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Lenovo offers a broad range of VMware based solutions in varying levels of integration to meet different customer requirements and business needs. Solutions range from the turnkey factory-integrated, pre-configured ready-to-go Lenovo ThinkAgile VX series of appliances to build-your-own Engineered Solutions based on Lenovo's proven reference architecture and everything in between. ThinkAgile VX Appliance
Lenovo ThinkAgile VX Series appliances are designed to help you simplify IT infrastructure, reduce costs, and accelerate time to value. These offerings are factory-integrated, pre-configured ready-to-go appliances and are based on Lenovo ThinkSystem servers and VMware vSAN Hyper-Converged Infrastructure (HCI) software. VMware offers a unique, software-defined approach to hyper convergence, leveraging the hypervisor to deliver compute, storage and management in a tightly integrated software stack. If you have an existing VMware environment, VX Series can integrate into it easily. Key attributes include: Only VMware certified components
Firmware controlled Lifecycle managed
Single Lenovo point of support
ThinkAgile VX Series comes in a wide range of platforms and provides the flexibility to configure the system you need to meet any use-case. Both all-flash and hybrid platforms are supported. VX-1000 series – General-purpose 1U 1-node single-socket platform for small businesses or remote sites.
VX 2000 Series—General-purpose 1U 1-node platform optimized small and medium businesses.
VX 3000 Series—General-purpose 1U and 2U 1-node platform and 2U 4-node platform optimized for compute-heavy applications, such as VDI. The VX3520-G 2U 1-node platform is available with GPU hardware for accelerating graphics-intensive VDI deployments.
VX 5000 Series—Storage-dense 2U 1-node platform optimized for long-term, high-capacity storage requirements
VX 7000 Series—2U 1-node platform optimized for the highest-performance workloads, such as databases and collaboration.
For more information, refer to the ThinkAgile VX Series data sheet.
Lenovo ThinkAgile VX Series appliances include
Lenovo ThinkAgile Advantage, a unique Lenovo Service that helps to ensure your systems are up and running quickly and easily.
Lenovo Services will set up and configure your new solution and provide any training needed to get the system operational.
Lenovo ThinkAgile Advantage includes a direct phone line to a team of experts who support only ThinkAgile solutions. The experts will rapidly diagnose any hardware or software issues and remain as your single-point-of contact throughout the entire support process.
ThinkAgile VX Certified Node
Lenovo ThinkAgile VX Certified Nodes allow customers to purchase VMware certified hardware from Lenovo that does not include the software licensing or deployment services bundled in. ThinkAgile VX Certified Nodes include VMware software preloaded at the factory. Hardware firmware, drivers, and software updates are tested for interoperability and release with the product. ThinkAgile Certified Nodes are assigned part numbers for ease of ordering.
Lenovo ThinkAgile VX Series Certified Nodes include
Lenovo ThinkAgile Advantage but customers have the flexibility of calling VMware directly for software support in cases where the software licenses are purchased from VMware. Key attributes include: Only VMware certified components
Firmware controlled Lifecycle managed
Requires specialized IT skills
Single point of contact
Lenovo ThinkAgile VX with VCF
Lenovo VMware Cloud Foundation ReadyNodes bring together VMware's vSphere, vSAN and NSX virtualization into a natively integrated stack that can be deployed on premise or run as a service from the public cloud.
Lenovo VMware Cloud Foundation ReadyNodes provide a simple path to hybrid cloud through an integrated software platform that is the foundation for both private and public cloud environments.
VMware Cloud Foundation Overview:
VMware Cloud Foundation FAQ:
Lenovo vSAN ReadyNodes
Lenovo vSAN ReadyNodes offer pre-tested configurations for faster implementation. Key attributes include:
Defined Configurations
No firmware control
Do your own lifecycle management
Requires specialized IT skills
Multiple support organizations for hardware and software
Lenovo vSAN ReadyNodes are Lenovo systems that have been pre-configured, tested and certified for VMware Hyper-Converged Infrastructure Software.
