

THE  
**ULTIMATE  
GUIDE**  
TO  
**UNIFIED COMMUNICATIONS**

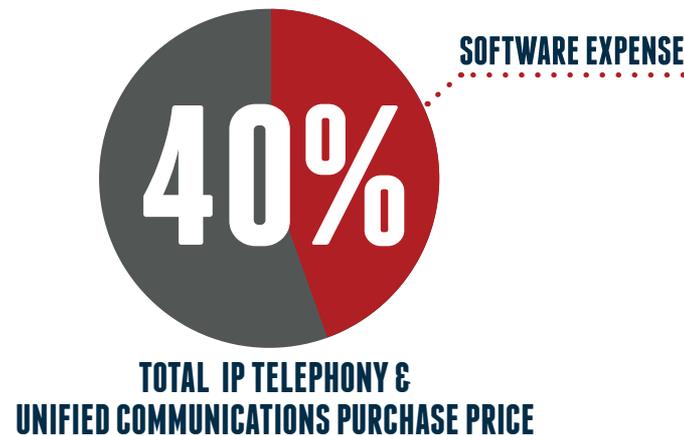
HOW TO CHOOSE THE RIGHT  
UNIFIED COMMUNICATIONS  
SOLUTION FOR YOUR ORGANIZATION

# THE ULTIMATE GUIDE TO UNIFIED COMMUNICATIONS

## HOW TO CHOOSE THE RIGHT UNIFIED COMMUNICATIONS SOLUTION FOR YOUR ORGANIZATION.

Whether you are thinking about deploying a cloud, premises or hybrid approach to communications, there are a number of factors you should consider. There are pros and cons of each approach, so we will start by evaluating the line items that make up the bulk of the expense. In a world driven by software and communications technology, it's no surprise that the **SOFTWARE EXPENSE** in IP

Telephony and Unified Communications is **GREATER THAN 40%** of the solution's total purchase price. Following software, in terms of the percentage of budget they consume, is telephones, and servers and gateways make up the smallest components of the IPT and UC budgets. While hardware is still an essential component, over time it is becoming increasingly commoditized.

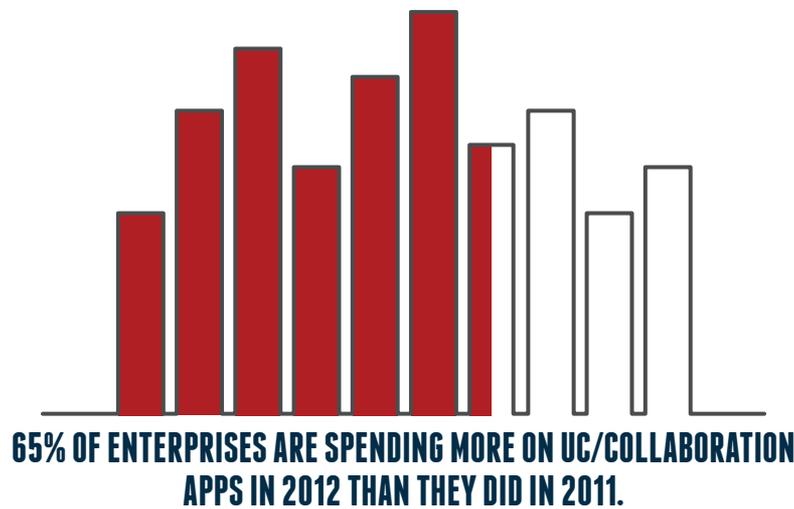


According to Info Track Research, “65% of enterprises are spending more on UC/Collaboration apps in 2012 than they did in 2011. In 6% of the enterprises, 2012 spending is more than 10% higher; for 31% it is 5% to 10% higher and 28% say it is 1% to 5% higher. In 24% spending was unchanged, only 11% were spending less on UC in 2012 than in 2011” [www.InfoTrackResearch.com](http://www.InfoTrackResearch.com).

It is essential to select the right IPT and UC software solution, since this not only delivers financial value, but allows more flexibility than traditional hardware solutions. Whichever software solution you choose will play a major role in driving your ROI and lowering your TCO. Software is packaged with a range of features and functions that can be implemented as needed for the user, thereby eliminating cost increasing features and functions that are not beneficial.

