Microsoft

Getting the Most Out of Core-Based
Windows Server Licensing

Microsoft

Contents

Microsoft

Getting the Most Out of Core-Based
Windows Server Licensing

WRITTEN BY LANE SHELTON

Connection and others have written extensively on the technical aspects and business benefits of Windows 2016, but the question I get asked the most is: "How much is this new core-based licensing going to cost me?" It's a good question, and one that I'm going to answer in the following pages.

Depending on what kind of licensing agreement you have, and when you signed it, you may be operating under processor based licensing for a year or more, but ultimately everyone comes to the point where they have to cut over to the new model. For some it will be gradual as hosts and servers are upgraded, while for Enterprise Agreement (EA) customers the change may come all at once at renewal time.

If you get to the point where you have to convert a big chunk of your licenses with Software Assurance to the new model, the steps below are what we use to make the

transition as smooth and cost-efficient as possible. Also, as a practical help one of our team members created an amazing conversion calculator that lets you document a single server or entire environment. Just contact an Account Manager at Connection for a copy.

Step Zero: Ground Rules

There's a couple of rules to keep in mind when you are preparing to do a conversion:

■ **Standard Conversion Ratio for SA:** The conversion ratio is 8 cores for every processor, but remember that Windows Server processor-based licenses actually come with 2 processors each, so really every license that you convert will give you 16 cores. That's a pretty big chunk of cores for every license, and in terms of what it's going to cost, 16 cores is the price equivalent of 2 processors. That's the standard ratio.

■ **Core Grants:** If you have Software Assurance on processor licenses assigned to a server that has more than 16 cores (if 2-processor, 32 cores if 4-processor), you're going to come up short. For example, if I have a server with 2 processor, 10 cores/processor I have 20 total cores, but my 2-processor license only gets me to 16 cores by the standard conversion—or four short. This is where "Core Grants" come in—as long as you can provide supporting documentation, Microsoft will give you those extra cores free when you renew Software Assurance (SA). Bear in mind that you'll be renewing SA at the higher number (in this case 20 cores), and that's where you'll see a cost impact.

■ **Documentation Required:** To get your Core Grants, Microsoft stipulates that you must provide documentation. More on this later just be prepared to report your findings to Microsoft to claim your grants.

Microsoft

■ **Count Physical Cores:** A lot of inventory tools spit out reports that are like stereo instructions. I've seen it happen multiple times where logical cores get confused with physical cores. Remember that with Windows Server 2016 you are always licensing physical cores. If it's a standalone server that's intuitive, but if you're licensing a VM Host the numbers can get confusing. Just remember that whether you go Datacenter or Standard edition for a virtual environment, you're always assigning licenses to the underlying physical host, so only physical cores count. Unless I need it for something else, I usually hide the column with logical cores in an inventory report just to make double-sure I don't count the wrong thing.

■ **Licenses are 2-core packs:** This means you'll be dividing by two a lot. In the above example. If you need 20 cores for a server or host, then you really need 10 2-core packs!

■ **Minimum of 16 cores (8 2-core packs):** There is always a minimum of 16 cores/8 2-core packs per server

■ **Applying Windows Standard to a VM Host is tricky:** In the processor based model, every 2-processor license I assigned to a VM Host got me 2 VMs on that host. So if I had a host with 6 VMs on it, I'd assign three 2-processor licenses to get 6 VMs. In the core model, I have to license all physical cores on the host for every two VMs. This is way more complicated than the processor model, and remember that if you go Datacenter edition you just license all the host cores and you get unlimited VMs—so my advice is that unless you have a really light VM host that has a few static guests on it, go Datacenter on your hosts so you get the unlimited VM benefit.

Step 1: Count and Document

First, you're going to need an inventory tool. Microsoft's MAP Toolkit is free

and does a great job. It will identify all your hosts and servers and give you all the inputs you need to evaluate the environment and make your calculations. However, the one area where it can be challenging is if you are going to want to run some scenarios to determine whether Standard or Datacenter is the best fit for VM hosts. We use a tool for that by Inviso that combines MAP with other data sources like VMware vCenter, Active Directory, etc. and combines that data into one glorious spreadsheet that lays everything out nice and neat. However you get there, the output needs to identify standalone servers and VM hosts, gives you at least a decent picture of what VMs go with what hosts, and whether or not those VMs move around between hosts, and tell you both the processor and physical core counts on the machines.

