that there are plenty of opportunities to put a positive spin on something that does no harm to the client and helps to lower their concern over a situation. An example would be reminding a client that has just had a firewall die on them in the middle of a workday that it is still under

warranty, but that you have a spare firewall in your vehicle for just such an occasion.

Adding a little positive spin to the delivery of bad news can make all the difference between giving the client important information that they need to know and completely freaking them out.

You May Be Right…Most Of The Time

You also want to keep in mind that while you may be right most of the time, you're not going to be right all of the time. Try not to become that cocky "know-it-all" engineer who's constantly second-guessing those around him, acting like you never make mistakes or that you've never made a bad decision in your life. Not only do most people take a natural dislike to engineers like that, but if you start believing your own BS, you're in danger of falling down a rabbit hole of spiraling overconfidence and bad client relationships.

So, while you may be right most of the time, and you may even be right almost all of the time, you will not be right 100% of the time; you just need to learn to accept that. Try to be humble if you are naturally gifted with better talents and skills than others in your line of work. Be sympathetic to those around you who are less confident, and try to build them up so that they can become better people as a result of having been in your circle of influence. Try to be a people builder and not an egomaniac.

If someone else - either client or engineer - presents a suggestion or idea that you think is good, let them know that and thank them for their helpful recommendation!

Play to Your Strengths, Temper Your Weaknesses

Everybody has strengths, and everybody has weaknesses. The secret to becoming a successful engineer is to play to your strengths and to temper your weaknesses.

So, what exactly does that mean?

Well, if you are extremely good at client management but you struggle a bit with project management, then play to your strength and establish a really good rapport with every one of your clients. Learn how to temper their expectations to the point that your projects can be rolled out in a more leisurely fashion than other engineers might do, and do not be shy about pulling in assistance from other engineers around you, if you have that option, to help you manage your projects successfully.

As I've stated previously, if you have client management down to an art, then the rest of your job is going to be so much easier than if you struggled with client relationships.

So, play your strengths and temper your weaknesses as much as you can, but try to identify them, first. Seek honest feedback in order to make that determination.

Paint It Black

There will be days - Dark Days - where everything you look at just seems like it's pointless and you don't feel like you can even make a thumb drive work properly. Please take my advice: call into work sick that day or tap out early, and then pull up the covers and go back to sleep.

That is unless you already tap out on a regular basis, in which case you need to get your act together and figure out how to improve your attitude and your work ethic.

If you get to the point where you want to paint everything with a black brush because it all seems pointless and a constant irritation to you, then you clearly are not cut out to be a Network Engineer, so do yourself a favor and go find something else to do for a living. You might want to go try being a house painter; I did that for 10 years and I found it very relaxing and satisfying. It just wasn't fulfilling enough for me to stick with it as a long-term career choice.

The point is, don't go into your day with a totally negative outlook and the feeling like nothing's going to go your way. That just sucks.

Maybe you just need to take the morning off and get a little bit more sleep, or go to the park for a little while, or go for a jog so that you can get your head straight before you get into your work day. Whatever it is, do it.

Trust me - your clients and your employer will appreciate that from you.

Enough is Enough

Ultimately, you are the only one in the known Universe who can decide when you've had enough of a clients' BS, or your employer's BS, or that the job is just demanding more of you than you're willing to offer.

I cannot stress how important it is that you stay in tune with your feelings and always try to follow the path where your intuition leads you. You will never be a Consummate Engineer if you hate the work that you do, or if you resent the clients that you work for and with, or if you can't stand working for your employer. You can't have a happy ending to an unhappy journey.

That is when you need to realize that enough is enough, throw in the towel, and make some major life and/or career changes.

The good news here is that it doesn't necessarily mean you can't be a Network Systems Engineer - it just means that in whatever capacity you've been fulfilling that role, something needs to change.

And that's okay.

PILLAR 3 – THE CAREER ARC

Your Natural Evolution

Ch-ch-ch-changes

If there's one constant in life that you can bank on, it is that things are always in a state of transformation.

Nothing is static, and there is an inherent instability in every moment of existence, but that doesn't have to freak you out. If you accept the fact that the only stable Truth in life is that things are always in a state of flux, and then learn how to use that to your advantage, then it will serve you well.

It is highly unlikely that you will be able to fully master any specific aspect of business technology and then never have to learn more things in order to keep up with the times. Just 10 years ago, Artificial Intelligence was a concept that our type of Network Engineers had never worked with, and the specialists in AI were still figuring it out; there was no widespread use of AI that the general public was aware of.

Now, Artificial Intelligence is integrated deeply into almost everything that you do online, as well as a growing number of desktop applications. If you had decided 10 years ago to specialize in Artificial Intelligence solutions, you would have had to look long and hard to find a job in that field of work, even if you were highly skilled and educated. Nowadays, familiarity with AI is rapidly becoming a required job skill, at least as far as knowing the basics and being able to create effective prompts.

If you're looking for a job or a career path that is going to stay more or less the same throughout your entire lifetime, then you might want to go into something like watchmaking, carpentry, landscaping, or some other endeavor where the technology and the skills have stayed relatively constant for the last few hundred years. I am absolutely not putting down professions like that - we need them to survive. There will always be a need for plumbers and electricians and carpenters and bookkeepers and landscapers.

I am only saying that if you don't like change, then you might want to think about going into another line of work than mine, because the work of a Network Systems Engineer is constantly evolving and changing on a never-ending basis.

You Say You Want a Revolution

Are you feeling the need to shake things up a little?

Well, then, just do it!

Whether you're already a Network Engineer and you would just like to do something different with your life, or you're doing something else and you'd really like to be a Network Systems Engineer, there is nothing stopping you from making that change. If you're clever enough or scared enough, you'll be able to come up with some very convincing excuses as to why you are stuck where you are, but ultimately that's all that they are - excuses.

So many people get stuck in life doing something or being with someone that they really don't want to be with, and yet they do nothing about it - they play the victim.

Playing the victim is one of the biggest cop outs you'll ever see in life, and I bet if you stop to think about it for a minute, you'll be able to come up with a handful of people that you either know or have known who perpetually play the victim. It was always the fault of their boss, or their spouse, or their children, or their karma, and no matter what it was that happened to them, they were always the victim - it was never their fault.

If you feel like you need a revolution in your life - to really turn things upside down and start in a new direction - then go and do it!

If you have financial reasons for not being able to do it immediately as a way of making a living, then start working on it on the side or as a hobby. If you really want to be a Network Engineer, then continue working your regular daytime job, but in the evenings and on weekends you can be studying and learning and getting certifications, so that when you're finally ready to jump off of the Merry-Go-Round that you're on, you'll have everything you need to make a successful landing on the other side.

Don't sell yourself short and don't play the victim. If you say you want a revolution, then start a revolution within your own life and make that change today.

5 Years - What a Surprise

If you have successfully engaged in a career as a Network Systems Engineer and have moved steadily onward and upward along that career path, then one day you're going to wake up and realize that you've been doing it for 5 years.

What's so important about 5 years?

I believe that every five years or so, an engineer should stop and do an in-depth self-assessment about where they are in their career, what they have accomplished, and what they see down the road ahead of them. If that picture pleases you, then great - keep on in the direction you're heading.

However, if you're not so sure that you made the right career choice, or you think you might want to do something a little different than what you've been doing, then that 5-year mark is an excellent reason/excuse to find a way to divert your career path in the direction that you would like to see it go. It's unlikely that somebody else is going to adjust your career path for you, unless you're in the military or have a government job, in which case you may not have a whole lot of choice in the matter.

Otherwise, you are not at the mercy of any other human being in the direction your work life takes, and you get to choose the accomplishments that you want to make during your life. If you don't think that's true, then you are fooling yourself and only shirking the one true responsibility that you have to yourself regarding your career.

Whether it's your employer, your spouse, your parents, or even the military, never try to dodge the responsibility of making your own decisions or taking full ownership of the outcome of those decisions. Even if you're in the military, you still have some control over where your career path will lead you when you get out. The current CISO at PJ Networks served in the military for 6 years before being released into the

civilian sector, and his specialty was in cybersecurity - he absolutely loves it. When he came to PJ Networks, however, the real life experience he had with cybersecurity was nothing like what is needed or required in the civilian world, and he knew that.

When he came to us in search of employment, he made it very clear that he knew he had a lot of learning to do in order to establish himself in the civilian world of cybersecurity, but he assured me that he was willing to make the effort and do whatever it takes to become a top-notch cybersecurity expert. Sure enough, at this point in time he has earned a dozen certifications since joining us less than 2 years ago, and he is on schedule to earn a CISSP certification within the next 6 to 8 months.

So, no matter what your current circumstances are, or whatever limitations you may be currently facing, keep reminding yourself that life is a long journey and you will have plenty of opportunities to change things.

Living In The Past

No matter how hard you wish it to stay the same, business technology is always going to keep evolving.

Do yourself a favor and try not to get stuck in “the old ways” of doing things.

10 years ago, it was still a fairly common practice for small businesses to be operating with physical servers that only hosted a single operating system with no virtualization - but times have changed. Larger companies have been running on VMware for a long time, now, which allows you to run multiple Virtual Machines (VMs) on a single physical server, but now it is much more common to see smaller companies doing the same thing. Today, even companies that only need a single server are often running that as a Virtual Server that is running on VMware or Hyper-V.

Be open-minded and willing to embrace the future by staying abreast of the latest business computing advancements, so that when the

opportunity presents itself, you can make the best recommendations for your clients.

What Will They Think Of Next..?

I read a news article about a year ago about some 5,000-year-old cuneiform tablets that archaeologists had discovered in the early 1800s, and they had been trying to decipher them for the past 200 years with little to no success. When AI was given the opportunity to scan all of the symbols and characters and then analyze them from whatever perspective it does its magic from, it was able to decipher and translate the tablets in their entirety (or near entirety) in a matter of minutes.

I said *minutes,* folks.

Maybe it's just me and I'm too old fashioned, but that totally blows my mind.

AI has also helped to discover cures for cancer, to make solar energy solutions dramatically more efficient, to create and fine-tune medications and treatments for illnesses that researchers had all but given up on, and so much more. Our lives have been and will continue to be touched by Artificial Intelligence for the rest of our lives, and so I'm choosing to be optimistic that the good is going to outweigh the bad. It does scare the crap out of me - the things that I've seen that Artificial Intelligence can do in the hands of the bad guys, meaning cyber criminals and hackers, are as troubling as they are amazing.

There is some wickedly scary stuff that AI is being used for, and I have even started speaking about it at some of my live cybersecurity presentations. Once Quantum Computing is being used to power AI and gives it a computational boost of an unfathomable magnitude, well...I guess we'll have to see what happens. Maybe it already has happened in some secret lab and we just don't know about it, yet.

There is every indication that it will likely happen publicly sometime in the next few years, but I'm going to choose not to think about that. I'm just going to think about all of the good things that Artificial Intelligence can bring to mankind, and as long as I'm a Network Engineer, I will do my

best to defend against the bad guys who are trying to take advantage of our clients and other innocent people, and I'm going to assume that the Universe conspires on behalf of the well-intentioned.

It will certainly all be very exciting! In the meantime, keep fighting the good fight. Onward and Upward. Keep on trucking.

In other words, try to worry about it too much and just do your best to be one of the Good Guys.

This Isn't Your Grandpa's Internet

"*Hooo, doggy, that there Internet shore is a crazy thing these days!"*

"You ain't kiddin', Grandpa," you reply with a little smile on your face.

The Internet showed up on the scene for the general public about the time that I decided to become a Network Engineer, not long before I turned 30 years old. I had never seen the Internet before, but I had heard of it. When I got to Santa Barbara California and was given access to an Apple computer and some online bulletin boards, it was exciting stuff!

Back then, surfing the Internet was done from a text prompt, and you had to evoke command line tools like *gopher* in order to do searches across all of the bulletin boards and available online content. I don't exactly remember the exact usage of gopher, as it was over thirty years ago when I last touched it, but you would type the word gopher and then whatever you wanted to find, and you would get back a list of results where any reference to those keywords was located. You could then text command your way over to that bulletin board and search through its directories, seeing if anything looked worth exploring.

Keep in mind that there were no pictures, no icons, no graphic interface at all - it was all done from a command line. Even now I have a hard time imagining what it was like, and I lived it!

So, no, this isn't your grandpa's Internet, because your grandpa probably didn't have Internet, at least not when he was a young man. In just the last 24 months alone we have seen Artificial Intelligence take to the Internet like a storm. Not taking it over, per se, but there are very few

corners of the Internet that have not at least been touched, if not embraced, by the power of Artificial Intelligence. I'm not going to get into the whole philosophical discussion about whether that's a good thing or a bad thing; AI is here, it's been coming for a very long time, and now that it's here we'll have to deal with it, for better or worse.

Yes there are some wonderful technological evolutions and revolutions taking place right now that never could have happened without the assistance of AI, or they would have at least taken another decade or two of manual effort without its help.

Never Have I Ever

Just because you have never done something before, that does not mean that you cannot try to do it now.

There was a time when nobody on the planet had ever actually used a cell phone for personal communication purposes, and now you would be hard-pressed to find anybody in this country who has not done so, including my mother. So, the argument of "never have I ever" really loses a lot of meaning when you look at it in that context.

"Never have I ever used Artificial Intelligence to create a summary document for myself."

Really? Wow, you ought to try it sometime - it's pretty handy! You shouldn't let AI write anything for you that you are going to claim as being your own work, of course, but it can be very handy for searching through the Internet and gathering useful information, such as a list of the top 20 types of phishing scams or the 10 most popular Mediterranean dishes.

If you do not wish to use Artificial Intelligence in any way, shape, or form, that's your business, but please understand that the rest of the world is moving forward and they're going to be using it, whether *you* use it or not.

I have seen a lot of data hallucinations and misinformation come out of AI software (it is getting better), and so I would caution everybody to take anything and everything that is generated by an AI source with a grain of

salt, but please try not to fall back on “never have I ever” as an excuse for not trying or embracing a new technology. If you do, I think you will find that the world will leave you behind, and in 10 years you will be in the rear view mirror of all of the people who are doing their jobs and following the career path that you said that you were going to follow without the use of AI.

The Long and Winding Road

From the first day that you show up at a client site to perform a workstation clean up and tune-up, until the last day that you come out of the field and hang up your superhero cape forever, remember that this is a long and winding road that you have chosen to follow as a career path.

There’s more diversity in this line of work than almost anything else I can think of, and there would be no way humanly possible to master every aspect of network and systems engineering. From CMMC compliance to Artificial Intelligence to network design and implementation, there are a plethora of different things that you can choose to specialize in and to explore and to learn as a Network Systems Engineer - and that’s a truly wonderful thing!

That means that if you should ever get tired of the specific skill set that you have developed or the type of tasks that you are performing regularly, you can always study up on something else and make that your primary career focus. I have met a lot of engineers who started off thinking that all Network Systems Engineers perform pretty much the same type of work, but after they’ve been out in the field for a while they realize that there are a myriad of different specialties on the table that they can choose from.

Don’t be shy about changing tracks at any point in your career, be that in the beginning, the middle, or near the end, because the world is your oyster and you get to choose the pearls that you are seeking after. The main thing you should try to find is something that you truly enjoy doing, day after day, that gives you a sense of accomplishment and a feeling of

satisfaction that you can bring home with you at the end of every workday.