Lenovo vSAN ReadyNode is optimally configured for vSAN with the required amount of CPU, memory, network, I/O controllers and storage (SSDs, HDDs or flash devices). With Lenovo vSAN ReadyNodes you can rapidly deploy pre-engineered, tested and scalable storage to meet growing performance and capacity needs.
Lenovo vSAN ReadyNodes are delivered in a range of all-flash and hybrid nodes to meet a broad array of workload, performance, and budget needs.
List of Lenovo vSAN ReadyNodes:
vSAN Hardware Quick Reference Guide from VMware.
July 30, 2019
Ken Leoni
The cost difference for hypervisors is primarily based on licensing advanced features – so to determine your licensing costs, you need to determine which advanced features are required in your environment. Download our vSphere vs Hyper-V comparison matrix – both technologies can provide redundancies that will maximize your uptime and that will allow you to squeeze out the most performance. Which is better and how do you decide between them?
If you look at the features available in the free hypervisor versions, Hyper-V provides more functionality than ESXi. For example, Live Migration and Failover Clustering are available with Hyper-V, and the corresponding features in VMware – vMotion and VMware HA – are not available until you purchase a VMware "Essentials Plus" license. It is possible that all the virtualization features you require are available in the free version of Hyper-V or VMware. However, VMware and Hyper-V implement features differently, and you may find paying for vMotion to be a better fit than free Live Migration. Or that free Failover Clustering works just as well for you as paying for VMware HA. Fortunately, both VMware's vSphere and Hyper-V's System Center Virtual Machine Manager (SCVMM) provide trial versions so you can test feature implementation for yourself and decide if free is good enough, or if a licensed feature is worth paying for. Once you have your trial environments in place, it can still be difficult to compare "advanced" features not only because similar features have different names, but also because functions don't overlap completely, and it is not possible to do an apples-to-apples comparison.
Hyper-V Licensing
Hyper-V advanced features are available through the Virtual Machine Manager (VMM) component in Microsoft's System Center (SC). SC uses a Management License model that charges based on the number of cores and managed operating system environments (OSEs). System Center has Standard and Datacenter Management License Editions:
Hyper-V without System Center
System Center Standard Edition
System Center Datacenter Edition
Cost
Free \$1,323 \$3,607
Maximum # of cores *
No core limitations 16 16
OSE Management Licenses
No OSE Management licenses required 2 OSE Management licenses Unlimited OSE Management licenses *
Assumes servers have 2 processors with a maximum of 8 cores/processor in addition to the base licensing above, how you manage the combination of processor/OSE count in System Center Standard/Datacenter Editions can have a significant influence on your licensing costs. For example, the following comparison shows the cost for System Center to manage 12 OSEs on either 2 or 6 processors, using both Datacenter and Standard licenses:
Managed OSEs
Physical Processors**
Datacenter Standard
Required licenses
Total Cost
Required Licenses
Total Cost
12 2 1 \$3,607 6 \$7,938
12 6 3 \$10,821 6 \$7,938
** Assumes 8 core processor
Datacenter licenses are more cost effective in environments where you are running more than 2 OSEs per physical processor, while Standard licenses become more cost effective at 2 or fewer OSEs per physical processor. As a result, Standard licenses can be less expensive if your VMs require most or all of the virtual processors, while Datacenter licenses will be less expensive for VMs provisioned with fewer processors.
vSphere Licensing
"vSphere" is the name for the overall VMware management environment, including the ESXi hypervisor, the vCenter management server, and any other VMware virtualization components (e.g. vSAN storage, or VMware NSX virtual networking). While ESXi is itself free, vSphere licensing is required for both the vCenter management server and VMware features. vSphere licensing is available in the following packages:
Essentials or Essential Plus
Kits Targeted to small businesses
Maximum 3 ESX hosts with 2 processors each
Includes license for vCenter
Essentials Bundle of VMware features needed for small business environments, e.g.:
vMotion
High Availability
vSphere Replications
Standard, Enterprise and Platinum Editions for larger environments. Targeted to mid to large sized organizations
Licensing is per processor
vCenter license is not included.