Step 2: Spot the Core Density

Anything with less than the minimum core density is easy—it's going to convert to 16 cores or eight 2-core packs. 2 x 4? 16 cores. 1 x 4? 16 cores. 2 x 6? 16 cores. What you're after is anything that goes higher than the standard conversion ratio: 2 x 10, 2 x 12, etc. These are the hosts and servers that will require core grants.

Step 3: Apply Licenses for Maximum Effect (and don't forget the CALs)

Many customers have a mix of licenses with SA and older perpetual licenses. So let's say you have two servers: a 2 x 10 2008 R2 and a 2 x 6 2012. You have one dual-processor license that currently has SA, and one older perpetual 2012 license. Since you can't get a grant on the license without SA, you'd want to assign that 2012 license to your 2 x 6, because assigning your license with SA to the 2008 R2 box means you'll be eligible for the core grant you'll need because it has 20 cores. If you'd assigned it to the 2 x 6 then you'd just get the standard 16.

Step 4: Execute

When renewal time comes, Microsoft will most likely require documentation of your environment so there's a record behind the grants. Many tools provide an output report that will get the job done, but remember that this will be the last step in the process.

Get Started Now

Hopefully this gives you an idea of the process. If not, we're always happy to help. If you have an EA, or processor-based SA on a lot of servers, we recommend doing this exercise as soon as possible—even if the conversion is months or years off. Doing it now will allow you to determine if/how much cost impact this change will have. If you have big upgrade plans between now and whenever your conversion moment occurs, this kind of modeling can provide you with important budgetary data that may have an impact on your project, so it's good to get ahead of the curve!

Need Help? Let Us Know

Any adoption of new technology has its woes. Connection's Microsoft Practice can assist you through the full lifecycle of your next move. We are here as your partner in licensing decisions, compliance risk mitigation, migration, and on-going management of your licensing agreements. Please do not hesitate to reach out to an Account Manager to ask about our Microsoft Licensing Optimization method of ensuring that any change in your investment with Microsoft passes our test.

Drop us a line to learn more about this.

Microsoft

What's New in Windows Server 2016
Advances You Can't Get Anywhere Else

WRITTEN BY MELISSA CURTIS

With Windows Server 2012, there wasn't much that distinguished Windows Server Standard and Windows Server Datacenter beyond the licensing details. Microsoft really decided to shake things up and introduce new features that would change that with their release of Windows Server 2016.

While nothing was removed from Windows Server Standard, new features were added and some of those new features are now exclusive to Windows Server Datacenter.

New Features to Standard and Datacenter:

- Windows Containers

- Nano Server (minimal install)

New Features specific to Datacenter:

- Storage Spaces Direct

- Storage Replica

- Shielded VMs

- Host Guardian Service

An additional Software Assurance benefit has also been added. Prior to February 2016, there was no way to leverage a Windows Server license covered with Software Assurance toward an Azure scenario. Now, Software Assurance on Windows Server Standard or Datacenter will provide preferential pricing on either two virtual machines in Azure of eight cores or less or one virtual machine in Azure of 16 cores or less. This could save thousands of dollars per year for those who are continually running higher tiered virtual machines in Azure. The virtual machine(s) covered by this benefit must be designated using PowerShell when uploading their Windows Server images

up to Azure. At this point, it's worth renewing any Software Assurance that you may have on Windows Server even if you're not going to use it, solely to get a discount on virtual machines in Azure.

Going back to the physical additions in functionality, new to both editions are Windows Containers and Nano (minimal install). Containers allow the user to sandbox applications for testing and more without affecting the OS or system at large. It's like a quarantine for software. As of now, there are two different container types: Windows Server Container and a Hyper-V Container. The latter of the two will run in a highly optimized virtual machine. Containers will consist of several layers. For example, once a container has been started, all write actions (file system modifications, software installations) will be captured in a sandbox layer. Containers will make applications completely portable and allow them to run anywhere. Think of what this could do from a developer's standpoint!

Nano Servers are an operating system of types that hosts cloud-based applications and allow you to install only the components of the server that you require without anything else. They deliver agility and speed with lower resource consumption. It is important to note that Software Assurance is required to deploy and operate Nano Server in a production environment.

Windows Server Datacenter 2016 has some additional awesome new features. Storage Replica brings a new level of preparation for disaster recovery. For the first time, they offer you the peace of mind of zero loss of data. If for some reason, a disaster occurs, this feature will make it so that all data will exist elsewhere

without any possibility of loss. If you know something is going to happen, you have the ability to switch workloads to a safer location prior to the occurrence also without losing any data.

