VMware Software Solution Product Guide
Product Guide

Lenovo and VMware have been collaborating for more than twenty years, helping customers solve their most complex problems in virtualization and digital transformation.

As an OEM reseller of VMware solutions, 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 Lenovo ThinkAgile VX series of appliances to build-your-own Engineered Solutions based on Lenovo's proven reference architecture and VMware software only licenses.

VMware OEM licenses are sold as a Subscription with included 1 year (for Co-term), 3 year, or 5 years support with Lenovo hardware. All Lenovo offerings come with VMware OEM licenses, L3 support provided by VMware and L1 and L2 support provided by Lenovo.

Did you know?

Lenovo XClarity Integrator integrates XClarity Administrator into VMware software, providing the functionality you need to manage Lenovo infrastructure right in the console of VMware software.

Lenovo offers XClarity Integrators for VMware vCenter, VMware vRealize Orchestrator and VMware vRealize Log Insight. For more information, please refer to the Lenovo XClarity Administrator Product Guide.

Why buy VMware products from Lenovo?

Lenovo has proven experience in developing and delivering VMware-based solutions that help customers modernize and simplify their IT infrastructure to dramatically drive down operating costs and open the door to cutting-edge innovations. Built around the latest Lenovo ThinkSystem servers' hardware, the Lenovo solution with VMware provides businesses with an affordable, interoperable, and reliable industry-leading solution to manage their virtualized workloads.

Why purchase VMware solutions from Lenovo?

- Lenovo certified/supported pre-built image.
- Single point of support tracking for Lenovo hardware and Lenovo VMware.
- World-class service delivering single point support for Lenovo servers and Lenovo OEM software Easy ordering and delivery with Single SKU for license and Subscription and Support.

VMware new Subscription model

In November 2023, Broadcom completed VMware's acquisition, and continuing with the strong relationship between Partners, Lenovo now offers the new VMware by Broadcom portfolio; based entirely on subscription model with per core metric as a new standard.

The new subscription offering is composed of two main products, VMware Cloud Foundation (VCF), VMware Sphere Foundation (VVF), a set of add-ons, and vSphere Standard as the bare minimum.

Every Subscription license represent 1 CORE. Customers' needs to purchase as many licenses as Core they need for their servers. A minimum of 16 Cores per CPU is required.

VMware Cloud Foundation

VCF is the software stack that serves as the foundation of private and hybrid clouds enabling a cloud operating model that provides the benefit of public cloud with the security and performance of on-premises private clouds. It is full-stack hyperconverged infrastructure (HCI) with fully integrated compute, storage, networking, and management with automation for reduced complexity and lower TCO.

VMware offers integrated, software-defined solutions with built-in automated lifecycle management that combines **virtualized services for compute, storage, networking, security, and cloud management** . It delivers consistent infrastructure for private, hybrid, and multi-cloud demands.

Kubernetes is integrated within VCF, delivering full-stack, developer-ready infrastructure with **VMware Tanzu Kubernetes Grid**. Any environment based on VMware Cloud Foundation now natively supports both VM and container workloads.

VCF is sold as a 3-year minimum Upfront payment Subscription for every new solution. VCF is sold only with Hardware, but with 1-year Stand Alone option for Co-Term if needed.

Every VMware Cloud Foundation PN contains:

- vSphere Enterprise Plus: 1 Core (16 Minimum)
- vCenter Standard: 1 Instance
- Tanzu Kubernetes Grid: 1 Core
- vSAN Enterprise Features: 1 TiB per each 1 Core
- Aria Suite Enterprise: 1 Core
- NSX Networking for VCF: 1 Core
- HCX Enterprise: 1 Core
- AON Enterprise: 1 Core
- SDDC Manager: 1 Core

Topics in this section:

How to license VMware Cloud Foundation

- VCF is licensed by Core with a minimum of 16 Core.
- Every VCF comes with 1 Tib per Core purchased.
- The vSAN subscription capacity is based on the total raw physical storage (TiBs) claimed by vSAN on all the ESXi hosts in each vSAN Cluster.
- Keep in mind that Storage discs might be set on Terabyte (TB), so a conversion into Tebibyte (TiB) is needed.