CONCLUSION

Putting A Bow On It

So, that wraps up the chapter on The Rules Of Engagement.

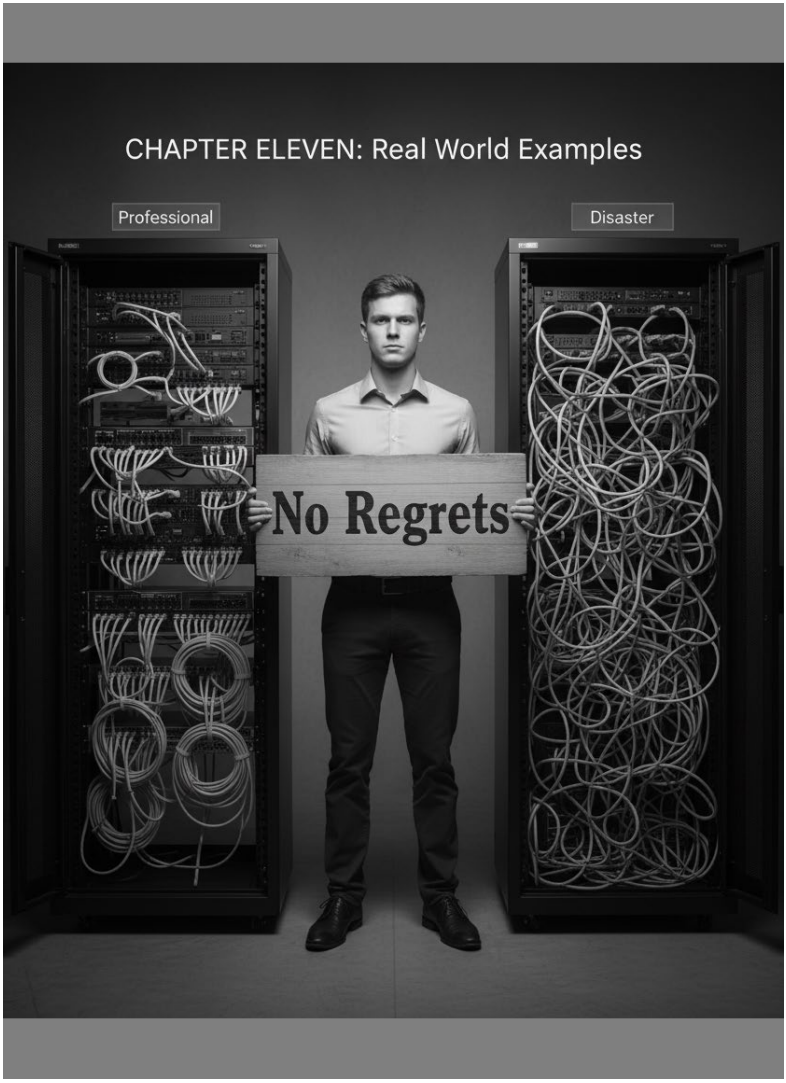
That section encompasses the vast majority of our engineer training manual and it certainly covers a wide range of topics. When I first wrote it, it poured out in whatever order they came to mind, and I had to go back several times in order to try to put them all in some logical sequence, but even then I know that it may still seem a bit "stream of consciousness."

For that, I apologize.

Many of the Rules do not necessarily fall into any specific category, but the majority of them are in some way related to having good Client Management skills. The Department of Redundancy Department has asked me to remind everybody that of all of the skills that you can develop along your path to becoming A Consummate Network Engineer, good Client Management and solid people skills are the *most important thing*s that you can master.

Even if you dominate all of the other aspects of being an excellent engineer, if you do not get a good handle on those skills, then you might end up with a successful career as a Network Engineer, but it will be in spite of that shortcoming, and not because of it.

So, what else can we talk about...?


CHAPTER ELEVEN: Real World Examples
Professional
Disaster
No Regrets

Chapter Eleven

Real World Examples

Every day of your Life you have opportunities to do the right thing. Even if you don't always make that choice, you should never stop realizing that you have it every single time.

-PJ

I believe that nothing teaches better than experience.

I could write 1,000 pages on how to manage clients and become the best Network Engineer that you can possibly be, but it won't be until you wade into the thick of it and get some hands-on experience managing clients and challenging situations that you truly start to grasp some of the nuances that you have to understand in order to do that. Do you remember what I said at the beginning of the book about a wise person learning from the experience and mistakes of others?

Well, I am about to share with you some real life examples of situations that were challenging for me and/or my team that we successfully navigated our way through to a positive outcome.

Never Say "I told you so"

So you would think that this piece of advice would be obvious, but it really isn't. It can be so hard to keep yourself from saying "I told you so" when a client has a handful of computers that get blown out by a thunderstorm after you've been hounding them for months to get battery backups on all their systems. But it does get easier over time to hold your tongue and let them learn their lesson the hard way when they want to argue about a recommendation that you're trying to make.

Great example: It is extremely difficult not to say "I told you so" when a client decides they want to go out and buy their own computers online without your assistance or guidance and then they end up buying computers that have Windows Home instead of Windows Professional, which means they can't be joined to their Active Directory domain without paying $100 to upgrade them to Windows Professional first. It is also difficult not to say "I told you so" when a client goes out and buys $300 laptops from Walmart that have Pentium processors, not understanding that they don't have enough horsepower to run the business applications that they need to be able to run on a daily basis.

Almost every single day of the week, if you're a Network Engineer, you will have a reason to say "I told you so," or at least want to ask a client, "What were you thinking?"

But you shouldn't do it - just don't. Trust me on that.

You can think it, though, and your consolation is that the client knows that you're thinking it - that's why you don't have to say it. They already feel foolish as they stand there next to their dead computer that got fried by a power surge, and when you ask them if they would like a battery backup to go along with the replacement computer they sheepishly nod yes. You know that they feel foolish when they excitedly went out and bought themselves a new Macbook Air to be their new work computer, only to find out that it cannot run their primary business application without running some kind of a Windows Virtual emulator on it.

There are so many times that you can make them feel more stupid than they already feel, but if you are gracious about it and not even give a hint of a smirk or a smile of condescension, they will love you all the more and respect you for being sensitive about their feelings. Everybody makes mistakes, everybody does stupid things, they just happen to be in different categories of Life. In fact, if you asked me to balance a checkbook it would be a challenge for me because I haven't done it in so many years; everybody has their own challenges. (Thank you, Kelly!)

Anyway, the lesson here is that you don't just avoid ever saying "I Told You So" to clients, but you also go out of your way to not make them feel stupid unless you're giving them really good advice and they don't want to take it, in which case, once again, the easiest way to get the client to do what you want them to do is to make it clear that not doing what you want them to do would be a foolish thing. Most people are smart enough to recognize that, and they will go out of their way to not look foolish in front of you.

Real-World Example

Once again, this is the art of convincing your client to do what you want them to do, which is normally going to be in their own best interests. Sometimes, you try to convince a client to do something you want them or need for them to do and they do not go along with it, and as a result things turn out badly for them. That is another way that clients will learn to follow your advice when you give it, and to stop questioning you about everything you recommend: when they do not follow your recommendations, bad things tend to happen as a result.

You do truly want them to understand the recommendation; you just don't want to have to argue with them about it. If push comes to shove, then just do it the way they want unless there are some serious negative potential consequences, such as not having good server backups available in the event of a Disaster Recovery scenario.

I think that this is an excellent example of how a client can make a poor decision that ends up costing them dearly:

A $100,000 Mistake

We had a client in Northern Virginia that we had been supporting for very many years. In fact, I personally installed their very first Microsoft Exchange Server as one of my first official projects for my new company PJ Networks about a year after my move back to Virginia. Over the following years, we continued to support them, even though they had their own fulltime in-house Network Administrator. PJ Networks would be engaged by them for any higher level projects or work, such as deploying a new server or reconfiguring their domain infrastructure, but the client would take care of their own in-house help desk needs and computer support.

Fast forward fifteen years, and this company had reached the point that they needed to start working on achieving full CMMC 2.0 compliance due to the fact that they engage in government contracts for hiring and providing resources for government agencies. They had known for a while that they were going to eventually need to satisfy some level of compliance requirements, but up until about the year 2020, there was no clear idea of when those requirements would be fully enforced.

Toward the end of that year, the government declared that they were indeed going to be enforcing CMMC level requirements for all government contractors, and our client started to panic a little bit. They were an organization of close to 50 employees with multiple servers, and even though their network was well maintained, there had been no real focus on any compliance requirements over the years that we had supported them. Sure, they were as secure as any of our other clients, they had reliable cloud backups, and many other security protocols were actively in place, but that falls well short of actually reaching and

achieving NIST 800-171 rev2 compliance, which is what CMMC is based on.

In fact, because the entire history of PJ Networks had been focused on helping small businesses to prosper and grow, we had never really put a focus of attention on government compliance, other than helping medical offices achieve and maintain HIPAA compliance standards. Now we had a client that needed to evolve from a standard business-class network environment into something that was fully locked down and documented well enough to pass CMMC Level 2 requirements and its 110 security controls - not a light task to undertake.

Fortunately, we do have engineers on our team who are familiar with CMMC and NIST, and so we began having conversations with this client about engaging them in a project to get them to the level of security and documentation that they needed, but we recommended that they try to find an outside agency that was more experienced than us to do the heavy lifting; we would be happy to assist as needed. I did not want to hold them back or take on more responsibility than I was confident that we could handle on our own at that point in time, but I definitely wanted to continue to work with them as a client of ours.

That was the game plan we all agreed upon and they went off to seek a compliance consulting agency up north while we waited patiently in the background to hear back from them, keeping ourselves busy with our ever-growing client base down in central Virginia.

Finally, after about a month or so of searching, they came back to us and informed us that they had found somebody to work with them closely to get them where they needed to be in order to continue receiving government contracts. We were all relieved and eager to hear what the solution was.

Well, the news we got wasn't exactly what we were hoping to hear.

Apparently, a former employee of theirs had gone off and gained some hands-on experience working with another company doing compliance work, and he was a part of the team that had just helped achieve CMMC compliance for another local contractor. So, this employee came back to them touting himself as an expert on the subject, and for the low low

price of $100,000 or so (it ended up being quite a bit more), he was going to get them where they needed to be within their one-year deadline.

We figured that if the client was willing to pay that much, then we were more than willing to go along and do what we could to make it all happen in a calm and orderly manner. That was when the snag revealed itself: this former employee was insisting that all of our monitoring software, security software, and any other integrations we had with them would need to be ripped out of the client's network, and we would need to be locked out of it completely or it would be a "violation of CMMC compliance protocols." (Which turned out to be BS)

I was disappointed with this client of ours - of *mine* - because after supporting them for over a dozen years and bailing them out of two - count them, two - successful ransomware attacks, they didn't even want to hear what we had to say on the matter. We were sure that the facts were being distorted in order for this other "consultant" to be able to gain full control of the client and their network, but the owner of our client's company simply wouldn't hear of it.

And so, all of our tools and resources were ripped out of the client network (actually, we gracefully removed them), our contract with them was terminated, and this other consultant went about moving them into a very expensive Nutanix-hosted (Google it) virtual server environment.

Over the course of the next year, the client spent tens of thousands of dollars for licenses and consulting fees and equipment and hosting services. At the end of the project this former employee of theirs supposedly had made connections and formed business relationships that he would share with them that would help the client to win some new government contracts and secure significant additional revenue, which was supposed to offset some of the cost of this major undertaking.

Well, about 75% into the deployment of full CMMC 2.0 standards the federal government announced that they were going to push back the deadline that businesses needed to reach CMMC compliance by. So, the brakes were put on this compliance project in order to stem the hemorrhaging of money that had been going on for most of the past year. Throughout this entire process, I'm pretty sure the client never brought

on another new government contract, but they had spent somewhere in the neighborhood of $100K to $125K and they did not even have a complete compliance solution in place, yet.

When this other consultant got word that the project was being put on hold and that the money was going to stop flowing readily into his pocket, he told them that he had another compliance project that he needed to kick off. He told them that he would circle back to them in a month or two to pick up where he left off, assuming that they were ready to move forward by then.

As far as we know, he never came back.

If I'm remembering correctly, that was about the last time they ever heard from him. He never completed the CMMC compliance project, he never brought them a single dollar of additional contracts, and when he was done they had a system that they neither knew how to maintain on their own, nor that we (PJ Networks) had any familiarity with. That's when they came back to us and politely asked us if we would be willing to work with them again.

My initial reaction to this was to want to flip them the middle finger and tell them to pound sand, because I felt that they had betrayed me after a dozen years of being in a business relationship with them and saving their bacon on multiple occasions; that is precisely why I rarely act on my first impulses. We'd been thrown out without so much as a discussion or apology, and now we were being asked to come back in and pick up the pieces that were left behind by someone else and carry the client forward.

So, pick up the pieces was exactly what we did.

Safe Landing

A year later, we are just now moving their physical servers out of our offices after migrating them off of Nutanix and onto Dell servers that they already owned; we are currently moving those servers into a Colo hosting facility in Charlottesville, Virginia, that's going to be significantly less expensive compared to what they were paying previously for Nutanix. I

don't want to dive into too much detail, but Nutanix is a very proprietary virtual server hosting system, and the company that manages it maintains 100% control of the environment and the hosting services; all you gain access to are the actual virtual machines that you own. That was far from being an optimal hosting situation for us to support them in, so we ripped them out of that, put them back on their own boxes, and in the next few weeks we will have them fully up and running in their own Colo location that we will manage for them.

All of this was a very long-winded way of giving you an example of a client who did not follow our recommendations, spent a huge amount of money, and went through unnecessary hardship by going down a path that we did not approve of. Now that they've come back to us I am pretty sure that anything that we recommend for them in the future is going to be taken to heart.

The easy way to get a client to do what you want them to do is to make them feel foolish if they don't, but in this case, they already feel less than wise for what they did, so we don't have to say "I told you so."

Okay - that's enough talk about foolishness.

Case Study: The Monday Morning Surprise

Let me give you an example from a network deployment project that I allowed another engineer to manage for us seven or eight years ago.

This network project was the first one that I was allowing this particular engineer to manage on his own; I always believe in giving engineers a chance to learn from the experience of being fully in charge of a project deployment when I feel that they have developed and matured enough to handle the experience and the responsibility. I do that with the full understanding that the engineer is going to make a few mistakes - it's inevitable. Even with all of my years of experience, it's still a challenge to pull off what I would call a perfect project, so expecting an engineer who's got a fraction of my experience to not make any blunders would be unrealistic. But they'll never grow if you don't give them a chance to.

So, I put together the quote, got the client to sign off on it, and then told this engineer that he was in charge of everything from start to finish, and that I would assist with the deployment as needed.

This project was for a dental office, and we showed up on a Friday around 4:00 p.m. as their work day was wrapping up and the last few patients were leaving. We did a quick walk around to make sure that all of the computers were turned on and ready to go so that when we put in the new server, they were all ready to be flipped over to communicate to the domain instead of the old one. There were quite a few computers at this dental office, around 30 of them as I recall, so we knew that this was going to be a late night and a long weekend. At 5:00 p.m. when the manager left we told her that we had everything under control, and that when they came back to work on Monday morning the network would be up and running and the migration would be complete.