The most intriguing feature to me is Shielded VMs and the role that they play with Host Guardian Service. Now, this may be a scary thought, but imagine one of your administrator accounts is compromised. The person on the other end of that username and password may not have the best intentions and somehow manages to get control of your domain controller. What do you do, or better yet, what if you're not aware of the situation yet? An administrator can by nature do anything that they want. If you have shielded virtual machines, you can protect those virtual machines from compromised administrators and protect your VMs so that they can only run on the infrastructure that you specify it to run on. Host Guardian Service will then check to see if the host that the virtual machine gets put on is authorized to run it.

If you're considering upgrading to a new version of Windows Server, the 2016 release is the only release that will give you these extremely useful features. We are here to help answer any questions you might have along the way.

Drop us a line to learn more about this.

Microsoft

Getting Down to the Cores of
Windows Server 2016

WRITTEN BY BRENDAN RANDALL

Windows Server 2016 has been the most anticipated Microsoft release this year. However, rather than focusing on the latest and greatest features being added to the new version of the operating system, a lot of anticipation has been around the major licensing model changes. With Microsoft announcing early in the year that Windows Server 2016 would be moving to a core-based model, it raised a lot of questions. How will this new model work exactly? How will it affect my organization's data center plans moving forward? What is the recommended approach to these changes?

To help understand how this new license model works, it's best to compare it to the previous licensing model. Windows Server 2012 R2 required customers to license on a per-processor basis, with each license covering up to two processors. Similar to licensing by processor, the new core-based model will be based on the physical specs of your hardware while meeting a minimum of 16-cores per server and 8-cores per processor. It is important to note that even when using virtualized instances of Windows Server, you still will be licensing according to the total number of physical cores in the server, not by how many are assigned to a virtual instance.

A few things to note are that virtualization rights will remain the same, and pricing will not be changing for every customer. You will still be entitled to one physical operating

system installation or the ability to have two installations if you are using virtualization.

While there are major changes in terms of purchasing licensing, Microsoft has noted that this does not necessarily mean a price change for every one of their customers. The minimum licensing requirements that Microsoft has put in place are going to be consistent with the price of a Windows Server 2012 R2 two processor license. This means if your server only needs to meet the minimum licensing requirement of 16 total core licenses, your price will be the same. The only change you need to anticipate is the switch from normally purchasing a two processor license over to purchasing 8 two-core packs.

So what about any new servers that you've purchased that have processors with higher core counts? Are you guaranteed to pay more moving forward? It's a fair question to ask, and it does mean you will be required to pay more if you need to purchase new licenses. However, it's important to understand how to best leverage your current investments in Software Assurance (SA) to avoid purchasing licenses you may not necessarily need. While SA on Windows Server 2012 R2 will give you New Version rights for the new product, it is also going to be extremely helpful when transitioning to the new license model. Current users who have their Windows Server 2012 R2 licenses with SA on servers with more than 16 cores are actually entitled to license

grants from Microsoft to cover the gaps they may have when moving to 2016. Moving forward after your license grant will mean larger SA renewal costs, but you will not be required to purchase the 'shortages' that were created in this new model.

Now that you've gotten a rundown on the basics, where do you go from here? What's the best approach for this transition? The one major piece to note with this change is how to stay compliant. The most effective strategy is to be are aware of the minimums that Microsoft mandates when you make a purchase for your server. Another is to be aware of how virtualization can affect your strategy. If you are looking to virtualize—and freely and frequently move VMs between hosts—make sure you are licensing both hosts for the guest operating systems to accommodate. Take time to review your current purchases and active Software Assurance. If you are able to claim license grants through your SA, it's an easy way to not pay twice for the additional licenses required for your servers. Also, get creative when planning your data center consolidations and understand how you can best leverage your core based licenses. Moving from three 16-core hosts to two 24-core hosts is a lot easier today with this new model than it was previously.

Drop us a line to learn more about this.

Microsoft

What's in a Name?
Enable Your New Secure and Productive Enterprise

WRITTEN BY PATRICK RENZI

It's no secret that Microsoft owns the productivity workspace, and has shown time and time again that productivity has always been about more than just end users' applications. Without a stable and user-friendly interface, adoption of these apps would simply flounder. Never content to simply sit on their laurels, Microsoft began to notice the trends of the last decade. The shift to mobile users demanding the same experience across all devices led them to the release of the per user subscriptions of, first, Office 365 and then the Windows Enterprise platform—both allowing a user the same experience across all devices. Now with users being more mobile, Microsoft made the push to secure those users, which led to the release of the Enterprise Mobility Suite (EMS). This new software suite bundles together their leading technologies of per user, device centric security. The power of EMS is that it left no stone unturned. Protecting the device, the user's identity, the apps, and the files.