Retaining and expanding your software investment according to organizational growth is much easier and less costly than replacing a traditional hardware solution. Leveraging an existing software solution to take advantage of new features or to resolve compatibility issues is far easier than attempting to accomplish changes with a new hardware solution.

Computers are now smaller in size, yet faster, with enhanced processing power and increased energy efficiency. With the right software, these computers, tablets and smartphones enable mobile workers to access information anywhere, anytime. To remain competitive, organizations need to consider today’s best practices in leveraging their software-based investments.





# REALIZING THE IMPORTANCE OF SOFTWARE ARCHITECTURE





## REALIZING THE IMPORTANCE OF SOFTWARE ARCHITECTURE

PC's, laptops, tablets, and smartphones have become invaluable devices that not only enable access to corporate directories and email, but to specialized applications that facilitate communications in health care, financial services organizations, educational institutions, government operations and nearly every aspect of our lives.

By deploying the right communications software architecture you can:

- **ENABLE** business agility by easily growing to accommodate acquisitions, mergers and changing business environments
- **PROVIDE** common software services with multiple use cases

- **LEVERAGE** the commodity infrastructure that exists at an enterprise
- **SUPPORT** the growing population of mobile workers and the Bring Your Own Device (BYOD) trend
- **DELIVER** tailored solutions
- **OFFER** multimedia conferencing and collaboration capabilities

Architecture refers to how a system is designed, and how the components interconnect and interoperate. Software has changed the way vendors develop and maintain systems.



## PRODUCT DEVELOPMENT

Hardware requires electrical engineers that fix features and functions on a circuit board. Software engineers use chipsets that are designed to perform specific functions such as VoIP, video, interface cards for LANs and WANs and more. The software engineer/programmer can create devices that, although they use the same hardware as a competitor, deliver features and functions that are unique to their product.

## RELIABILITY/FAILURE

Hardware, after burn-in, can be made quite reliable. But hardware components have a tendency to randomly fail as they age. Software, once written and tested, has a tendency to fail, but this is typically due to software bugs or changing dependencies rather than age. These software bugs and dependencies can many times be corrected with new versions of the software that are easily downloaded and installed. Many companies offer software assurance programs, which provide the updated versions as part of an overall service package at a consistent and predictable cost. In contrast to hardware solutions, as software is used by more organizations and individuals, and continuously debugged, software becomes more reliable.

## FUNCTIONALITY

Creating functionality in hardware requires circuit design, and a total change in functionality requires an additional hardware redesign,

with both efforts possibly requiring a complete system replacement. Software can be enhanced and updated without changing the hardware it runs on. Vendors can keep adding functionality to an existing platform without resorting to hardware upgrades and replacement unless the existing hardware simply does not have the capacity to perform the added functions. Faster processors and more memory may be required and usually can be added at a relatively low cost. With virtualization, in some cases hardware changes can be avoided or made completely transparent.

## VERSATILITY

A software vendor can offer a wider range of features, functions, and capacity within a particular software platform. Individual components can be utilized only as needed, and licensing schemes that allow for least cost implementations are common. The software can even be configured to satisfy each enterprise uniquely.

## SCALABILITY

Once the software is written, the vendor can deliver a wide range of capacities to the customer. The same software can support 50, 500, or even 5000 endpoints. The primary difference in these implementations is the server processor speed and memory size.





# EXPLORE A SOFTWARE BASED APPROACH WITH UNIFIED COMMUNICATIONS





## EXPLORE A SOFTWARE BASED APPROACH WITH UNIFIED COMMUNICATIONS

Unified Communications is all about multi-media communications and collaboration. UC improves productivity, decreases costs, and can make your organization more competitive.

A successful and attractive Unified Communications system can provide:

- A rich, consistent **USER EXPERIENCE** that streamlines business collaboration
- **ADAPTIVE CLIENTS** that operate consistently across mobile phones, tablets, and PCs, with a homogenous “look and feel”
- **SUPPORT** for enterprise initiatives involving BYOD needs
- A **NATURAL FIT** into virtual IT infrastructures (data centers and network)
- **OPEN SERVICES AND STANDARDS**, providing an ability to meet unique business requirements
- A service-oriented **DISTRIBUTED SOFTWARE DESIGN** that delivers agility and scalability
- A **SINGLE BUSINESS APPLICATION** that is easy to install, manage, upgrade, and support
- A **SOFTWARE-BASED LICENSING MODEL**, which grants high value features and capabilities that enable agility, reduce complexity and lessen costs
- **VERTICAL APPLICATION OPTIONS** to address the needs of specific enterprise markets



Unified Communications (UC) is the convergence of six communication product areas. Some of the six areas have existed for years and others are recent entries. UC is really part of an evolution of IT and telecom into one common set of features and functions, not a revolutionary, just emerging concept. The six product areas are:

As they matured, these functions came to be implemented almost solely in software. UC today is a combination of these functions and is a software-driven solution.