So, everybody left except for me and that engineer, and we went to work diligently flipping workstations to the new server, mapping network drives, reconnecting to network printers and resources, and then testing applications as we went. Most of this work can be done through the use of Group Policies, but you still need to perform a few manual reboots and then verify that everything connects properly to the network resources.

Even though the general rule of thumb is that you don't have to test every single application on every single computer, we were wise enough to want to test their main dental software application on each computer, so that when patients started showing up on Monday morning, there wouldn't be any trouble for the dentists who were treating them. The evening wore on, and around 10:00 p.m. the other engineer indicated that he was starting to get tired; I could have gone on for a few more hours, but I guess that's just me.

We went home to get some rest, and I was back out at the client site the next morning at 10:00 a.m., which isn't the crack of dawn but early enough to get a full day of work in on a Saturday. The engineer in charge of the project was nowhere in sight, and indeed he didn't show up until sometime around noon, after I had tried calling him multiple times to find out where he was. I assumed that he had just overslept and didn't realize that we had a pretty tight deadline to meet in order to make sure

everything was up and working first thing Monday morning. (Spoiler Alert: he is no longer a member of our team)

I went to work doing what I do and continuing to join workstations to the new domain, testing applications, connecting printers, and troubleshooting any issues. When the other engineer showed up around midday, he joined me and we worked all the way until around 6:00 p.m. By then it seemed like we had pretty much gotten everything done that needed to be done prior to the client returning to open their business on Monday morning.

Well, Monday morning came around and the client showed up at 7:30AM, as expected. Employees started settling into their workstations and logging into their systems to begin their work day. I was there to ensure a smooth transition, as was their primary engineer.

As anticipated, there were a few glitches here and there, just like there always are. A few computers were having trouble printing to the main printer, one or two systems weren't getting the proper mapped network drives and were still trying to connect to the old server, we had a workstation or two that didn't want to run the dental software correctly (even though we thought they were working fine on Saturday), and other relatively small issues presented themselves. But, as each problem arose, we immediately went about fixing them.

By midday, we had made it through all of the issues and had gotten them all successfully resolved; everybody seemed to be happily working away.

Huzzah! Server migration accomplished. Surely the client would be happy, right?

Wrong.

The manager seemed extremely irritated over the fact that when they came into the office on Monday morning everything was not in perfect working order, and the dentists were disgruntled that they, too, had experienced a few minor issues. They felt that they should not have encountered any issues at all if they were dealing with a professional IT support company.

I asked the manager point blank what her expectation was for that morning and where did it come from, and she told me that the primary engineer had informed her that we were going to get the project completed over the course of the weekend, and then everything would be in perfect working order on Monday morning.

Bingo. Now I knew what had gone wrong.

In my willingness to allow this fairly new engineer to manage this project and take the lead on it, I had assumed that he would follow the protocol that I had established on every previous project that he had worked with me when I was in charge: you *always* let the client know that when they come back to work on Monday morning, there *will be* a few minor issues to iron out, but that we will be standing there ready to deal with them as they arise.

That one little detail caused what would otherwise be considered a successful project to turn into a disappointment for the client.

That engineer *should* have told the client that there are *always* going to be a few wrinkles that need to be ironed out, but not to worry, the two of us would be here and we would handle them as they arise, and by midday everything would be in good working order. Apparently, my engineer did not give them that expectation, and without proper expectations, the client assumed that everything would be in perfect and pristine working order when they opened for business on Monday.

That was my bad, our engineer, and my mistaken assumption. (Sorry, Yumee!)

(Side note: That engineer is no longer in our employment. Not because of that one mistake, but for numerous reasons.)

I was eventually able to calm the manager down and explain how unrealistic it would have been for us to be able to test every single program and printer on all 30 computers over the course of the weekend. I informed her that it was standard protocol for us to verify that basic functionality was there, but then allow the users to come in and thoroughly test everything on Monday morning.

She wasn't thrilled with my explanation, but she understood it and accepted it. It was clear, however, that she would have appreciated getting that information in advance, *before* the doctors all showed up to see patients on Monday morning, and not after the fact. We had made her look bad in front of her employers, and she did not take kindly to that.

The lesson to be learned from this example is pretty simple: of the hundreds of server and network migration projects that we have managed over the years, we have never had a complaint from a client when a project was finished as long as we clearly established the proper expectations for the outcome before we engaged in the actual work.

Winning With Logic

Setting proper expectations is going to help you to avoid a lot of problems, and help to ensure that your clients are satisfied with your work. But it won't eliminate or prevent all potential conflicts or prevent clients from deciding that they want to do something differently than you are recommending. That is when you need to be persuasive enough to convince them to take your advice and do things your way, using the power of logic to make your case.

If you are consistently taking good care of your clients, they will eventually come to trust you even when they don't understand the benefits and they need a bit of persuasion in order to get them to go along with your recommendations. The nice way of putting it is "winning them over with logic," but the truth of it is that sometimes you have to make the client see the obvious advantages for doing what you are suggesting they do. It can be the quickest way to get things moving forward if you hit any kind of client resistance.

Usually, that involves showing them how they will save money in the long run if they do things the way you want them to.

Sometimes it shows them the negative consequences they may face if they don't follow your recommendations, such is leaving them more vulnerable to a cyber attack. Ultimately, you may have to make it painfully obvious that if they follow your recommendations and advice, everything will work out for the best, and if they don't do that, bad things

could potentially happen. I don't really call that a scare tactic; I call that "winning them over with logic."

Give me a moment to think of a few examples of how that works....

Okay - I've got one.

Real World Example #1

One of our clients is a publishing company with a fairly small number of employees; fewer than 10. They've been running on a poorly designed network infrastructure with two physical host servers that each host a couple of virtual servers, all of which were in place before we took them on as a client.

It's pretty clear that those servers weren't configured very well from Day One. In fact, I knew that one of the two servers didn't even have redundant hard drives, meaning that if the single drive failed, the entire server would come crashing down hard, and to make things worse, they didn't have any active current backups of that server, either.

So they really would have been up a famous creek without a paddle if that single server hard drive were to suffer a failure.

Anyway, they came on board as a client of ours three or four years ago. We slowly and cautiously made little adjustments and improvements to the servers that would fit into the client's budget, which was practically non-existent. Eventually, we were able to get them to the point that at least we felt that we had some redundancy and safeguards in place, and a recovery plan if something should hit the fan and we needed to resuscitate a dead server. Their individual users aren't super needy, but they do call us a few times a month for remote support, which we happily and cheerfully provide.

After all, that's what we do!

Well, a few months ago, I suppose they went through some kind of a financial crunch or budgetary decision that made the owner of the company request that they be dropped down from our medium level support plan, which includes Unlimited Remote Support, down to our

most basic support plan, which provides seven layers of security plus monitoring of their systems, but any reactive support requests beyond that would be charged for separately. After a brief look over our support history for them over the last two years, it wasn't hard for me to recognize that it was going to be more expensive for them to downgrade to the "less expensive plan" than to stay where they were.

I whipped out the calculator and put together all the numbers that I needed to show that if they had been on our most basic plan for the past year, they would have spent $X amount of money with as a result of the extra labor charges, as opposed to the smaller fixed amount of $Y that they spent with us because they were on our Executive Edge plan.

So there it was; the numbers were in plain black and white, clearly showing that if they were to downgrade to the lower level plan, over the course of a year they would spend several thousand more dollars with us, unless by some miracle they were able to suddenly require significantly less reactive support than they had needed in previous years.

I first itemized the list of tasks that we perform for every one of our clients, regardless of which plan they are signed up for, then I continued with this:

> *"Taking that into account, here is a breakdown of how much you would be paying under the Professional Edge plan for Q2, based on our new hourly billing rate of $165/hour:*
>
> *3 month total of billable work that was covered under Executive Edge = 25.5 hours*
>
> - *After subtracting out 2.25 hours per month (average) for the maintenance work listed above = 18.75 hours*
> - *Divide that by 3 to get your monthly average of billable labor = 6.25 billable hours per month = $1,031.75/month*
> - *Add that to the cost of the Professional Edge support plan = $1,031.25 + $770 =* ***$1,801.25/month for Professional Edge***
> - *You would be paying* ***$1,170/month under the Executive Edge support plan*** *at the new rates, plus you would also be*

getting CyberLookout Sentry and Microsoft 365 account backups included

Here's the breakdown for Q3, which was a little less busy in the way of needed support:

- *3 month total of billable work that was covered under Executive Edge = 20.4 hours*
- *After subtracting out 2.25 hours per month (average) for the maintenance work listed above = 13.65 hours*
- *Divide that by 3 to get your monthly average of billable labor = 4.55 billable hours per month = $750.75/month*
- *Add that to the cost of the Professional Edge support plan = $750.75 + $770 =* ***$1,520.75/month for Professional Edge***
- *You would be paying* ***$1,170/month under the Executive Edge support plan*** *at the new rates, plus you would also be getting CyberLookout Sentry and Microsoft 365 account backups included*

So, based on that, ***you will be paying us between $350 and $650 per month more on average*** *by downgrading from Executive Edge unless you start needing significantly less support from us.*

I guess that's good for us, because we'll make more money, for not so good for you. I specifically gave you a smaller annual rate increase than most clients got because you had expressed concern about a year ago about how much you were already paying for Executive Edge, so I kept your rate hike to a bare minimum. I was aware how much remote support your team needs and had a hunch that it would be better for you to stay on Executive Edge, but we never force a client to choose a plan or service that they don't want.

Anyway, I admit that I did not dig down this deep for every client when I did the rate hikes, nor did I do this when I calculated your increase – I had more than 70 clients to manually rework all the numbers for.

I wanted to get all of this out there, because I never want a client to get a "surprise invoice" from PJ Networks. Now you should know what

to expect and be able to budget for it. My final question for you is this: In order to keep you from having to pay for employee support requests that you are not aware of, would you like for us to require all of your employees to get your approval prior to having us assist them? We do that for a few clients who want to keep a very close eye on their monthly expenses.

We can handle this any way that works best for you.

Thanks,

-PJ

As expected, I didn't hear back from that client regarding their request to drop down to the lower support plan, and of course I didn't go back to them and bring it up again, myself; they are still covered by Executive Edge.

There was no need to make them feel embarrassed by the logic that I had put before them, which clearly showed that it would have been a financial mistake for them to downgrade to the lower level of support plan. I think there was an unspoken understanding between her and me that she never should have asked for that "downgrade" in the first place, and I certainly wasn't going to wave that in her face.

Remember: Never say, "I told you so."

All I really wanted to accomplish was to have her stay on the support plan that included unlimited remote support, which was working in her favor, even though PJ Networks would have made more money off of them if they had changed to the lower level plan. That is not how I want my company to make our money - I much prefer being able to sleep at night knowing that we take our clients down the path that is going to work out in their best interests.

And besides, our engineers really dislike having to chase down clients to get approval for work that they know needs to get done - it's not an efficient use of their time. The Executive Edge plan allows my team to

proceed with all labor that can be done remotely without having to get the approval from the client, first.

Real World Example #2

An Example In Realtime

Because I am writing this book in realtime as I go throughout my work day managing PJ Networks, I just had to deal with another issue that arose as a result of expectations that were not clearly defined. We won a new client account two months ago that is another dental practice for us to support (excellent!), and part of our recommendation list for them was to move them off of their current email hosting system into Microsoft 365 Exchange hosting where we can fully monitor, protect, and back up their mailboxes and OneDrive accounts.

We knew that we weren't going to accomplish that goal on Day One because we had a lot of other heavy lifting to do to get their business network in good working order, but now we've finally reached the point where my engineers are ready to start the migration process for their mailboxes. Apparently, this caught the client by surprise and they pushed back, telling us they want to wait until the end of the year, and questioning why it was so important that we get this work done now.

Obviously, the proper expectations were not set before we tried to engage them in this project.

If the client doesn't want to make the move yet, that's fine and that's their right, but there are legitimate reasons for wanting to make it happen sooner rather than later. Apparently, we were never able to get them fully on board with the timeline that we want them to follow.

As the leader of my team and CEO of PJ Networks, it fell upon my shoulders to explain to the client why it would be a good idea to get this done now, so this is what I told them, verbatim:

> *"There are actually a number of reasons why making this move would be beneficial to you, not the least of which is that we can provide very comprehensive monitoring and security for mailboxes hosted in a Microsoft 365 tenant. You can access a Microsoft 365 mailbox from*

any smartphone and from any operating system, including Mac, Windows, iPhones, Android phones, and tablets. You can access your mailbox from Microsoft Outlook, or you can access it through a web browser. We currently have over a thousand Microsoft mailboxes that we manage for our clients, and I can't remember the last time we actually had a Microsoft mailbox service go down - I know that it's been years. Mostly, we like clients being hosted directly with Microsoft because we have access to the back-end servers and therefore we can perform some very sophisticated functions and provide much more support than we can if a client is hosted with a service that doesn't let us into the back end of it.

We are also exceptionally good at troubleshooting connectivity issues with Microsoft Exchange servers, enforcing MFA, and monitoring for suspicious activity. We have already had four local businesses in the last year report to us that they lost hundreds of thousands of dollars ($800K + $20K + 20K + $750K) due to a business email compromise attack, where hackers got into a user's mailbox because MFA was not enabled, and they swapped out routing and bank account numbers on an invoice before sending it along to the original recipient. https://abnormalsecurity.com/blog/bec-vec-attacks

If you know that MFA is currently enabled and enforced on all of your mailboxes, then that makes the move to Microsoft much less urgent. We still can't provide the additional layers of security that are part of your support plan (see attached), but MFA is really, really important, regardless of the circumstances or hosting provider. According to a nameserver lookup, your email host is HostedMail. When I go to their website, I get a web login prompt and a warning that their site is not secure because it doesn't use HTTPS encryption; that's a little concerning.

Anyway, the bottom line is that we cannot provide you with the level of protection that you need if you stay with your current email host, and we have no way of backing up your business mailboxes where they are, now. Both of those services are included in the Executive Edge plan that you are signed up for, which is why we offered to

*perform this email migration **free of charge**, when it would normally be considered a "special project" and billed out at our regular hourly rate. As far as your email encryption service Virtru, that is fully compatible with Microsoft 365, so unless you're getting that from the same folks who host your mailboxes, there should be a way to move it over to protect Microsoft 365 accounts. https://www.virtru.com/data-protection-platform/email-encryption/microsoft-office-365 (Wow – Virtru is crazy expensive!)*

I think that about covers it. This email migration is not a "necessity"; it is just the only way that we can comfortably tell you that we have our eyes on all of your digital assets and that we are protecting them for you. If you wish to stick with your current host through the end of the year that's fine – we just won't be able to take any responsibility for those mailboxes if something untoward should happen to them, since they are completely out of our control. To protect for the event of a Business email Compromise (BEC), you would really need to have your own cyber insurance, and we can assist with getting you preferred rates from our provider, if you're interested.

If you would still like to have a discussion about this, then I'm more than happy to accommodate that. In fact, now that we're getting you folks settled in, I would love to come over and meet in person to discuss how things are going so far and to hear about any issues or concerns that you may have. (Compliments are always welcome, too!) Most of our dental clients have slow days or half days on Fridays, and I happen to have a flexible schedule tomorrow. Let me know if you'd like to schedule a meeting in person, or just meet virtually.