Microsoft took the next logical step to bundle these services together, creating the Enterprise Cloud Suite, or ECS. Meant to be the new cloud-based platform for a modern enterprise, this suite of services offered organizations a new way to license per user. In this advanced world the ECS gave larger organizations the flexibility for their agreements to grow with them rather than requiring lengthy true-up calculations and resolutions on an annual basis. Less time spent tackling licensing gives an organization more time to focus on transforming their business.

The modern world of mobile computing isn't all about enabling the good. In this modern world, with its ever advancing cyber threats,

we must focus on protection. As threats evolve, so must the implements we use to combat them. New features continue to get added to the existing platforms we've begun to standardize on, Office 365, Windows Enterprise, and EMS—leading us to the new ECS, or should I say, the new Secure and Productive Enterprise. Already a good starting point with the ECS suite, Microsoft has started to rebrand the components of this new "SPE" plan into the existing E3 and E5 titles. Starting with the already advanced capabilities of their ECS suit:

- Bit locker drive encryption and App-Locker in Windows Enterprise
- e-Discovery and advanced end-user control in E3
- Rights policies, device control, second factor authentication, and predictive analytics in EMS

Microsoft has turned the Windows Enterprise, EMS, and total ECS suite into:

- Windows Enterprise E3
- Enterprise Mobility Suite E3
- Secure Productive Enterprise E3

It seems only logical to call to attention the security levels that are extensions of their ultra-popular Office 365 E3 bundle. Conforming the naming of the E3 brand into a total package across the platform components only seems logical, especially with new features being added with the Release of E5. It opens perfectly to the new SPEE5 bundle including:

- Office 365 E5
- Windows Enterprise E5
- Secure Productive Enterprise E5

The E5 Bundle is all about more security, more

enablement and more productive experiences. New features like Equivo analytics and Exchange Advanced Threat Protection simplify the life of an admin, creating greater control and security of emailed content. Customer Lockbox and Delve Analytics conversely are meant to enrich the experience and trust that end users have with the Office 365 platform. Office 365 isn't the only platform that received an upgrade with this new naming convention. Windows Enterprise E3 includes the new Windows Defender ATP, targeting and shutting down data breaches as the happen, not after. EMS has been given a boost as well, picking up the New Azure Information Management service, allowing organizations to classify documents based on a true cloud identity. Join Windows 10 devices for direct authentication to your Azure Active Directory and Cloud App Security, allowing advanced predictive analysis of users' cloud app access.

The common thread amongst these two new offerings, SPEE3 and SPEE5 (and the components they include) are meant to be thus. Whether you choose to bundle these services together or mix and match the individual plans, the level of protection you need and how you choose to license your organization is truly up to you. Microsoft has created the tools and given you the choice of how you want to license them for your organization. It is worth noting that Microsoft has changed the name of the Enterprise Mobility Suite to Enterprise Mobility and Security, or EMS to EMS. Some name changes are easier to get over than others.

Drop us a line to learn more about this.

Microsoft

Microsoft's Conditional Access Platform Explained

WRITTEN BY GINA MONTGOMERY

Recently, we have heard a lot of buzz from our clients around conditional access questions and requirements. We understand that securing access to company resources is vital to every organization. With the explosion of available cloud services and mobile devices, the way in which users access company resources has certainly changed. This requires a new approach to security.

Microsoft is investing in their conditional access platform framework and now have a few different solutions available through Azure Active Directory, Intune, and SCCM.

Azure Active Directory (AD)—Conditional access control capabilities in Azure Active Directory offers simple ways for companies to secure resources in the cloud and on-premises. Conditional access policies can be used to help protect against the risk of stolen and phished credentials, by requiring

multi-factor authentication, as well as helping to keep company data safe, by requiring an Intune-managed device granting access to sensitive services. Azure Active Directory Conditional Access is a feature of Azure AD Premium. All users who access an application with conditional access policy applied, must have an Azure AD Premium license.