vCenter Standard license is required as an additional purchase
Additional VMware features needed to scale up environment are included
Acceleration Kits Targeted to mid-sized organizations
Includes a vCenter Standard license which is limited to 6 processors
Licenses for Essentials features plus additional features suitable for mid-sized company, such as:
Storage
vMotion
Distributed Resource Scheduler
Distributed Power Management
Remote Office Branch Office
Targeted to organizations with remote offices
Limited to 25 virtual machines
Includes features such as:
Storage
vMotion
High Availability
Fault Tolerance
vSphere Edition
Cost # Physical Processors
Basic Support
Production Support
Essentials \$510 3 servers / 2 processors each
\$67 \$308/incident
Essentials Plus \$4,625 3 servers / 2 processors each
\$971 \$1156
Standard (requires vCenter)
\$995 1 \$273 \$323
Enterprise Plus (requires vCenter)
\$3,595 1 \$755 \$899
Platinum (Enterprise Plus & AppDefense -requires vCenter)
\$4,595 1 \$1,049
Standard – Acceleration Kit \$11,350 6 \$2,935 \$3,482
Enterprise Plus – Acceleration Kit \$24,250 6 \$5,827 \$6,938
vCenter Server
Standard \$6,175 N/A \$1,297 \$1,544
vCenter Server Foundation \$1,535 N/A \$560 \$664
Standard -Remote Office \$4,635 N/A \$973 \$1,159
Enterprise - Remote Office \$6,545 N/A \$1,374
\$1,636
Hyper-V and vSphere offer similar capabilities, but their approaches differ
Download the comparison:
vSphere vs HyperV
Download the vSphere vs Hyper-V comparison spreadsheet for a detailed analysis of the differences and similarities between the two technologies, including follow-up information with hyperlinks to each vendor's site.
Comparing Costs
If Hyper-V without SCVMM provides all the virtualization features you need, and works in your environment, it's hard to argue with a price of "free". However, if Hyper-V doesn't work well when you test it in your environment, or if you need features that aren't available in the free Hyper-V install, then vSphere licensing costs may well be comparable to System Center Virtual Machine Manager costs. An apples-to-apples comparison is a difficult proposition because both Microsoft SCVMM and VMware vSphere are packaged very differently. The technologies need to be compared based on required virtualization features and the costs of licensing those features for the host servers in your environment.
Hyper-V System Center 2016 with its Virtual Machine Manager (SCVMM) is required in order to take full advantage of Hyper-V. On a functionality basis, SCVMM is an all or nothing proposition. While the different vSphere editions contain different sets of capabilities, SCVMM exposes all of Hyper-V's capabilities. An organization with Windows 2016 Datacenter edition and System Center 2016 Datacenter edition could deploy unlimited VMs across the licensed host(s) and leverage any and all Hyper-V capabilities.
System Center 2016, like Windows 2016, is licensed based on the number of active cores in the host. The pricing starts at a minimum of a dual processor configuration with 8 cores per processor:
System Center 2016 License Pricing
Processors per core
8 cores
10 cores
16 cores
20 cores
2 \$3,607 \$4,508 \$7,214 \$9,017 4 \$7,214 \$9,017
14 \$4,288 \$18,035 6 \$10,821 \$13,526 \$21,642 \$27,052 8 \$14,428 \$18,035 \$28,856 \$36,070 10 \$18,035 \$22,543 \$36,070 \$45,087 12 \$21,642 \$27,052 \$43,284 \$54,105 14 \$25,249 \$31,561 \$50,498 \$63,122 16 \$28,856 \$36,070 \$57,712 \$72,140 18 \$32,463 \$40,578 \$64,926 \$81,157 20 \$36,070 \$45,087 \$72,140 \$90,175
The matrix above reflects list pricing. Please note – prices will vary depending on your licensing agreement and reseller. Core based pricing means costs could scale up as your hardware infrastructure evolves. This pricing model capitalizes on the trend of CPUs being produced with more cores rather than more GHz. Additional licensing is available in 2 core increments. In order to optimize IT in a virtualized environment, monitoring must encompass virtual resource utilization from the VM's perspective, application service levels, and physical resource utilization on the hosts.