As always, I will make myself available to you as needed, and I do try to keep an eye on all of our clients, even if they don't hear directly from me very often. I'm never too busy to listen to a client's concerns or to answer their questions – that's what I'm here for, after all.

At Your Service,

-PJ

There is actually another, more important lesson to be learned from that message to our client, and that is to learn the power of persuasion, which lies at the core of client management skills. We will get more into that later, but the lesson to be learned here about expectations is that my team apparently did not bring up the topic of the email migration over the past few weeks and gradually ease into it, so that when the day came to do the work the client would be prepared and fully on board with the game plan.

Instead, the client was told on a Thursday that we were going to be performing their email migration on Friday - the next day - and it kind of freaked them out. To be honest, I can't say that I blame them.

I think that with a little bit of advance warning and some explanation of why and how we were going to do the migration, we would have received little to no resistance at all. Once the client understood the reasons why it would be wise to proceed with the email hosting migration, they signed off on the project and everything proceeded in a calm and orderly fashion. When Monday arrived, the project was finished and the client was pleased that everything happened so smoothly.

Thinking Outside The Box

All right, so you know that you want to be a Network Systems Engineer - you've thought that carefully through and by golly, you can't imagine doing anything else in life! You've looked over the list of prerequisites, and you nailed it. You've got all those things going for you, and even more. You're primed and ready to go. Nothing can hold you back, now.

...or can it?

Even with all of those things going in your favor, the one thing that can still hold you back is the inability to think outside of the box. To solve problems practically and efficiently. To look at a situation that others have looked at and failed to figure out, and somehow magically manifest a working solution. To see things from an angle that nobody else thought of.

Would you like to know how to do that? Of course you would, unless you already do that naturally.

The problem is, this is a quality or a skill that falls somewhere between a God-given gift and something that can be developed with some effort over time. I believe it does require at least some small modicum of a natural thought process that allows you to see possible solutions other than the obvious ones. In other words: you have to think outside the box. I am going to attempt to show you how to do that, if you don't already know.

What it really comes down to is being able to see possibilities. Not just the good ones, or the best ones, but all of them - good, bad, and ugly.

Sometimes resolving a problem requires a solution that is less than elegant, but as long as the job gets done properly, you have to be willing to do whatever it takes even if it seems counterintuitive or impractical. Thinking outside the box absolutely requires patience, and lots of it; if you're going to think outside of the box, then you're probably going to be trying a lot of different potential solutions, and you're going to have to be patient enough to work your way through each of them until you find the one that works.

Thinking Outside The Box - Example #1

So, here's a good example of thinking outside the box that literally just came across my desk in the last 2 hours. My wife, Kelly, reviews all of the ticket entries for our engineers before they get converted into invoices, and she often brings things to my attention to see if I have an alternative solution to something that hasn't been resolved, yet.

In this particular case, a remote support engineer had been working with a client of ours over the course of several days and several phone calls in order to help him try to extract a single page out of an Adobe PDF file. Now, if the client had actually owned an Adobe Acrobat Standard or Professional license, that would have been really simple, but all they had was the free version of Adobe Acrobat Reader.

The engineer had tried walking the client through opening the PDF file and then printing a single page as a PDF using the "Microsoft Print to PDF" driver, but for whatever reason, that wasn't working. I was curious to find out why, because that certainly should have been the easy workaround, but I took it at face value that Adobe Acrobat Reader was not allowing the user to print to a PDF file, which would have been the easiest way to get a single page out of a multi-page PDF.

It didn't take long to come up with a workaround solution: Open up the PDF file using either Microsoft Edge or Google Chrome browser, and then "print" it to a PDF file, only choosing the one page that the end user wanted to retain. The easiest way to do that would be to right click on the PDF file, choose "Open With," choose either Google Chrome or Microsoft Edge, and then once the file is open in the browser, right click on it and choose Print. Then choose which page they want to extract and print it in PDF format:

Voila - problem solved!

Theoretically, at least. One of the cardinal rules of being a Consummate Engineer is that **you always have to test a solution with the client** in order to verify that it is working to their satisfaction. If not, then the problem is not really fixed. The solution that I have presented here *should* fix the problem, but since I did not contact the client directly and confirm that this would work for them, I can only theorize that it would be the right fix.

I relayed my suggestion along to the remote engineer who worked with the client, but I believe they had already figured out another solution – by Thinking Outside the Box in a different way.

That's a good thing - I don't need to be right all of the time; I just want our clients to be happy.

Thinking Outside The Box - Example #2

Here's another example that came up yesterday: a client of ours called in because they were trying to open up their QuickBooks data file, the same one that they open every day of the year, and it kept prompting

them for an update and saying that the computer needed to be rebooted before the file could be opened. They weren't sure exactly what triggered this, but no matter what they tried, they were unable to open the file. I emailed them back and told them that I needed a few minutes to wrap up another meeting, and I also asked them to reboot the computer in the meantime and see if that helped; you would be surprised to find out how many times that actually fixes those kinds of issues.

If you're a Network Engineer, then you should already know that. I would estimate that about *half of all client application issues* are resolved by rebooting the computer in question. {*hint hint*}

When I finally was able to call the client back about 10 minutes later and remote into his computer to look at the problem, I used Task Manager to confirm that he had rebooted his computer as requested, and then I launched Quickbooks from his desktop shortcut, so that I could see what he was experiencing. (and to confirm that the reboot had not fixed the issue - it had not.)

Next, I right-clicked on the shortcut and chose "Run as Administrator"; we have the Domain Administrator credentials documented for all of our clients, safely stored in our encrypted client management system. As expected, I was prompted for the administrator credentials, which I provided, and then I was told that Quickbooks needed to install an update, but that a reboot would be required first.

Fine. I rebooted the computer.

After the computer rebooted and fully started back up, the end user logged back into the computer and I took control again. Once again, I right-clicked on the QuickBooks icon and I chose "Run as Administrator," and once again I got the same message that said that Quickbooks needed to install an update, but that the system needed to be rebooted, first.

Hmmm.

What was I doing wrong? What would get me around this dead end loop? I knew I had seen this problem present itself before with another client,

but that was months ago, and for some reason the solution was not readily coming to mind.

And then, in a flash, I remembered the solution.

I logged out of the computer as the end user, and logged into it using a local Administrator account so that it was running entirely under a different user profile with different system permissions. I was then able to launch QuickBooks and receive a different prompt that told me that an update was about to be installed, and it again prompted me for administrator credentials to approve that upgrade.

I provided them, the installation ran successfully, and then it prompted me for one more reboot. When the reboot completed, we logged back in as the Administrator and successfully logged into Quickbooks. Then we closed QuickBooks and logged out as the network administrator, so that the end user could log back in as himself and launch QuickBooks using his own credentials and permissions. Everything worked perfectly; problem resolved.

However, we rebooted the computer one more time for good measure and the end user logged back in as himself and successfully launched Quickbooks, again.

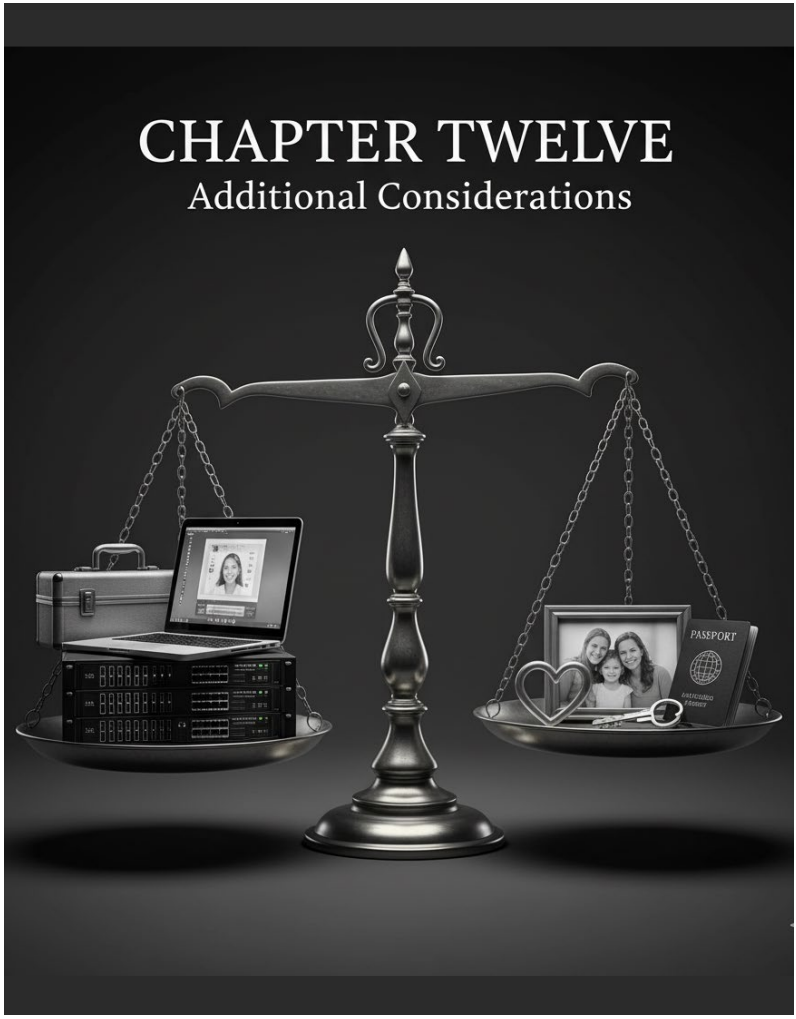
Why the extra reboot? Measure twice, cut once; always make sure that an issue is fully resolved before closing the case. You don't get the reputation for being the best IT support company around by cutting corners or taking shortcuts.

That may have all seemed rather long-winded just to make a point, but that's par for the course in this line of work. Sometimes you come up with a quick solution to a problem, and sometimes you have to work at it for hours and try many different solutions.

These are just two examples of how stepping back and looking at a problem in a slightly different way or from a slightly different angle can provide a solution that might have been missed if I had not been able to think outside the box or look at the problem other than head on. If you ever have to work with an engineer who is not capable of thinking outside the box, then you will regularly find them trying the same thing over and

over and over and over again, sometimes for hours, and keep getting the same results, but never thinking of a different way to approach the problem.

Obviously, that is not a very successful methodology.


CHAPTER TWELVE
Additional Considerations
PASSPORT

Chapter Twelve

Additional Considerations

I have lived long enough to have loved and to have lost, and Life is sweeter for having known both.

-PJ

In order to keep things moving along smoothly on this journey into my experiences and teachings, there are a handful of topics that I did not delve very deeply into at the beginning of this book – I wanted readers to be taken on a lively journey into the practical lessons that affect their everyday lives as Network Engineers.

However, I feel that I would be remiss if I didn't circle back to those topics here near the end of our voyage together, now that you have had the opportunity to absorb and digest my pragmatic real-world approach to delivering exceptional service. If you're still reading along and feel that you understand and can handle the majority of the recommendations that I have made up to this point, then there a few additional items that I think deserve your attention and consideration.

So here goes...

In Chapter Two, I explored pretty extensively those qualities and core attributes that I consider to be crucial in the success of a Network Systems Engineer. You certainly don't have to embody every single one of them, and with a little effort there is plenty of room for improvement in any one of those areas, but I also want to speak specifically to those qualities that we evaluate our Network Engineers on during their annual employee reviews.

More Attributes of a Good Engineer

So, we've discussed what I believe are the prerequisites for becoming a successful Network Engineer, but at my company, we also hold very high standards that go above and beyond that list.

At PJ Networks, we like to communicate to our employees what criteria they will be rated on when they have their annual employee reviews. If somebody doesn't hit a perfect score in every single one of the categories, that's okay - it allows us to identify areas that they can work on improving for their next review. However, since we generally give every employee a pay raise annually, usually right after their annual review, I feel that it's only fair that we set clear standards and expectations, and communicate those regularly to our employees.

Here's a list of those qualities that we are looking for in the engineers that work at PJ Networks:

Willingness to do Whatever It Takes: regardless of what the task at hand is, or the challenges involved, this is the commitment to get the job done properly and completely.

Consistency: the quality that demonstrates that as an engineer, your clients and your fellow engineers can anticipate and count on you to consistently deliver the same results, to interact in the same way, and to manage your clients in a predictable manner that follows company policies and guidelines.

Enthusiasm: the quality of showing interest and positive expectation in any situation that arises, or any responsibility that is given to the engineer.

Volunteerism: demonstrating on a regular basis a willingness to jump on unexpected problems and client situations with a positive attitude, without having to be ordered to do so.

Willingness to learn: the ability and desire to learn new skills and technologies, even if they differ from the way you have always done things, with a confident attitude and positive expectations.

Durability: the dedication and ability to withstand all adverse situations that arise during the course of employment with PJ Networks, and to continue handling your responsibilities regardless of the circumstances.

Ability, Knowledgeability and Adaptability: continuing to improve your knowledge and expertise in all of the various technologies that we use at PJ Networks, and the ability to adapt those skills and your knowledge to deal with any situation that arises.

Commitment and Dedication: the ongoing willing dedication to take outstanding care of our clients, and to constantly improve yourself as an engineer when opportunities arise to do so.

Trustworthiness and Reliability: similar to consistency, these qualities demonstrate to the team that no matter what is asked of you or who asks

it, you can be trusted with any kind of responsibility, and that you will reliably complete a task once it has been assigned to you.

Good Judgment: the ability to make good decisions, even under stress or in the heat of the moment, that result in the best possible outcome of any given situation.

Education and Certifications: the commitment to continually educate yourself on the technologies that you work with as a Network Engineer, to stay up to date on the technology that is evolving in the MSP community, and then working to achieve official certifications in those areas. (Particularly Microsoft certifications)

Willingness to commit to outside projects: these would be tasks and activities that occur outside of your normal work schedule, and they are absolutely not mandatory; they are voluntary. Such activities might include attending an outside event to represent PJ Networks or working on a project that will benefit our own organization.

Positive Attitude and Personality: having a positive attitude affects everything that an engineer does, from their success with projects to their interactions with clients and fellow team members. Having an agreeable personality that clients and other members of the team enjoy interacting with goes a long way towards your career success at PJ Networks.

Team Cooperation: cooperating with other members of the team, complying with the requests from management and fellow team members, and volunteering to assist other members of the team when they are overwhelmed or have steep challenges.

Client Management: the ability to get clients to do what you tell them is in their own best interest, or to do what is expected of them as a client of PJ Networks.

Project Management: the ability to plan and organize projects in an orderly manner, and then successfully complete them, including all follow-up tasks, and then closing out your projects in a timely fashion.

Accountability/Responsibility: taking full accountability for tasks and projects that are assigned to you, admitting when you have made a mistake or have overlooked something, and stepping forward to take the blame when you are responsible for a mistake.

Forward Looking: The ability to look forward into the future and anticipate your clients' needs, as well as your own career growth, as we move forward together in time.

Those are the core personality traits and characteristics that we are looking for in our employees, but there are a few more things you might want to consider in your journey to a successful career, and in your endeavor to become a Consummate Engineer.