# UNIFIED COMMUNICATIONS

THE EVOLUTION OF THE LEGACY PBX INTO THE IP TELEPHONY SYSTEM

THE DEVELOPMENT OF THE SOFTPHONE

INTEGRATED VOICE MAIL, FAX, AND E-MAIL

CHANGING THE E-MAIL FUNCTION TO A DESKTOP MANAGEMENT TOOL

MULTIPLE FORMS OF CONFERENCING SUCH AS WEB, AUDIO & VIDEO

INSTANT MESSAGING SERVICES AND PRESENCE CAPABILITIES





# SERVICES IN THE COMMUNICATIONS ARCHITECTURE





## SERVERS IN THE COMMUNICATIONS ARCHITECTURE

Communications and collaboration vendors have migrated from proprietary, hardware specific solutions to utilizing generic servers. This reduces the hardware cost, supports a wide range of scalability, and allows the vendor to focus on enhancing features and functionality through the implementation of software rather than the design of hardware.

The communications server, sometimes called the communications manager, surfaced with the advent of the IP-PBX. Communications servers are general purpose in operation and offer:

- Carrier-grade systems that can be upgraded in a non-disruptive manner

- Flexibility that is scalable and designed to support added functionality. The server can be easily repurposed to support non-communications applications without any hardware changes
- Openness because the servers are based on industry standards so different applications can be implemented on the server as needed

Proprietary hardware is becoming a thing of the past. Enterprises today are looking for flexibility and do not want to be tied to a single hardware solution vendor.





# DATA CENTER CONSOLIDATION AND VIRTUALIZATION





## DATA CENTER CONSOLIDATION AND VIRTUALIZATION

In any organization, the data center can almost always be improved and optimized. Because IT budgets have been relatively flat for the past few years, IT departments are facing technical as well as financial constraints. There is a continuous effort by IT to consolidate systems, thus reducing the costs of both the purchase and operation of data center functions.

Virtualization is one answer to this effort. Virtualization is the use of software that allows a piece of hardware, usually a data center server, to run multiple operating system images simultaneously instead of a server dedicated to each function and operating system. You can virtualize servers, desktops, and operating systems. Studies have discovered that single application servers are commonly underutilized, as little as 5% busy.

Virtualization allows data center operators to increase the processing utilization and efficiency of a server. One server can operate in the same manner as multiple servers, thereby reducing purchase and operating costs.

Virtualization is beneficial to premise-based, cloud and hybrid solutions for communications and collaboration services. It is the wave of the data center future. Virtualization offers:

- **CONSOLIDATION** of servers and applications
- **REDUCED** IT systems **COSTS**
- Increased uptime and failover for **HIGH AVAILABILITY**
- **LIMITED IT COMPLEXITY**
- **REDUCED** power and cooling **CONSUMPTION**
- **LOWER RISK** solutions





# ADOPTING STANDARDS; BENEFITS AND LIMITATIONS





## ADOPTING STANDARDS: BENEFITS AND LIMITATIONS

A standard in IT is an agreed upon document that defines the performance, operation, interfaces, interoperability and measurement of a device, software, hardware, protocol, or language. The opposite of a standard is a proprietary implementation that requires the enterprise to procure all of the components from a single vendor to ensure they will operate properly.

Standards are usually beneficial to adopt. Adopting a draft standard however can be problematic. Remember that a standard does not define the *implementation* of the technology, therefore there can be significant problems of design and financial issues that were not anticipated.

For example, the standard can include so many options that vendors could each adopt a different subset of those options, making all the products unique and not interoperable. This happened with IEEE 802.11 wireless LAN standards. Eventually vendors worked together and produced the common Wi-Fi implementation we use today. This also happened with SIP trunking, where each vendor chose different approach. The SIP trunking providers had to customize their operation to each vendor. This was solved by the SIPConnect SIP trunking solution that is now common for these implementations.