  1 Terabyte is equal to $(10^{12} / 2^{40})$ tebibytes.

  There are 0.90949470177293 tebibytes in a Terabyte. 1 TB = 0.90949470177293 TiB

The following table lists the how to license information.

Table 1. How to license VMware Cloud Foundation

ESXi Hosts (in vSAN cluster)	CPUs per ESXi Host	Cores per CPU	TiBs per ESXi Host	TiBs per Cluster	Entitled TiBs from VCF	Subscription Capacity Required for VCF (Core)	Subscription Capacity Required For vSAN (TiB)	Conclusion
3	1	8	3.84	11.5	#	48	-36.5	There's still 36.48 TiB left over from VCF entitled. No additional vSAN needs to be purchased
				3.84 TiB per ESXi Host * 3 Host = 11.52	Min 16 Core per cluster, then 16*3Host = 48	1 Core VCF comes with 1 vSAN TiB	TiB per cluster, 11.52 is smaller than VCF entitled vSAN TiB	
							11.52 - 48 = -36.48	
3	2	16	1.84	5.52	#	96	-90.5	There's still 90.48 TiB left over from VCF entitled. No additional vSAN needs to be purchased
				1.84 TiB per ESXi Host * 3 Host = 5.52	16 Core*2 CPU*3Host = 96	1 Core VCF comes with 1 vSAN TiB	TiB per cluster, 5.52 is smaller than VCF entitled vSAN TiB	
							5.52 - 48 = -90.48	
3	2	24	61.44	184	#	##	40.3	41 TiB of vSAN needs to be purchase for a correct licensing. (Rounding Up)
				61.44 TiB per ESXi Host * 3 Host = 184.32	24 Core*2 CPU*3Host = 144	1 Core VCF comes with 1 vSAN TiB	TiB per cluster, 184.32 is greater than VCF entitled vSAN TiB	
							184.32 - 144 = 40.32	

For licensing information, see VMware site here: https://kb.vmware.com/s/article/95927

VMware Cloud Foundation Lenovo PN

The following table lists the Lenovo ordering information.

Table 2. VMware Cloud Foundation ordering information (part number / feature code)

Region availability	Description	Feature code	Lenovo part number	VMware part number License
WW	VMware vSphere Standard 8 - 1yr w/lenovo support Commercial segment only. For Co-term	SCXB	7S1P0007WW	VCF-VSP-STD-8
WW	VMware vSphere Standard 8 - 3yr w/lenovo support Commercial segment only	SCXC	7S1P0008WW	VCF-VSP-STD-8
WW	VMware vSphere Standard 8 - 5yr w/lenovo support Commercial segment only	SCXD	7S1P0009WW	VCF-VSP-STD-8

VMware vSphere Foundation

A simplified, enterprise-grade workload platform for mid-size to smaller customers. Integrates vSphere with operations management to provide performance, availability, and efficiency with greater visibility and insight. Can be upgraded to Hyperconverged Infrastructure (HCI) solution with an optional software-defined storage (vSAN) add-on.

VVF is sold as a 3-year minimum Upfront payment Subscription for every new solution. VVF is sold only with Hardware, but with 1-year Stand Alone option for Co-Term if needed.

Every VMware vSphere Foundation PN contains:

- vSphere Enterprise Plus: 1 Core (16 Minimum)
- vCenter Standard: 1 Instance
- Tanzu Kubernetes Grid: 1 Core
- vSAN Enterprise Features: 100 GiB per each 1 Core
- Aria Suite Standard: 1 Core

Only vSphere versions running 8.0U2b patch release and later will receive vSAN trial capacity in vSphere Foundation.