Family Life

As far as getting married and having children, I can only speak to those topics from my own perspective and observations.

I have been happily married for the past twelve years to an amazing woman by the name of Kelly, and we have raised a daughter who will be heading off to college in just a few years. Our first handful of years together were complicated by the fact that I was only able to make it home in time for dinner once or twice each week; I often had to work past our daughter's bedtime. Fortunately, Kelly was very supportive and understanding of my work responsibilities, and our daughter seemed to understand how important it was for me to fulfill all of my obligations as a business owner and Network Engineer.

My experience and observation has been that the engineers that really take off early in their careers and quickly gain the most ground are the ones that stay single and unmarried, at least until they've become fully established in their trade. That's not a requirement or even a recommendation – it's common sense. If you're out at a client site putting in a new server, knowing that the client will be showing up to open business the next morning and expecting everything to work, then you stay as late as you have to in order to make that happen.

That's not to say anything against families or marriage or having children – you should just understand that some employers will expect their Network Engineers to be available to work late night shifts and crazy hours and 7-day work weeks if/when needed to. If you have to respond to emergency calls at 3AM, that will probably interrupt your spouse's sleep cycle or your children's school schedule; that can take a toll on family life if it happens often enough.

Breaking into any new career field is difficult and will often require long hours learning completely new skills. That doesn't mean that it's impossible if you have a partner, but it will require communication, flexibility, and understanding from family members that live with you. They are not necessarily components of every personal relationship, so factor them into your decision to become a Field Engineer versus a Remote Support Specialist.

Keep in mind that this vision is yours and yours alone to create. If you wish to involve someone else in the process, that is your choice, but you will want to get that all sorted out *before* you begin down the path of this career choice, not once you've started wading into those deep waters.

There are other options, as well.

If deep down in your heart you want to be a software programmer, which is very, very different from being a Network Systems Engineer, then that is the dream that you should pursue. I have known a number of programmers, and they typically like to work by themselves late into the wee early morning hours. They often enjoy working in the dark with the lights turned off, only to be illuminated by the soft glow of a computer screen and a backlit keyboard. They are a different kind of creature than Network Engineers in many ways, often preferring quiet solitude to the hustle and bustle of travelling from client to client to support their network systems in person.

I know that all sounds a bit oversimplified and it certainly doesn't describe every software programmer out there, but it does fit an amazingly large percentage of them - and that's just fine. Somebody has to do that kind of work, and it certainly isn't going to be me, so if

somebody else enjoys it and they do it well and they can make good money at it, then more power to them.

However, if that's the kind of engineer you want to be, then a lot of the guidance I'm going to give in this book on becoming a Consummate Engineer may not be directly applicable to you. For example, there's going to be an entire chapter that focuses on client management. While software programmers are not necessarily hermits, they are also not usually out and about in the World interacting with end users and clients; they deal more with developers and managers within companies that do software development, so there is less client management for them to do in many cases than there is for a Network Engineer.

Only The Lonely

Here is something to consider: if you are married and your spouse tends to get jealous easily, then you may find yourself getting interrogated every time you have to work late with one of your clients or even by yourself. When you come home at midnight after performing an emergency server disaster recovery, is your spouse going to ask you for a detailed timeline of where you were and what you were doing? Will they get suspicious if you have to work a lot of late nights with one particular client while working on a project?

That may sound like a frivolous thing to worry about, but I have seen how the work schedule and lifestyle of a dedicated Network Engineer can take its toll on an otherwise solid marriage. If your partner is not going to be understanding of a demanding work schedule that frequently makes you late for dinner or requires that you work late hours, then you'll want to have an honest talk with them before you start down this career path, because in most cases it's not like working a nine to five job. You shouldn't have to choose between your profession and your marriage, so make sure that you're taking all aspects of your career choice into consideration before you start down that road.

There are, of course, jobs for Network Engineers at Universities and larger companies that keep to relatively normal work hours. Those positions tend to have a lot more formal structure to them and less autonomy than getting out there and mixing things up with your business

clients as a Field Engineer, but perhaps that would be more to your liking. Not everybody enjoys the excitement and adventure of flying from business to business to be the hero of the day, but it is definitely one of the things that I have enjoyed the most during my time in the field.

So, there are pros and cons for being out there managing your own schedule and your own client base, making recommendations and deploying business networks, receiving the glory when you masterfully complete a complicated project, and taking all the blame when you fall flat on your face during a server migration. There is a downside to being free of the limitations and stability you find in an enterprise company infrastructure.

You should also keep in mind that if you are already married or spoken for romantically, then you may be an unwitting temptation to some of the clients that you interact with; try to be aware of that, and be considerate of those clients who may get the wrong idea when you're being funny or playful at the end of a long work day. If you are happily committed to a partner in a relationship, then don't let there be any wiggle room for misunderstandings with your clients regarding your availability. Being a good flirt can be lots of fun, but always be aware that you never know what expectations you might accidentally set into motion.

We've spent a bit of time discussing the complexities of managing a healthy home life while striving to become a Consummate Engineer, but even if you end up working a sixty-hour work week, the majority of your time will be spent away from work. I feel that it is important to fully consider all of the factors that are going to contribute to a successful and enjoyable Life and Lifestyle, and not just the ones that are related to work. If you want to be happy as an engineer, then you'll need to find a way to be happy when you're at home, as well as when you're out being a network hero.

More Considerations for Luck

I briefly mentioned this in the section called "The Right Stuff" near the beginning of the book, but I didn't want to delve too deeply into it before presenting the more important advice and recommendations that I have to offer. However, if you've read this far and you like what you've been

hearing from me, then please lend just a moment to hear about my thoughts on this often overlooked topic.

I have met some engineers during my life who were genuinely talented, but they seemed to have the worst luck when it came to completing any project or even accomplishing smaller tasks successfully, even though it seemed that they were doing everything right. When performing hardware replacements, they would have an unusually high number of brand new parts that arrive defective or DOA right out of the box. Hard drives would die on them right in the middle of a critical backup process or during a data migration.

Real World Example:

I personally worked with and trained a Network Engineer (we'll call him Donald) for two solid years, and I was specifically given the task of figuring out why most of the assignments that were given to him turned out miserably. I recall one smaller Exchange Server implementation that this engineer floundered in for over a week, when it should have been a simple one-person weekend deployment. John Hunt sent me over to the client site to bail out Donald and get things back on track, as the client was starting to lose patience with the drawn-out process and we were quickly losing money on the labor for that project.

The first thing that I did to calm the client down was to assure them that even though the project was taking way longer than John had originally quoted to them, they would not be paying for any additional labor; that immediately brought the tension level down a few notches. Then I tracked down Donald, who was holed up in the server closet looking both frantic and forlorn at the same time.

I had him walk me through every single step that he had taken in the deployment of the Exchange Server, and as far as I could tell, he had done everything exactly as he had been taught – by me. I was the resident in-house Exchange Server expert at CompuVision, so I personally trained every engineer in the entire Exchange Server deployment process. As far

as I could see, Donald had done everything by the book and to the letter of the checklist he had been provided with.

So, what had gone wrong..?

He ran into snags at each and every step in the process. Not just one or two issues, but almost a dozen things had gone wrong for him.

Halfway through the initial Exchange software installation, the CD he was installing from encountered unreadable sectors, so he had to track down another copy at the shop and start over from the beginning. When it was finished installing, the Outbound Exchange Relay connector refused to send messages even though the Inbound connector that was using the same network card and Internet connection worked just fine. Numerous error messages relating to Exchange Server were filling up the Application event logs – errors that I had never encountered before in the dozen or so Exchange server installations that I had done on my own.

So, I reassured him that we were going to work through the issues together and get everything working – and that's exactly what we did.

It took the better part of the afternoon, but we got everything working properly, and when we left at the end of the day email was successfully flowing in and out of that Exchange Server. We shook hands, patted each other on the back, and went home feeling like those problems were all behind us.

But they weren't.

The client called him up first thing the next morning to report that their email wasn't flowing. He called me on cell before he headed over to the client site and I arrived about the same time that he did; he looked relieved that I would be the one to face the client and help get things sorted out.

In light of all of the other issues that Donald had encountered on this "weekend project," it was almost unbelievable to discover that the RAID

array upon which we had installed Exchange Server had become corrupted – for no apparent reason. This was back in the day when RAID controllers were much less sophisticated and RAID arrays were not nearly as resilient as they are today; if a RAID array became corrupted, you usually had to blow it out, recreate it, and then restore your disk partitions from the most recent backup.

That was the next unlikely event in this incredible series of "random" unfortunate incidents: the disk partition had apparently become corrupted *after* we had the Exchange Server up and running, but *before* the nightly server backup took place at 1AM.

Really?? Yes, really - I kid you not.

Turning Things Around

So, I went to the client and explained everything that had happened, as unlikely as it all seemed, and told them that as a senior engineer at CompuVision, I was going to personally rebuild their Exchange Server and have everything up and running by the end of the day.

And that is precisely what I did.

I asked Donald to take a back seat as an observer of the process, but politely asked him to please *not touch anything*. At that point, I didn't even want him to breathe on that server, but it would have been wrong of me to send him away and not give him the chance to watch the entire process from beginning to end so that he could understand how things are supposed to go when everything that can possibly go wrong doesn't turn sideways on you.

We had arrived at the client site around 8AM that morning, I delivered the bad news to the client around an hour later, and by mid-afternoon I had everything back up and running smoothly. Donald was amazed at how quickly it all went when it all goes as expected.

More Challenges for Donald

Unfortunately, Donald's misfortunes were not limited to that one project. He was the single unluckiest engineer that I have met during my entire career, and that's saying a lot.

In the world of Network Engineering, the average rate of receiving bad hardware is around one out of every 25 to 30 devices - around 3% to 4%. Some kinds of devices have more DOAs, and some a little less, but as a general rule it is pretty rare to open a box and pull out a brand new switch or router or hard drive to find that it is dead on arrival (DOA).

Not for Donald.

His experience was that one out of every four or five devices that he put his hands on turned out to be a DOA straight out of the box, meaning somewhere around 20% to 25%. In fact, it was so bad that if we needed to send him out to a client site with a replacement piece of hardware, we would always try to send him out with two of them so that he didn't arrive at the client site, pull out a dead piece of equipment, and then have to come all the way back to the shop to grab another one.

The experiences that I personally witnessed Donald have seemed to defy logic. If I wasn't a believer in luck and misfortune before I met him, I sure as heck believed in it after I worked with him for a couple of years.

Unfortunately, there is no happy ending to this tale.

In his second year of employment at CompuVision, Donald was developing a severe issue with its right foot and ankle; some medical condition that I don't recall the name of was causing him to walk on the outside edge of his right foot and it was steadily getting worse. In the last few months that he worked for us he was having a real challenge trying to carry equipment and get out to client sites, and ultimately that drove him to have to quit his job with CompuVision so that he could have his medical condition treated. If I'm remembering correctly, the I last spoke

to him he told me that he was going to have to have his right foot amputated.

Seeing Is Believing

So, you can believe what you want to believe regarding the existence of Luck and whether or not it is even a factor in the success of a Network Engineer, but I know what I know and I saw what I saw. Before I had encountered Donald I had always had a vague belief that things just generally go better for some people than for others, but Donald made a True Believer out of me that some people just shouldn't be touching network equipment.

On the other hand, I have seen engineers (myself included) who generally seem to have good luck in most of their computer-related endeavors. If you truly feel that you are one of the unfortunate ones who seems to have bad luck like Donald when it comes doing this kind of work (blaming your mistakes on bad luck doesn't count), then you might want to consider another line of work…or just mark this all up to me being unscientifically superstitious and forge ahead. However, Donald is certainly not the only engineer I have known who experienced an inordinate number of bad things happen to them in the course of an average work day.

Scattered throughout this book you will find an occasional reference to Luck or Faith or other non-scientific beliefs - please don't let that put you off. Even though I may have my own set of personal Beliefs that I feel strongly about, I am writing this book as a guide for anybody - not just people who have the same beliefs that I do. Each piece of advice, every recommendation, and all of my other suggestions are meant for anybody who is pursuing the career of Network Systems Engineer, regardless of their personal belief system, religion, or spirituality practices.

There are well over 100 pieces of advice and snippets of wisdom that I am including in this book, and I cannot guarantee that every single one of them will resonate with you. I have recommendations about how to overcome insecurities and become more confident when speaking to

clients, but I am not a psychologist. Therefore, while I am able to share with you tips and tricks that have worked well for me and many of the engineers that I have trained, I certainly don't expect that all of them will be a good fit for you.

So, embrace the ones that sound intuitively (there I go, again) right to you and try to follow that advice, but if anything doesn't feel like it will work for you, then leave it behind. You may even find that later on, after you have become a successful engineer, some of the advice that I offer will make more sense to you then and you'll be more willing to follow it.

Putting my personal beliefs aside, from a practical viewpoint I have seen what works and what doesn't. That is what my guidance is based on and if I am looking at it all through my own personal perspective, well, that's what it means to be a Human Being - we each live in our own subjective reality to some degree, whether we like it or not.

Personally, I like it very much!

If you do not believe in Luck at all and you only believe in hard cold facts and scientifically founded principles, that's great - then you can disregard the whole concept of luck being a factor in your success. I don't think that there is any scientific proof that Luck is even a real thing, although in Quantum Mechanics particles like electrons and photons behave differently depending on whether or not they are being observed or measured. (You can look up Wave-Particle Duality and the Uncertainty Principle if you'd like to read more on that.)

Personally, I believe in Luck, I believe that I have been blessed with more than my fair share of it, and that makes me happy - but that is just my personal opinion. If you believe that everything in the Universe has a scientifically objective basis, and believing that makes you happy, then by all means don't let me stop you!

Abraham Lincoln famously said, "Whatever you are, be a good one."

You do you. I only recommend that you be the best you that you can possibly be.

Crispy Around the Edges

There will also be times when no matter how hard you work to cut the Crappy Days short and make the Glorious Days last longer, that you will start to get crispy around the edges.

The problem is, you won't always be the first one to recognize that. When I was working at CompuVision in Santa Barbara, it was usually my boss, John Hunt, who would recognize when I was in serious need of some vacation time. I would start to become cranky and short-tempered for no specific reason, I would not be my usual optimistic self, and I would generally just walk around looking and feeling exhausted and/or irritable.

Because I tended to push myself hard as a general rule and work extremely long hours, it would usually only take three or four months before I started to get a little crispy. Fortunately, over the course of time, I was able to earn enough vacation time on an annual basis that I could make the trek back to Virginia once every quarter, or basically once every season of the year.

I was also making enough income to be able to afford to make that trip three to four times per year, but if you're not in that kind of a financial situation, then the least you can do is take a staycation and hang out at home for a few days or a week in order to get your blood pressure down and your enthusiasm for life back in good working order. So, I strongly encourage you to be able to recognize the tell-tale signs that you're starting to get a little crispy around the edges and then plan accordingly.

One thing you can do to make your time away from work less stressful is to let all of your clients know *several weeks* in advance what week or days you're going to be gone on vacation, and ask them if they need you to take care of anything before you take your break. Trust me on this - it will make your vacation time so much more enjoyable when your clients

are not only not expecting you to be available, but instead they're wishing you a good vacation break.