**THE VALUES TO THE ENTERPRISE OF ADOPTING STANDARDIZED ELEMENTS FOR THEIR COMMUNICATIONS AND COLLABORATION IMPLEMENTATION**





# DISASTER RECOVERY/ BUSINESS CONTINUITY FOR COMMUNICATIONS SURVIVAL





## DISASTER RECOVERY/BUSINESS CONTINUITY FOR COMMUNICATIONS SURVIVAL

When communications systems were implemented using proprietary hardware, the cost of backup/failover systems could nearly double the bill. As a PBX backup, the second failover system needed to be co-located on the same site as the primary system. The move to IP-PBX solutions allows the backup/failover site to be remotely located, adding further protection against major primary system failures.

When the IP-PBX vendors began adopting standards-based servers, backup became even easier and cheaper. A common server can backup communications and collaboration implementations, even while being shared with other applications. Virtualization technologies can make failover to a backup system nearly instantaneous and completely transparent to the end user.

**DID YOU KNOW?**

**VIRTUALIZATION TECHNOLOGIES  
CAN MAKE FAILOVER TO A BACKUP  
SYSTEM NEARLY INSTANTANEOUS  
AND COMPLETELY TRANSPARENT  
TO THE END USER**





# YOUR BUSINESS MODEL DEFINES YOUR COMMUNICATIONS MODEL





## YOUR BUSINESS MODEL DEFINES YOUR COMMUNICATIONS MODEL

The organization's business model will have profound influence on the implementation of UC. The following factors are involved.

- Does the organization have the financial strength to use capital (CAPEX) funds or the ability to borrow the capital?
- If the capital is not available, does the enterprise favor expensing the costs of IT implementation through outside services?
- Does the IT staff have the training, knowledge, and experience to implement an on-premises system? If not, does the enterprise want to retain a VAR to implement and manage the on-premises system?
- Are the IT and telecommunications departments separate or combined?
- If the premises-based solution does not have local vendor support, a services solution may be more attractive.
- Does the enterprise consider the move to UC a higher risk when implemented by the internal IT department, or externally?
- How are the enterprise's competitors implementing UC?





# THE UC IMPLEMENTATION DECISION





## THE UC IMPLEMENTATION DECISION

The advent of Unified Communications (UC) resurrects the question, “Should the enterprise install and manage its own system or use a completely outside cloud-based UC service?” The answer depends, not only on security, staffing and economics, but also what is the best method to introduce the UC menu of features to enterprise users.

The selected implementation approach will be influenced by the financial situation of the enterprise, staff knowledge, experience and availability, data center facilities, and the enterprise’s historical implementation of IT functions and services.

There are three possible solutions available to the enterprise for implementing and supporting Unified Communications (UC):



**THE ENTERPRISE CAN PURCHASE  
A COMPLETE SYSTEM AND LOCATE IT  
AT THEIR DATA CENTER(S)**



**THE ENTERPRISE COULD USE A SERVICE  
THAT IS REMOTE WITH ACCESS THROUGH A  
PRIVATE NETWORK (MPLS) OR THE INTERNET**



**THE ENTERPRISE CAN COMBINE THESE  
SOLUTIONS INTO A HYBRID IMPLEMENTATION,  
GAINING THE ADVANTAGES OF BOTH**





# THE ON PREMISES SOLUTION





## THE ON PREMISES SOLUTION

Implementing an on-premises solution provides high levels of security and control, and lowers the implementation and operational risks. In addition, an on-premises solution may have tax advantages. The risks with a cloud provider include service availability/reliability, since the cloud provider cannot include Internet access in their Service Level Agreement (SLA).

The financial stability of cloud startups can be questionable because many are operating on venture capital, not profits. Some of the startup communications providers are in reality using another vendor's software to implement the services. This means that the provider is not the developer and the experience level of the staff may be minimal with the software.

Further, the provider has to wait for improvements and fixes from the original software vendor, which may result in a much slower turnaround for software changes.

The primary cost component of buying a UC system is the software licenses. Once the first year of ownership has passed, the primary costs to an enterprise are software subscription, maintenance, and data center facilities. These latter costs add up to far less than subscribing to cloud services over time.