Capacity Planning (8:24)
Ensure that your virtual infrastructure performs optimally. Use Capacity Planning to avoid virtual machine sprawl, over-provisioning, and excess use of resources
Access our online demo environment, see how to set up your VMware monitoring, view dashboards, problem events, reports and alerts.
Please log in using the credentials below:
Username: demo
Password: longitude
VMware There are 9 vSphere tiers versus 2 System Center 2016 tiers, with the differences in capabilities at each level making any sort of one-to-one feature comparison a difficult proposition. The pricing model also differs, with a flat per processor rate for vSphere 6.7 vs a rate for System Center 2016 that is scaled per core for processors with more than 8 cores. Processors per core
vSphere Standard Edition
vSphere Enterprise+ Edition
vSphere Platinum Edition
2 \$10,355 \$16,707 \$19,007 4 \$12,991 \$25,695 \$30,295 5 \$15,627 \$34,683 \$41,583 6 \$18,263 \$43,671 \$52,871 10 \$20,899 \$52,659 \$64,159 12 \$23,535 \$61,647 \$75,447 14 \$26,171 \$70,365 \$86,735 16 \$28,807 \$79,623 \$98,023 18 \$31,443 \$88,611 \$109,311 20 \$34,079 \$97,599 \$120,599
vSphere Essentials
Kits
vSphere Acceleration Kits
Essential Essential + Standard Enterprise+ \$577 \$5,781 \$14,832 \$31,188
Note: vSphere Essentials and Acceleration Kits are limited to 6 processors. The matrices above reflect list pricing. Please note – prices will vary depending on your licensing agreement and reseller. If you're a smaller organization or prefer VMware technology, then the vSphere Essentials kit at \$577 is quite attractive. However, if you need maximum application availability and business continuity, it is a significant price jump to \$5,781 for Essential Plus for the vMotion and HA features. The Acceleration kits offer the capabilities of the Enterprise Edition with a 6-processor limitation. If you're a medium sized organization and are likely to grow, the Acceleration kits also offer an upgrade path to the vSphere Enterprise Editions. The Standard and Enterprise kits are ideal for larger organizations looking to scale out and take advantage of all that VMware has to offer in terms of performance, scalability, and high availability.>
Conclusion: Microsoft's pricing model for SCVMM is analogous to an all you can eat buffet: one price and you get it all. IT can take full advantage of all that Hyper-V has to offer, and that is quite substantial. VMware's pricing is analogous to an à la carte restaurant menu. VMware's offerings allow IT to pick and choose based on the capabilities they need today, while providing a growth path to the future. If you don't already have a virtualization technology, then you can build out a pricing comparison and determine from a licensing perspective which technology would best fit your organization's needs. However, if you're already using Hyper-V or VMware, there are quite a few other factors that will definitely come into play, especially if a multi-hypervisors environment is being contemplated. Organizations need to look beyond licensing alone and at the total cost of ownership. For example, what kind of competencies are already in place for vCenter? – for SCVMM? Lastly, given that Microsoft's pricing is socket based and VMware's pricing is processor based it would certainly be prudent to project out what your host processor configurations might look like and how that affects TCO. Want to learn more?
Download our vSphere vs Hyper-V comparison matrix – both technologies can provide redundancies that will maximize your uptime and that will allow you to squeeze out the most performance. Which is better and how do you decide
Download the comparison:
vSphere vs HyperV
Editor's Note: This post was originally published in July 2017 and has been updated for freshness accuracy, and comprehensiveness.