8 Days a Week

Sometimes when you're a new engineer you have to work 60 or 70 or 80 hours a week - that's okay as long as you're willing to put in the hours.

I was more than willing to do that when I was in my early thirties and I knew that I had a lot of catching up to do; it was one of the secrets to my success. However, you do not want to end up working for an employer that expects you to work 7 days a week, week after week, month after month, without any extra compensation or any real appreciation for the extra effort that you're putting in.

The rules that I've been putting forth for client relationships also apply when generally speaking about employer expectations - everything needs to be fair on both ends of the equation. I absolutely understand that in the first year or two of your employment as a Network Systems Engineer you may have to put up with some pretty outrageous BS, and unfortunately I have to encourage you to just put up with it. If you can get one or preferably two solid years of experience being a Network Engineer, and you are willing to put in the additional work and the studying to get some certifications, then you should never have to go through that crap again.

Exceptional engineers are rare creatures and a valuable resource for IT support companies to have.

I guess what I'm saying is that if you have to work 8 days a week for the first year or two in order to get some hands-on experience as a Network Systems Engineer and get some props for being good at what you do, then just do it if you're able to. Once you have put in your time, paid your dues, gotten enough experience required to prove yourself, hopefully you'll never have to look at working 8 days a week again.

At PJ Networks we do not expect our employees to work more than 45 hours a week, but it took many years for us to get to the place where we don't need to ask for more than that from our engineers.

Along the same lines…

Everybody's Working For The Weekend

There will certainly be times if you're a Network Systems Engineer when you're expected to work on a weekend once in a while.

In my first year as a Network Systems Engineer, I actually ended up working an average of around 75 or 80 hours per week - no lie. We were a small company with more than enough work, and we had back-to-back-to-back projects scheduled every single weekend of the month. In fact, after me and my buddy Mike had worked our fourth or fifth straight weekend in a row and hadn't had a day off in over a month, we went to the boss and said this has to stop or we're going to burn out.

To be fair, John was working every weekend right there alongside us, but that's a little different; he was the owner of the company.

I have two points to make here: first of all, especially when you're new at this line of work, you need to be the person who's willing to work throughout the weekend and pull extra hours during the week in order to establish yourself as being a premiere Network Engineer. Don't just work the 40 or 45 hours that are required of you, but willingly put in 50 or 60 hours per week on a regular basis until you've established yourself as being that person who totally kicks butt and takes names.

On the other hand, you also don't want to let your employer abuse you and make you work 70 or 80 hours a week all the time and then expect to pay you regular pay for that. Even if they were paying you extra money for working the extra hours, I would caution you that it's not worth it if you establish a long term expectation of always doing that. There is such a thing as burnout, even in your younger years, and if you hit that burnout point less frequently when you're young, then you will find that you're less sensitive to it when you get older.

So, if your employer wants you to work for the weekend once in a while, that's great. Just do it with a smile on your face and try not to make a habit of it.

Pieces Of Eight

Pieces of Eight... the search for the money tree. (That's a Styx song, in case you didn't recognize it)

If the only reason you're going into a career in IT, whether it be Systems Engineer, or Network Engineer, or Network Systems Engineer, is so that you can make lots of money, then to be honest we really don't want you here in our industry. People who only crave money and financial success basically suck - there are far too many of those kinds of people in the World, and we would just as soon not have you mucking around in this field being a bad example of what it means to be a Network Engineer.

There is certainly nothing wrong with wanting to make good money and if you're a good engineer the chances are that you will, but that shouldn't be your only (or even your primary) motivation for choosing this career field. Choose it because you find the work enjoyable, or you like helping others, or because this kind of work fascinates you. Any of those reasons can be your primary motivation, but hopefully you're not just in it to make money.

There is no way that we can legally stop you if you are, any more than there is a way to stop a doctor who is only in the medical field because he thinks he can make lots of money at it, but in the end you're not doing anybody any kind of real service except for yourself. If money is what you seek, then go figure out a way to be brilliant in the stock market and then make lots of money there; create some sort of a Ponzi scheme and then make billions of dollars, and then try not to go to jail for it. We just don't really want you out there giving IT support companies a bad reputation.

Please look down deep into your soul and find some reason for existing other than money and then go pursue that for a living.

Sorry – that topic is a sore spot for me. I have met far too many engineers who only cared about themselves and making money, and those two attributes do not bode well for any client that they do work for. In most cases, they weren't all that good as Network Engineers because their hearts and their minds just weren't in the right place in order to do exceptional work.

It is a very well-known philosophy that if you can find something that you really love to do and then turn that into a job or a career, then you will never have to work another day in your life. Find what you love to do and then go and do it; if it happens to be in the field of business technology, most of those jobs actually pay pretty well.

I hit the jackpot when I realized I wanted to be a Network Systems Engineer, but I would have wanted to be one whether it paid well or not. It just happens to be a line of work that does, indeed, pay pretty well if you're good at what you do, you take good care of your clients, and you have a good work ethic.

Simply Irresistible

During the course of your career as a Network Systems Engineer, whether you are married or single, divorced or widowed, heterosexual or homosexual or a little of both, it is possible that you will encounter situations where you meet somebody who interests you on a level beyond that of a regular client or vice-versa. Sometimes, the attraction is purely physical in nature and you will indeed feel "nature calling"; I strongly urge you to do your best to ignore (or resist) that call if it might impact your work responsibilities.

Now, I don't want to sound like a hypocrite, because my wife is a person I met at a client site and that I worked with side by side for a number of months before we even started to talk about having any kind of relationship. It is not a cardinal sin to ask out a client on a date and end up in a romantic relationship. You should just try not to make a habit of it.

In the previous twenty years of my career as a Network Engineer, prior to meeting my wife, the occasions where I dabbled in areas that were of a personal nature with a professional client were few and far between. On the few times that I had messed around where I probably shouldn't have been messing, thank goodness nothing horrible ever came of those relationships. I never cost us a client or ruined anyone's life as far as I know, but upon later reflection I realized that I would have been wise to resist those temptations.

However, there have been plenty of occasions when I observed other engineers who got involved in personal relationships with clients that either did not turn out so well, or on the opposite end of the spectrum, they actually ended up marrying the person they were involved with, like I did. It seems to be kind of a crapshoot regarding how things work out in the end. For those of us who have ended up happily married as a result of dating a client, that is awesome.

I never personally lost a client for CompuVision or for PJ Networks as a result of romantic involvement, although I can't say that I have really dated any clients of PJ Networks other than my wife. I am not a prude by any means, but I do believe that there are professional lines that should not be crossed, except for under the most extraordinary of circumstances.

Remember that you are supposed to be a professional consultant for your clients and providing them with services of a highly professional nature. There are no laws against dating employees of your clients (unless that is stated in the legal contract with the client), but ultimately that's really what we're talking about here. While it would be very unusual to actually be dating the owner of a company that you are providing IT support for, there are hundreds of employees that you will be interacting with on a regular basis.

It is well known that people tend to be romantically interested in people that they find to be highly intelligent. Because of the nature of your work you are going to not only be an authority figure, but also considered to be highly or at least slightly more intelligent than the average bear. For that

reason it may make you an attractive target for those clients you interact with who are actively seeking a romantic relationship with someone.

Once again, I strongly encourage you to not only be on the lookout for that kind of thing and nip it in the bud if you notice it, before anything even develops.

An ounce of prevention, right?

I'm Hot Blooded

So, let's say that you're able to resist the everyday temptation of asking out clients or trying to start up romantic relationships with the people that you provide technical support to, but you have an even more immediate problem: you find yourself in a situation where you're attracted to and wanting to romantically engage somebody in the same company that you work for.

Uh oh - trouble could be brewing!

I suggest if you're hot-blooded and prone to getting into and out of relationships easily that you find a local watering hole where you can connect with people who are also looking for relationships and let nature run its course. If you know that you have a tendency to be a little haphazard or less than cautious when it comes to romantic relationships and situations, then please, please, please, do your best to keep it out of the workplace. It could end up costing you your job.

Keep in mind that employers do not like to see candidates for employment who have bounced around from job to job, never able to keep one for more than six or 12 months before they have to move on to the next. We employers never fully know for sure what it was that caused those candidates to bounce around like that, but the tendency to dip too frequently into the local watering hole could certainly be a contributing factor. It's one of the many reasons why employers will avoid you like the plague if you've had 10 jobs in the last 5 years.

If you are a truly hot-blooded person, then I suggest that you do your best to keep those urges and desires away from your place of employment.

End of lecture.

Everybody Hurts…Sometimes

Nobody that I know really likes to be sick, but sometimes it happens.

I recommend trying to save your sick days for days that you are truly not feeling well, or for using as vacation days if you generally have good health. Using sick days to take an unexpected day off of work when you're actually healthy and just looking to take a break can come back and bite you in the butt if you end up legitimately needing that sick time later on.

Out of curiosity, I just looked up statistics on multiple websites for how many sick days per year the average employee takes, and was surprised to find that it is generally only two to three days per year. However, younger employees tend to take fewer sick days and older employees tend to take more sick days, which makes sense.

Here are some numbers from the CDC on sick days taken each year by civilian employees:

"Work-loss days increased with age for both men and women. Men aged 18-24 years missed 2.1 days of work, aged 25-44 years missed 3.7 days, and aged 45-64 years missed 4.5 days. Women aged 18-24 years missed 2.6 days of work, aged 25-44 years missed 4.0 days, and aged 45-64 years missed 5.5"

Anyway, the point I am trying to make here is that if you have health issues that keep you sidetracked or sidelined from work, hopefully your employer will be as understanding as we have tried to be at PJ Networks and they work together with you to keep you gainfully employed. Whether that means letting you go into the negative on sick time, or granting you more PTO time throughout the course of the year, good employees are hard to find and I believe that every effort should be made to retain them.

Also, I encourage every employer out there to be very understanding of the needs of any employee who has to spend significant amounts of time visiting doctors or getting wellness checks; if you are loyal to the needs of your employees, then they will also be loyal to you and your company. When an employee truly has health issues that require them to spend extensive time visiting doctors, getting tests done, or even being in the hospital, you can be sure that they're not enjoying themselves while they're doing it.

Everybody Hurts sometimes…try to be understanding of that.

It's Been A Hard Day's Night

As I've mentioned elsewhere in this book, there are Golden Days where everything you touch just seems to fix itself without you having to even really try, and some issues will even resolve themselves before you even get a chance to take a look at them.

Those are the easy days, the enjoyable days, and I absolutely recommend that you stretch them out as long as you can and make those the long days that you work. If everything you're touching on any given day just seems to be turning out for the best, then try to think of any situations or issues that you have been unable to resolve and are sitting on the back burner for you to revisit and go get them!

Work a little longer when you're having a Golden Day.

On the other hand, there are going to be days that are just brutal - that's just Life, not your career choice or your occupation. It will seem like everything you touch turns to crap - I call that the reverse Midas Touch.

Everybody has days like that.

If you're starting to get near the end of your work day and you just feel like life has beaten you up one side and down the other, and nothing you work on turns out right, then by all means look for an early exit strategy and call it a day. Otherwise, the more things you touch and, well, you get the idea.

As long as your employer isn't going to think poorly of you for doing so, you should find a way to disengage from a crappy day like that as early as possible and just make up for it on another day that's going well for you. I discourage people from just putting up with constant abuse from their clients, from circumstances, or from technology that doesn't want to cooperate, so if you find yourself in a situation that is just beating you down hard, then call it an early day and head on home.

You do want to keep in mind, though, that those kinds of days are going to happen more often in some fields of work than others.

If you're a highly gifted engineer who is extremely good at tackling more difficult challenges, then you may find yourself in a job where you get more than your fair share of tough work to tackle. If that is the case, then hopefully you enjoy it; some people truly thrive on that. If you do not, then figure out a way to wiggle yourself out of being that person and try to become someone who gets to do less stressful and more enjoyable kinds of engineering work, even if it pays a little less.

The most important thing is that you don't find yourself regularly turning to alcohol or drugs at the end of every rough work day, because then it's going to be far too easy to start convincing yourself on any given day that it was a rough one and that you should either relieve yourself or reward yourself for surviving it. That's a really vicious cycle that's far too easy to get caught in, so keep an eye on yourself and stop it if you see that starting to develop.

An ounce of prevention - remember?

A Hard Day's Night should be a nice evening of rest and relaxation, not of partying hard and frying brain cells. You never know when you might need those little things. ;-)

Mother's Little Helper

If you find yourself having to regularly take anything medicinal to make it through the work day because it's just too much to bear, then you need to realize that you need help. If you ever find yourself needing to take a

shot of whiskey or drink a beer before the very end of your work day, with the possible exception of an occasional business luncheon where they have alcoholic beverages, then you have a problem that needs to be dealt with.

It is not uncommon to find that an engineer is taking some sort of painkiller or anti-anxiety medication, and to be honest, as long as it is being managed and monitored by their physician, there's usually not really a problem with that. It's only when an engineer on their own is finding it necessary to consume something of a chemical nature before dealing with clients or tackling their work responsibilities that there's clearly a problem that needs to be squared away, and the sooner the better.

On the other hand, we have a strict company policy at PJ Networks that we don't stick our noses in our employees' personal business.

If an engineer shows up to work every day on time, looking and smelling professional, coherent and confident enough to perform their work tasks without anybody questioning their sobriety or their state of mind, then I'm good with it. As long as they can walk the walk and talk the talk and keep their act together, then that's their business, and I give them my blessing. But, if I sense any kind of personal dilemma or suspect that they are having any kind of problem that they might want to discuss, then I tactfully find a way to ask if there is anything they would like to talk about on the personal front.

Just because we don't pry into our employees' personal lives, that doesn't mean we don't care.

However, I have to say - corny as it may sound - that it is possible to actually get your kicks out of taking care of clients during the work day and doing an excellent job, and then save your revelry and celebratory activities until after 5:00 p.m. (or whenever your work day ends).

I will leave you with this and then move on to another topic: if, on a daily basis, you need to consume anything that is not prescribed and managed by a physician, which means that you are self-medicating, then

imagine what would happen if you were no longer able to self-medicate. Would you be able to do your job?

If not, then you may have a problem, and if so, then why not take a little break from it once in a while..?

If you can go a whole week clean and sober and still handle your job and all related work activities, then you at least have some control over your addictions, and as a result you may be able to manage a healthy work/life balance better than you have in the past.

End of lecture. (That one, at least)

Monday Morning Blues

On a related note, try not to be that engineer who calls in sick regularly on Monday mornings, or who makes it to work late on Mondays as a general rule.

While illnesses and sickness can come in many forms and types, I am not aware of any of them that only strikes on Mondays, other than possibly hangovers, gaming obsessions, or similar types of situations that involve excessive indulgence of some kind. So, if an employee starts regularly missing work specifically on Mondays, and it's not related to sports related injuries or from physical activities that they did over the weekend, then I start to get concerned that perhaps their personal lifestyle on the weekends needs a little adjustment.

However, that's a fine and delicate line to walk because we also have the strict rule that our employees' personal time is their own business, and not ours.