# SUBSCRIBING TO CLOUD COMMUNICATIONS SERVICES





## SUBSCRIBING TO CLOUD COMMUNICATIONS SERVICES

IT and communications budget restraints can make the up-front costs of implementing on-premises UC solutions from scratch prohibitive. Many enterprises may also prefer to avoid any new capital costs, making a cloud solution that is expensed with little or no capital impact more desirable. The cost is fixed per month based on the number of users and their features used, so is a predictable and more easily budgeted operating expense.

Cloud based UC services can also be subscribed to by feature set, such as providing video collaboration for a single department, allowing greater flexibility for the enterprise when determining what UC features should be offered to what users.

Many enterprises implement a few UC features to begin with, and observe their use to determine what feature benefits and ROI will be for other areas within the enterprise.

The cloud service approach requires less IT staff but increased performance evaluations and management, as well as billing of the cloud service provider. Subscribing to a cloud service can be considered more of a management function than a technical function.





# THE HYBRID APPROACH; CLOUD PLUS PREMISES SYSTEM

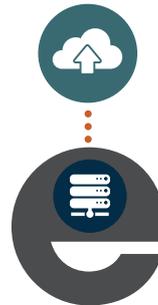




## THE HYBRID APPROACH: CLOUD PLUS PREMISES SYSTEM

A hybrid solution allows the enterprise to integrate functions that are required for the entire organization, while using the cloud to offer specific functions unique to individuals or departments. This occurs without the expense of procuring functions for departments that do not need them. If cloud costs begin to exceed the cost of on-site implementations, the enterprise can convert functions from the cloud

to premises-based. The hybrid approach can also deliver business continuity failover services at a much lower cost. The enterprise does not have to have on-premises and co-located backup systems; the cloud does it.





# CHECKLIST FOR EVALUATING THE BEST APPROACH FOR YOUR BUSINESS





## CHECKLIST FOR EVALUATING THE BEST APPROACH FOR YOUR BUSINESS

The on-premises solution offers potentially better security and does not require an Internet connection. The cloud service solution can be cheaper and require less staff time, but will require consistent Internet access and have greater security issues. Both solutions are equal when considering the cost of phones and on-site LAN operation.

Important considerations are the financial, technical, facility, and staff support issues, all of which can direct the implementation decision down a particular path. The checklist below can be used to stimulate the thought processes of the decision makers.

Any recommendations included are just that; recommendations and not hard and fast rules. The impact of the decision factors and how to weight their values is up to the enterprise and the enterprise's unique values, environment, and needs. Use this list as a method to consider the elements that will lead to a final decision between on-premises, cloud service, or hybrid communications and collaborations solutions.



DECISION FACTOR	PREMISES SYSTEM	CLOUD SERVICE	HYBRID SOLUTION
<b>FINANCIAL SITUATION</b>			
Have capital to spend	•	•	•
Limited capital to spend		•	•
No capital to spend		•	
<b>DATA CENTER (DC) READY</b>			
DC has room, power and cooling capacity	•		•
DC has limited capacity		•	•
No DC exists		•	
Security	•		
Regulatory Compliance	•		
<b>IT STAFF</b>			
Large staff available	•	•	•
Small staff available		•	•
Little or no IT staff		•	
High knowledge and training	•	•	•
Low or no knowledge and training		•	
<b>PBX</b>			
No PBX on site		•	
Old PBX on site		•	
IP PBX on site	•	•	•
<b>UC VAR/VENDOR RELATIONSHIP</b>			
Good relationship	•		
No relationship exists		•	
Existing Data Network on Premises	•	•	•



## MOVING AHEAD WITH SOFTWARE BASED UNIFIED COMMUNICATIONS

Unified Communications is the key to staying competitive and agile in a global economy, no matter what size the business. UC is centered on multi-media communications, and collaboration with an objective of improving productivity and decreasing costs.

There is no right or wrong approach to implementing UC for any particular organization size. The enterprise can implement all of the UC capabilities via premises based or cloud based systems. Alternately, the enterprise can balance UC capabilities using a

combination of premises and cloud based implementation; this method is known as a hybrid approach.

Software based communications systems are happening now, so in order to remain competitive, businesses need to embrace software-based communications sooner than later.



## ABOUT THE AUTHOR:



Gary Audin has more than 40 years of computer, communications and security consulting and implementation experience. He has planned, designed, specified, implemented and operated data, LAN, WAN, and telephone networks. These have included local area, national and international networks as well as VoIP and IP convergent networks in the U.S., Canada, Europe, Australia, Caribbean and Asia.