Conditional Access with Azure AD Licensing Requirements:

Azure Active Directory Conditional access is a feature of Azure AD Premium. All users who access an application with conditional access policy applied must have an Azure AD Premium license. Azure AD Premium may be purchased stand-alone or a part of the bundled Enterprise Mobility and Security Suite (formally EMS). Contact your local Connection representative for a quote or more information.

Intune—Intune allows you to restrict access to your company email and other Office 365 services with conditional access. Intune's conditional access capabilities allow you to secure access to your company's email and other Office 365 services by restricting access to devices that are compliant with the rules that you have configured.

Compliance policies can be configured within Intune to evaluate the compliance of the device based on your organization's unique needs while conditional access policies restrict or allow access to a specific service. When a conditional access policy is used in combination with a compliance policy, an even stronger security posture can be created for users. In this scenario, only compliant devices will be allowed to access the services that have Conditional Access policies in place.

Microsoft

Conditional Access with Intune Licensing Requirements

Microsoft Intune may be purchased stand-alone or as part of the bundled Enterprise Mobility + Security Suite (formally EMS). Contact your local Connection representative for a quote or more information.

Popular Use Cases for Conditional Access

Use conditional access to manage access to the following services:

- Microsoft Exchange On-premises
- Microsoft Exchange Online
- Exchange Online Dedicated
- SharePoint Online
- Skype for Business Online
- Dynamics CRM Online

Using bundled Microsoft technology to enforce conditional access is also possible! Example: System Center Configuration Manager with Intune, Azure AD & Exchange Online.

System Center Configuration Manager (SCCM) may be used in conjunction with Exchange Online and Microsoft Intune to create a Conditional Access scenario. This allows you to manage email access and protect email data on mobile devices that are BYOD or company-owned.

To get started with this scenario you will need to:

- Create the compliance policies that define the rules and settings that a device must comply with in order to be considered compliant by conditional access polices.
- Begin enforcing conditional access.
- Optionally, configure the Exchange Server connector for Exchange Online This connector is required for reporting purposes only. It is not required to enable conditional access.

In this scenario, different Microsoft technologies all play a role in the Conditional Access policy and execution:

- **Microsoft Intune:** Manages Compliance and Conditional access Policies that you configure for enrolled devices
- **Microsoft Azure Active Directory:** Authenticates users against your services and checks device compliance status
- **Configuration Manager:** Manages your users' device enrollments and provides reporting
- **Exchange Online:** Enforces or denies access to company email based on the device's compliance status
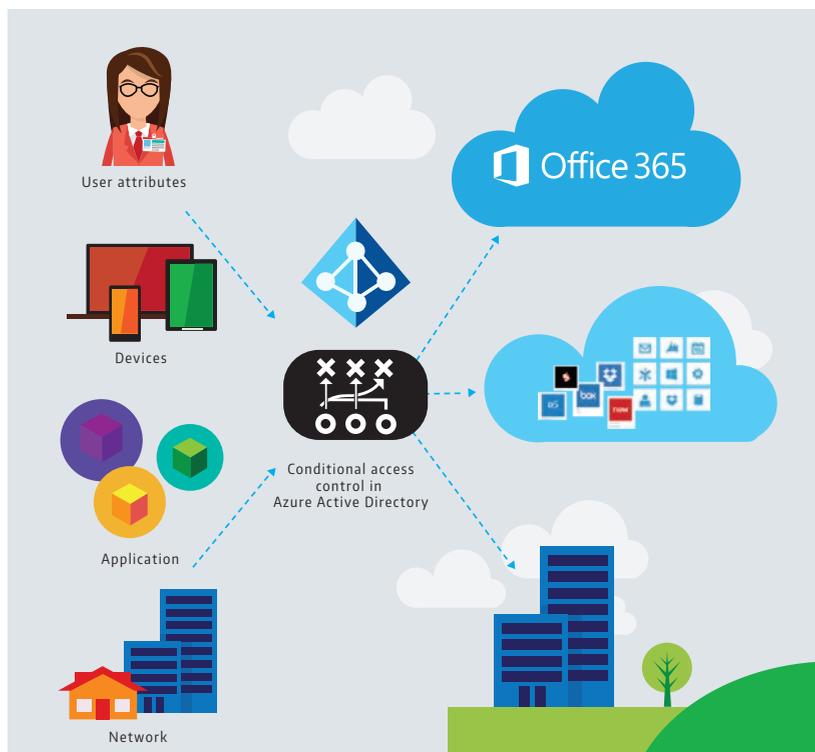
About Connection's Microsoft Cloud Services