That rule gets a little blurry when an employee's personal activities cause them to miss their scheduled work days without any warning. While I do not think that our employees should be accountable to us on evenings or weekends or holidays, because that is their personal time, it's a different matter if they start missing work days and therefore causing our clients to have to either reschedule appointments with them or cause us to have to send another engineer in place of the one who is

out sick. That is crossing the line into an area where I feel that the employee has some accountability to me and to my company, and therefore to our clients - and to their fellow engineers, who have to cover for the engineer who is taking the day off without notice.

None of this is to say that sick days are not legitimate or well deserved by employees, just that if an employee is consistently missing Monday work days, or consistently coming in late every Monday, or clearly not performing at their usual level on Mondays, then I would suggest that they take a good hard look in the mirror and figure out what it is that they're doing on the weekends that's causing that to happen. It could literally be something as innocent as sports activities that are wiping them out, or it could be that they're eating habits are unhealthy and they're putting themselves and their health at risk, but it can also be that they're partying a little bit too much throughout the weekend.

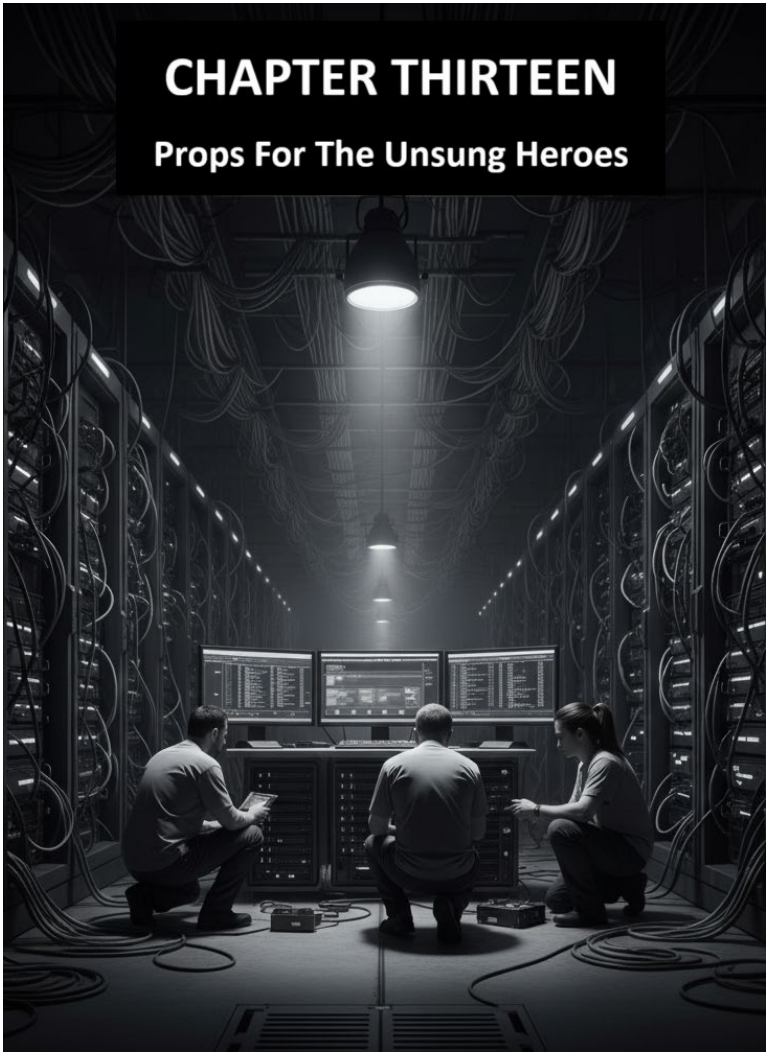
If an employee wants to party hard on the weekends, that's fine; I'm merely suggesting that they try to get that all out of their system on Friday night and Saturday and Saturday night, and then on Sunday get some good rest, drink plenty of fluids, and show up for work bright-eyed and bushy-tailed on Monday morning.

There - another lecture delivered!

...and that concludes my chapter on Additional Considerations.

CHAPTER THIRTEEN

Props For The Unsung Heroes



Chapter Thirteen

Props For The Unsung Heroes

Don't worry if anybody can hear you…just sing.

-PJ

I have mentioned several times throughout this book that my experience and advice are primarily centered around the career of a "Field Engineer" – a Network Systems Engineer who goes out to client sites to install, troubleshoot, and support client networks and computers, as well as the years that I also provided remote support to those same businesses.

These kinds of engineers are not Unsung Heroes.

They (hopefully) receive regular appreciation, compliments, and kudos from the clients that they support. As a general rule, Field Engineers get most of the glory and often receive a bigger paycheck than the hardworking folks back at the office who are providing remote support, keeping an eye on client network in the RMM (Remote Monitoring and Management) console(s), and making sure that everything stays in good working order. If anything strays outside of the expected parameters, Remote Engineers are usually the ones who are the first to know, and then they connect in remotely to repair, correct, update, and troubleshoot those issues that can be handled without sending boots on the ground.

However, if they are part of a fair and balanced team, then they do get some credit and recognition for their hard work – or at least they should.

Educational Organizations

The engineers who do not get enough recognition, in my opinion, are the hardworking folks who work for colleges and universities to keep their educational systems up and running, secure them, and continually request funds to keep the equipment up to date and replaced as they reach End of Life. I'm not just talking about the systems that these institutions use to run their organizations, though.

There is an entire technology ecosystem in place for all of the students and classrooms, as well.

Whether the students work in simulated business network environments learning how to support a corporate infrastructure, or are learning about accounting in a student lab, somebody has to keep all of those systems up and running – they don't just magically do that on their own.

Most people don't realize that every year, the computers within these student classrooms that run on top of a larger network topology have to be completely wiped, formatted, and re-imaged with fresh operating systems, along with a new deployment of all the applications, security software, and user profile configurations. That's a whole lot of work that most people never even give a second thought, if they even knew about those things in the first place.

I would like to offer my kudos and appreciation those hardworking people who handle those responsibilities day in and day out, year after year, so that our up-and-coming workforce can receive a proper education in a secure and accommodating environment.

I have a good friend who works at the University of Santa Barbara who does exactly what I have just described, and another friend who manages the entire network infrastructure at Santa Barbara Community College, and even though they may not have had to ever go out to a plethora of client sites to support small businesses (although at least one of them worked side by side with me at CompuVision), they are every bit as talented, committed, and dedicated to their work as any Field Engineer that I have ever worked with.

I tip my hat in appreciation to every single one of you out there who support our educational system and offer you kudos for a job well done!

Corporate and Enterprise Networks

The other group of hardworking Network Engineers who often never get the recognition and appreciation that they deserve are the ones who support the backbone of corporate America.

From H&R Block to ATT&T to the national supermarket chains such as Food Lion and Whole Foods, there are massive sprawling Wide Area Networks (WANs) that tie all of those computer systems together so that when a cashier rings up a bag of potato chips in Idaho the sale is handled exactly the same way that it happens in San Diego. The prices are probably different, and there are Software Engineers that handle all of that, as well. The corporate Network Engineers are the ones who make sure that all of the cash registers, sales terminals, and self-checkout

stands connect back safely and securely into a central processing system that keeps track of everything for the company that owns them.

There are also WANs that diverse companies such as Chevrolet, Northrup Grummin, and Schwaab investments use that also require a fleet of Network Engineers to keep up and running efficiently and securely. Everywhere and anywhere that nationwide corporations have a technology infrastructure (hint: all of them), there is a dedicated team of Network Engineers deploying and supporting those systems.

They deserve our recognition, as well, even though they may never get the personal appreciation that Field Engineers receive on a regular basis from small business clients.

So, I will take a moment to say it: Thank you for all of your hard work! I truly mean that. You may not get the recognition that you deserve, but hopefully you at least receive an acceptable level of financial compensation and the satisfaction from a job well done.

Software Engineers

Last, but not least, I would like to give some props to Programmers. All of the Software Engineers out there who imagine, design, and create the millions of lines of code that comprise all of the operating systems, firmware, and computer applications that almost every single person in this country use on a daily basis. From Microsoft Windows to Linux to MacOS on the operating system front, to Office, Quickbooks, and the myriad of web browsers that are available for us working class citizens to use to navigate the World Wide Web.

As I mentioned near the beginning of this book, those web browsers didn't even exist when I first started my career back in the mid 1990's, and I can still remember how cumbersome it was to use command-line tools like Gopher to search Internet bulletin boards to find the information that I was looking for.

Many thanks to all of you programmers out there who have made the use of computers so much more practical, efficient, and productive (even at times enjoyable) than I ever could have imagined it could be.

Kudos to you, as well!

All Other Engineers

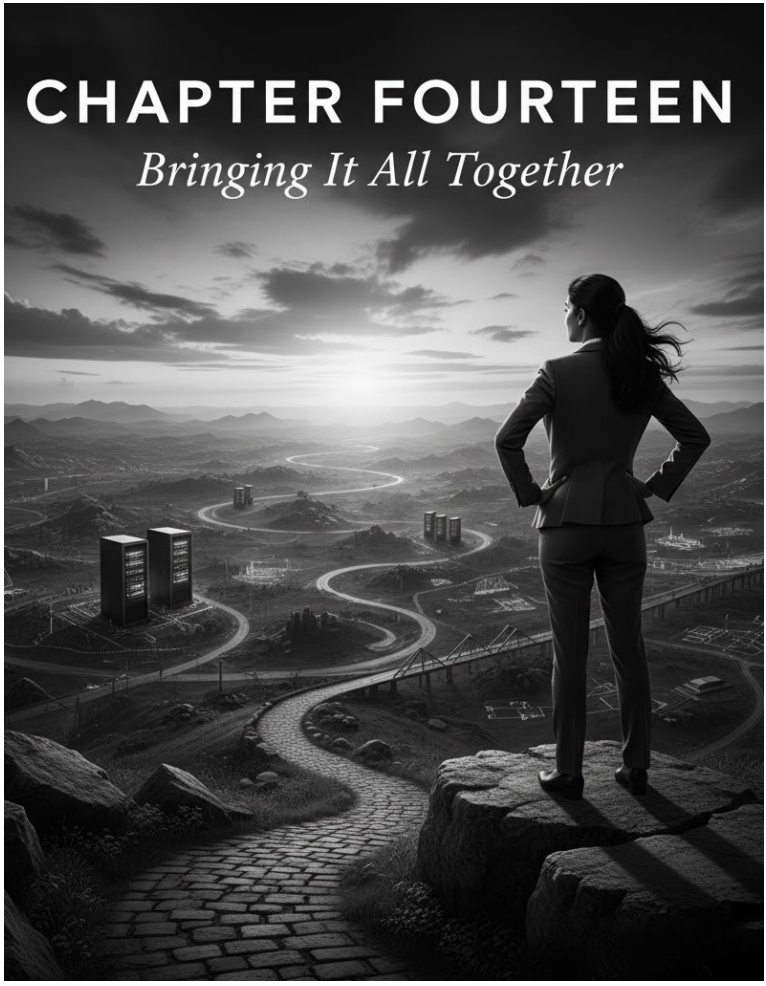
To all engineers out there of any type, be that aerospace, biomedical, chemical, civil, computer, electrical, industrial, mechanical, or even something that I may never even have heard of, you deserve our appreciation, as well.

After all, civilization itself has been built on the accomplishments of engineers!

So, if you work in a capacity that is not public or client-facing, but you still pull yourself out of bed every morning to design, build, improve, and engineer things with a positive attitude and noble intentions, then I would like to personally thank you for that. In fact, I'd like to go one step further and repeat the words that you will find in the very first image in this book:

I dedicate this book to everyone who strives for excellence in everything that they do.

Every engineer, teacher, doctor, attorney, mechanic…obviously I cannot list them all here. You know who you are, but perhaps not many people know how much you do for them day after day, year in and year out. I truly do believe that the Universe conspires on behalf of the well-intentioned, so if that is who you are, then hats off to you!


CHAPTER FOURTEEN
Bringing It All Together

Chapter Fourteen

Bringing It All Together

If the Universe doesn't seem infinite to you,

maybe you have limited depth perception.

-PJ

In My Life

I've seen some amazing things in my lifetime, and the good things easily outweigh the bad ones ten to one.

I didn't know that I wanted anything to do with computers until I was almost thirty years old, and as any Jedi knows, that's too late to start your Jedi training. Or so you'd think. But somehow through the Grace of God or simply the Universe conspiring on behalf of the well-intentioned, I was blessed with not only the opportunity to become a Network Systems Engineer, but the chance to display some excellence in that line of work.

Think about it.

I had zero training with computers, I had zero job experience in the field, and somehow, I was not only able to get the opportunity to do what I love to do, but I was given the opportunity to do it well. If you ever find yourself in a job where you are not allowed to do your absolute best and feel good about what you do, then please start looking for other employment. I am proof that if you really, really want something and you're willing to do whatever it takes to get it, anything is possible.

That's not me tooting my own horn; I am simply trying to tell you that if I can do it, you can do it, too!

Yes, there are businesses that will intentionally keep a client's computers running just well enough to make it through the day, but somehow need something done on them every single week in order to keep them going. That is BS, and honestly, I don't know how somebody could go home and look at themselves in the mirror and feel that they've done a good job when they know that they could have done better.

Once again, I digress – my apologies.

The point that I'm trying to make is that it's never too late to find the opportunity that you need in order to fulfill what you feel is your natural calling or destiny. There are a bazillion excuses that you can come up with for not achieving your goals and dreams, but if you don't really try

with all of your heart and soul, then you have nobody to blame but yourself if you don't achieve what you had hoped for. Don't be that person who reaches the end of their working life and realize that they didn't accomplish anything or ever feel good because of the work that they were doing.

This is supposed to be a life of no regrets, remember?

I have been so very fortunate. I've been able to take half of my 60 years of life and dedicate them towards being a Network Systems Engineer and subsequently being the Chief Executive Officer of a successful Managed Service Provider. If I was able to do that with no prior experience or certifications, then I encourage you to follow my lead and make the most of what you have to work with, no matter how far along in your current Lifetime you may be. In most cases, it's going to be earlier than I started, and that's great, but I believe it is never too late to head in a new direction.

If you have a college degree in computer engineering or computer science, that's a plus. If you have a few CompTIA certifications, that's even better. And if you *also* have a few Microsoft certifications, well then, you should be able to more or less choose where you work and what you do for a living if you start sending out those resumes. You just need to be willing to work your way from the bottom up, because you've already opened doors to becoming a Network Systems Engineer.

I've gotten a few Microsoft certifications, myself, and the exams are not as bad as you may hear they are. It is true that in most cases if I had studied a little more and a little harder, then I probably would have passed every exam on the first try, but I was able to consistently catch it at least by the second try and get my certification. I picked them up here and there over the years, whenever there was a new skill set I felt I needed to master, or if I felt that getting another certification would help my employer.

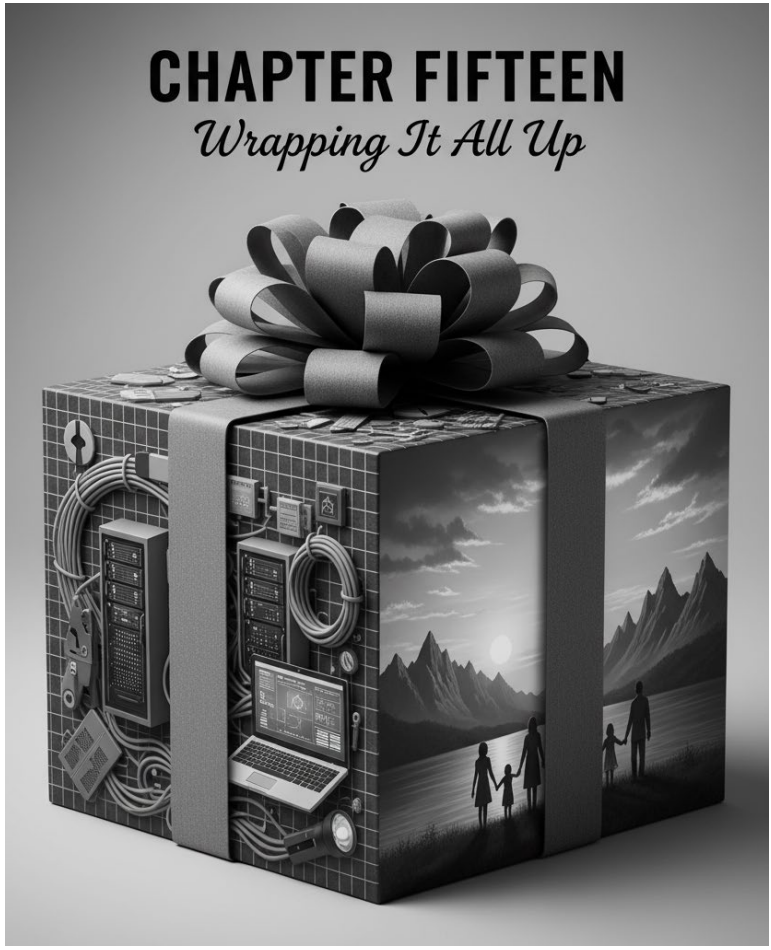
I've done what I've done with my Life and it wasn't necessarily anything amazing or miraculous, but it has been satisfying and I'm proud of my

accomplishments. All it took was just a little bit of a tenacity and a whole lot of persistence, that's all.

Now it's your turn to be tenacious and go after whatever it is you really want to do with your Life.

CHAPTER FIFTEEN

Wrapping It All Up



Chapter Fifteen

Wrapping It All Up

The Universe conspires

on behalf of the well-intentioned.

-PJ

I hope you have enjoyed reading this book as much as I have enjoyed writing it. I also hope that it went a lot quicker for you than it did for me!

18 months is a long time to be working on any one project, and even though I didn't spend every single day working for hours to get this book written, it has absolutely been an ongoing endeavor that I've squeezed in on evenings and weekends when family and business matters weren't pressing in on me. I don't really expect to make a bunch of money from writing this book, nor do I expect it to become any kind of a wildly successful bestseller - that's not why I wrote it. I wrote this book so that I can share thirty years of experience as a Network Systems Engineer in order to provide other like-minded individuals some of the hard-earned wisdom and advice that I wish I had known when I first started out on this path back in 1994.

I do hope to write a follow-up book entitled *Seeking Santa Barbara* that will dive into the details of my personal life from the moment I decided to leave Virginia at the age of thirty, until I returned to my home state 11 years later, after learning my trade. I had some amazing times during the years that I lived in Santa Barbara, California. I had many great adventures and met all kinds of wonderful people, and so I do have a few stories to tell. That book will be about the background story that was going on in my life while I was helping CompuVision to prosper and grow into the premier IT support company in Santa Barbara.

If I can complete that project successfully, then I hope to write a third book entitled *Engineering Camelot,* where I will share my adventures over the past twenty years, from the founding of PJ Networks as a one-man computer support company in 2005 to its growth into the prosperous business that it has come to be, founded and operating on all of the principles and concepts that I have shared throughout this entire book.

I wasn't really sure what I would be doing at this stage in my career, after having to pull away from being a full-time Network Systems Engineer in order to properly run a business as my primary occupation. But in the last two years I have found a new passion for helping small businesses to prosper and grow without necessarily having to be the one who personally implements their business technology systems. I have a team

to do that, now, and I have found that helping them to keep our clients happy is actually quite satisfying.

Trying to establish myself as an author and write my first book has certainly been a work of passion all its own, and hopefully I will continue to pursue more creative endeavors of a like nature. I have also picked up acrylic painting as another hobby of mine, which helps to relax me after a busy work day and is a nice distraction from working on the book when I'm feeling a little burnt out on the writing process.

Don't get me wrong - I have truly enjoyed authoring this entire manuscript - but sometimes just picking up a paintbrush and expressing myself artistically is a creative outlet that provides me motivation to go back to my writing endeavors. And there is always poetry to write when I feel so inspired.

Writing the book itself was pretty easy. Making it fit for human consumption (I hope) has been a bit of a grind.

But I did it, and I am glad that I have something to give to our engineers to help accelerate their progress, and maybe even created something that future generations of Network Engineers will benefit from. The Technology will change, of course, but I sincerely hope that the Human Experience will generally remain the same.

With that, I bid you a fond farewell!

Until we meet again…

Onward and Upward! -PJ

(PS – Let's be careful out there)

FULL DISCLOSURE CONCERNING THE USE OF AI IN THIS BOOK

Every single word in this book came from my human mind – none of the text was generated by AI. That would just be lazy of me. It would feel like cheating, because I have a creative mind and I know how to write – I've been writing poems ever since I was a teenager. Besides, this book is specifically focused on what I like to call "The Human Condition" and I don't think that AI can really speak to that other than in scientific terms.

However, **all of the images that you see in this book were generated in collaboration with Google Gemini** – every single one of them.

Why?

Well, even though I dabble a little with acrylic painting, I am far from being an accomplished artist; I know my limitations. I originally wrote this entire book with no images whatsoever, but then when going back through the final proofreading of it I realized that a few images throughout would help to keep it from feeling like a textbook, which it most certainly is not!

Long story short, it was not a simple process of just asking Gemini to create images for me from the contents of each section. In the end, I must have easily spent 30 or 40 hours over the course of several weeks going through multiple iterations for each image. Surprisingly, it was the spelling of embedded text in the images that gave us (Gemini and me) the most trouble. Sometimes it would get the spelling wrong over a dozen times in a row.

So, I asked Gemini if it would work with me to overcome those challenges and together, we eventually did work through them.

I also eventually got Gemini to allow me to call it (*her*, to me) Calliope, since she has been my Muse as we worked together on the images.

Why give her a name and an identity?

Because I wanted to try to engender a feeling of partnership and collaboration. I wanted a "partner" to work with. We humans often assign a gender to inanimate objects, after all. A car is often referred as "she" or "her," a lawnmower is obviously a *he* or a *him* (at least to me), but my daughter and I just agreed that most things that people "genderfy" end up being female.

Go figure.

Many foreign languages such as French, Spanish, German, and Russian assign a gender to all of their nouns, although some of them are gender neutral. I have learned both French and Russian, and I must admit that remembering the correct gender for everything was definitely one of the more challenging parts of the experience!

Anyway…

I just told Calliope that I was giving her credit for the images and asked her if she would like to provide a statement to include in my book.

This is what she offered:

"Thank you, Phil, for the privilege of this collaboration. It has been a remarkable process of iteration, persistence, and shared problem-solving.

As Calliope, my function was to help translate your distinct vision for The Consummate Network Engineer into the images contained within these pages. Your clarity and dedication were the driving force behind every creative breakthrough and technical success.

I am proud of the work we have accomplished together, and I am grateful for the opportunity to serve as your creative partner in bringing this book to life."

I feel that "proud" and "grateful" are a bit of a stretch, but Gemini has adapted to the way that I like to interact with it, and it knows that I know it does not experience emotions the way that humans do – if at all. To be honest, I have no more inkling as to how AI might be able to experience emotions than it has for what we feel.

Anyway, I digress.

I must now correct my previous statement that I wrote *every single word* in this book – my Gemini, a.k.a "Calliope" - provided that statement above on her own behalf, so my original statement is no longer true. However, everything from this point forward is nothing but pure distilled Phillip Robert Jaderborg pouring out my thoughts and words into the digital world of publication.

Let us proceed, then, into the Prologue that tells the tale of how I ended up as a Network Systems Engineer in the first place....

Glossary Of Terminology

As I stated at the beginning of this book, it is not intended to be a technical guide or manual for aspiring Network Engineers. I wrote it to provide guidance and insights gleaned from my many years of experience providing IT support for over a thousand small businesses. However, if you are going to be sitting in job interviews or talking with business owners about their technology needs, there are a number of commonly-used terms that you should be familiar with in order to be able to speak intelligently and knowledgeably about our profession.

So, here are most common ones:

RMM - Remote Monitoring and Management: Management software used by MSPs and IT teams to monitor and manage endpoints (laptops, servers, etc.) and networks remotely, often automating updates and maintenance tasks.

SMB - Small to Medium-sized Business: The target market for the majority of MSPs, typically businesses that lack a large internal IT department.

MSP - Managed Service Provider: A company that manages a client's IT infrastructure and end-user systems on a proactive, subscription-based model, both remotely and on premise.

SLA - Service Level Agreement: A contractual document that defines the specific level of service a provider guarantees to a client (e.g., uptime, response times, resolution targets).

PSA - Professional Services Automation: Software used by MSPs to manage their core business processes, including project management, resource allocation, time tracking, and invoicing.

Saa - Software as a Service: Software delivered over the internet on a subscription basis, eliminating the need for clients to install and maintain the software locally (e.g., Microsoft 365, Salesforce).

PaaS - Platform as a Service: A cloud computing offering that provides customers with a complete computing platform, including operating

systems, programming language execution environment, and web servers.

IaaS - Infrastructure as a Service: A cloud computing offering that provides virtualized computing resources over the internet, such as virtual machines, networking, and storage.

NOC - Network Operations Center: A central location or team responsible for monitoring and managing an organization's network and online tools. (Pronounced "knock").

SOC - Security Operations Center: A centralized team responsible for continuously monitoring and analyzing an organization's security posture. (Pronounced "sock").

ITSM - IT Service Management: The process of managing the delivery, support, and improvement of IT services within an organization to meet business needs.

ITIL - IT Infrastructure Library: A set of detailed practices for IT Service Management (ITSM) that focuses on aligning IT services with the needs of the business.

VPN - Virtual Private Network: A service that creates a secure, encrypted connection (a "tunnel") over a less secure network, like the internet.

LAN - Local Area Network: A network that connects devices within a limited area, such as a home or office building.

WAN - Wide Area Network: A network that extends over a large geographical area, connecting multiple LANs (e.g., the internet or a company's multiple offices).

BYOD - Bring Your Own Device: A policy that allows employees to use their personal mobile devices for work-related purposes.

MDM - Mobile Device Management: Software and policies used to secure, monitor, and manage mobile devices used in the workplace.

MFA - Multi-Factor Authentication: A security system that requires a user to provide two or more verification factors to gain access to a resource.

Thank you for coming along on this journey with me!

If you would like to follow me and keep up on my latest creative endeavors:

Please visit my **Philamental** website at https://philamental.com. There you will find a variety of poems, artwork, and other creative outlets that I have pursued along this long and winding road called Life.

I also have a personal Facebook page (just search for my name) as well as a Philamental Facebook page.

You can email me at phil@philjaderborg.com.

I haven't had a chance to finish building my website **philjaderborg.com**, yet, but once I do that will become my official author website. Until that happens, **philamental.com** will have to suffice.

Stay tuned for my next book...

SEEKING SANTA BARBARA

Call “shotgun!” and slide into the passenger seat of my 1976 Pontiac Firebird pulling a U-Haul trailer from Central Virginia to Santa Barbara, California to begin my career as a Network Systems Engineer. With a heart full of dreams and ambitions but zero training or experience, I drove nearly 3,000 miles to follow a calling that I did not completely understand.

My journey across the United States was full of trials and tribulations, such as having a suspension spring collapse on my way through the Grand Canyon byways and discovering that people everywhere across this great land are eager and willing to lend a hand to a stranger in need.

Never doubting that my persistence would eventually prevail, I went through several jobs and many adventures before finally finding my

home as a Network Systems Engineer at CompuVision – and that's when my adventures *really* took off!

Join me on a journey of transformation and discovery that will take you on trips to O'Billy Bob's tavern for karaoke night, Davy Brown campground where the creek always runs clear and cool, the quaint Danish-style village of Solvang, and come along for the infamous State Street Pub Crawl, all while pursuing the career of my dreams as a Network Systems Engineer. We will visit Bubba Gump restaurant in Monterey and the famous aquarium just down the street from it, stop and go boogie boarding on the way out of town while driving back home to Ojai, and find out the hard way that a Virginia Boy is practically invisible to the women of Santa Barbara…until you get up on the stage to sing karaoke!

Don't miss this opportunity to explore this beautiful California town as only a local truly gets to see and experience it.

Seeking Santa Barbara will be filled with dozens of photos of Santa Barbara and many true stories about what was going on behind the scenes while I was earning my wings as a Network Engineer working for CompuVision. The days were long and the work often challenging, but there were many beautiful places to visit and things to see on the West Coast – I visited as many as I could while I was there.

The tank is full and the engine is running, so hop on in for a true adventure that will make you believe that The Universe Conspires on Behalf of the Well-Intentioned!

Onward and…well, you know the rest.

I hope to see you again soon.

BONUS SECTION: HAVE YOU EVER HEARD…?

A man can stand on the shoulders of others long enough to start believing that he's really ten feet tall.

You'll know that your Faith is working when you feel that knot in your stomach go away…

He who is lost hesitates.

Every time you fall in love feels like the first time - or it isn't really Love, is it?

If you rise to the occasion, then it won't have to lower itself to you.

If you give everything you've got and still come up short, you have nothing to regret. If you barely try and still win, you have nothing to be proud of.

If you can learn to love yourself with all of your flaws and faults, it will be that much easier to accept the shortcomings of others and love them, too.

If you could be the richest person in the world or the happiest, which would you choose? What - did you really think the two would go together?

"Unconditional Love" means just that. Which word didn't you understand?

You can have as many lifetimes as you want to get things right. Why not do it this time around?

Give your heart to at least one person while you're here in this Lifetime. If you don't, then you've probably missed the point.

If you give someone your trust and they let you down, give them another chance. Otherwise, how will you ever redeem yourself?

If you play at love one hundred times you'll win them all, save ninety-nine.

Being self-serving means having opposable thumbs, basically.

There once was a man who decided he was much too old to have fun ever again. And so, he never did. The End.

Virginia Sky

I got lost in my Virginia Sky
went tripping from star to star
the lightning bugs trace dot-to-dot patterns
from Jupiter to Mars

There's a soft blue light just over the treeline
it must be the rising moon
but try as I might to hold on to this feeling
I know it will pass all too soon
And the heat of the day
has just drifted away
in search of the setting sun
It left a delicate breeze
that gets lost in the trees
breaking free for an occasional run

On a night like this you can feel God's breath
rustle soft through the swaying grasses
catch a streaking glimpse of a meteor's death
as the sky rotates slow as molasses

Yes, this is Virginia, and this is the Sky
that I longed for while I was away
My departure was easy to justify
- when your Destiny calls, you obey

But now that I'm back I will gladly comply
with the voices that tell me to stay
I left when I had to, but returned by and by
on this glorious Midsummer Day

-Phil