Connection, a Microsoft Cloud Productivity Gold Partner, offers a full portfolio of services around Microsoft's Enterprise Mobility + Security Suite (EMS) to help your organization get up and running. Microsoft's Enterprise Mobility + Security Suite helps keep your employees productive on their favorite apps and devices while keeping your company data protected. Contact an Account Manager for information on:

- Discovery Sessions (Demonstrations & Discussions)
- Deployment Planning Services (Microsoft Software Assurance Benefits - DPS)
- Planning Engagements
- POCs
- Deployment Services
- Azure AD Premium
    - Intune
    - Azure Information Protection (ARM)
    - Advanced Threat Analytics

Drop us a line to learn more about this.

User attributes

Devices

Application

Network

Office 365

Conditional access control in Azure Active Directory

Microsoft

Click to Run

Enable your new Secure and Productive Enterprise

WRITTEN BY PATRICK RENZI

When you manage IT for a large organization, control is everything. Whether it's control of data access, device privilege, or the applications running, control isn't something quickly divested, at least not easily. Volume Licensing has been the preferred deployment and procurement method by so many enterprises due to the control it offers to those who manage these enterprises. Enter the new kid on the block: Click to Run.

With the release of Office 365 Microsoft released the new deployment method that it would begin to transition all software to, Click to Run (C2R). The beauty of C2R is that deployments could simply be run by enabling an end user to install the software package directly from the Office 365 portal. For mobile users who never really stepped foot onto campus or connected to the network through VPN this was an overt blessing.

For other cases, the control you wanted was retained through use of the Office 365 Deployment tool. Here the ability to customize

a deployment package with the applications, settings, and privileges you desired remained. Different sales segments with different installed apps all seemed very—what's the term—Volume Licensing.

The most important thing to note however, is that C2R Office isn't just a new way of installing or managing Office. It's Microsoft's manner of ensuring clients are using the most up to date software available. Put yourself in Microsoft's shoes, and try to understand the disdain of seeing scores of organizations maintain use of antiquated applications even after the millions of dollars dumped into R/D programs. C2R is their way of preventing this. There are two ways to view that idea: excitement or lament.

Regardless of the mindset you are in while reading this, the important thing is that you understand what this means for your business. Office 365 currently allows you to run one of two office versions, Office 365 2013 (wave 15) or Office 365 2016 (wave 16). This is all going to change in February of 2017. Come February

Microsoft will be announcing the End of Life of Wave 15. Thankfully the software build will remain usable by all users; however, any and all security and service patches/builds will no longer be available. It will be important to note that you will need to ensure all user builds are making use of the Office 365 Deployment tool if you plan to continue running Wave 15 in any capacity.

Which build you move forward with is up to you, that control has not been taken away (even with C2R media). It's important to keep in mind that Microsoft is starting to adopt this method of upgrades across their product lines, whether with the new anniversary Current Branch updates with Windows 10 or the Nano Server feature of Windows Server 2016. Subscription or not, Microsoft is looking for its clients to stay current on licensing. Otherwise, continue to use volume licensing downgrade rights. Thankfully those aren't going anywhere.

Drop us a line to learn more about this.

Microsoft

Melissa Curtis
Microsoft Partner Development Specialist
Connection

Areas of expertise: Cloud, Servers, Microsoft, Software
See all articles by Melissa

Gina Montgomery
Vice President, Corporate Strategy
Connection

Areas of expertise: IT Strategy, SharePoint, Azure IaaS, Office 365, Enterprise Social

Brendan Randall
Partner Development Specialist
Connection.

Areas of expertise: Microsoft, Licensing, Software

Patrick Renzi
Partner Development Specialist for Volume Licensing/Online Services
Connection.

Areas of expertise: Cloud Computing

See all articles by Patrick

Lane Shelton
Vice President of Software Business Development
Connection.

Areas of expertise: Cloud Computing, Hybrid Cloud, Licensing, Microsoft,Private Cloud, Public Cloud, Software, Windows Server 2003

See all articles by Lane

Microsoft

Connection's Microsoft Center of Excellence is dedicated to your success in all things Microsoft. As winner of 15 Operational Excellence Awards from Microsoft, our industry-leading team has the expertise and experience to help you make the most of your software investment.

Connection™
we solve IT™

Business Solutions
1.800.800.0014

Enterprise Solutions
1.800.369.1047

Public Sector Solutions
1.800.800.0019