Topics in this section:

- How to license VMware vSphere Foundation
- VMware vSphere Foundation Lenovo PN
- VMware vSphere Standard
- VMware Add-Ons

How to license VMware vSphere Foundation

- VVF is licensed by Core with a minimum of 16 Core.
- Every VVF comes with **100 Gib per Core**
- The vSAN subscription capacity is based on the total raw physical storage (TiBs) claimed by vSAN on all the ESXi hosts in each vSAN Cluster.
- Keep in mind that Storage discs might be set on Terabyte (TB), so a conversion into Tebibyte (TiB) is needed.
- Also, the entitled storage capacity in VVF comes in GiB, so a conversion is needed from Gib to Tib.

The following table lists the how to license information.

Table 3. How to license VMware vSphere Foundation

ESXi Hosts (in vSAN cluster)	CPUs per ESXi Host	Cores per CPU	TiBs per ESXi Host	TiBs per Cluster	Entitled TiBs from Foundation		Subscription Capacity Required for vSphere Foundation (Core)	Subscription Capacity Required for vSAN (TiB)	Conclusion
					From Gib to Tib:				
					Core*CPU*ESXi Hosts/1024				
3	1	8	3.84	12	4.7		48	12	12 vSAN TiB needs to be purchased to a correct licensing
				3.84 TiB per ESXi Host * 3 Host = 11.52	Min 16 Core per cluster*100, then divided into 1024 = Entitled TiB 4.68		Min16 Core*1CPU*3Host	There is insufficient trial capacity from VVF. Therefore, subscription capacity is the total number of TiBs 11.52* 1 ESXi host, 11.52. Round up to 12	
3	2	16	1.84	6	9.4		96	-3.86	There's still 4.85 TiB left over from VVF entitled. No additional vSAN needs to be purchased
				1.84 TiB per ESXi Host * 3 Host = 5.52	((16Core*3Host*2CPU)*100)/1024		16Core*2CPU*3Host	Entitled TiB from VVF, 9.37 is grater than TiB per Cluster 5.52. No more vSAN capacity needed	
3	2	24	61.4	##	14		144	185	185 vSAN TiB needs to be purchased to a correct licensing
				61.44 TiB per ESXi Host * 3 Host = 184.32	((24Core*3Host*2CPU)*100)/1024		24Core*2CPU*3Host	There is insufficient trial capacity from VVF. Therefore, subscription capacity is the total number of TiBs 61.44 * 2 ESXi hosts = 184.32. Round up to 185	

VMware vSphere Foundation Lenovo PN

The following table lists the how to order Lenovo information.

Table 4. VMware vSphere Foundation ordering information (part number / feature code)

Region availability	Description	Feature code	Lenovo part number	VMware part number License
WW	VMware vSphere Foundation 8 - 1yr w/lenovo support - Corp/Comm segment only. For Co-term	SCX8	7S1P0004WW	VCF-VSP-FND-8
WW	VMware vSphere Foundation 8 - 3yr w/lenovo support - Corp/Comm segment only	SCX9	7S1P0005WW	VCF-VSP-FND-8
WW	VMware vSphere Foundation 8 - 5yr w/lenovo support - Corp/Comm segment only	SCXA	7S1P0006WW	VCF-VSP-FND-8

VMware vSphere Standard

The entry level for the stack in the following table.

Table 5. VMware vSphere Standard ordering information (part number / feature code)

Region availability	Description	Feature code	Lenovo part number	VMware part number License
WW	VMware vSphere Standard 8 - 1yr w/lenovo support Commercial segment only. For Co-term	SCXB	7S1P0007WW	VCF-VSP-STD-8
WW	VMware vSphere Standard 8 - 3yr w/lenovo support Commercial segment only	SCXC	7S1P0008WW	VCF-VSP-STD-8
WW	VMware vSphere Standard 8 - 5yr w/lenovo support Commercial segment only	SCXD	7S1P0009WW	VCF-VSP-STD-8

VMware Add-Ons

The following table lists the how to order information.

Table 6. VMware Add-Ons ordering information (part number / feature code)

Region availability	Description	Feature code	Lenovo part number	VMware part number License
WW	VMware vSAN 8 - 1yr w/lenovo support - All segments. For Co-term	SCXE	7S1P000AWW	VCF-VSAN-8
WW	VMware vSAN 8 - 3yr w/lenovo support - All segments	SCXF	7S1P000BWW	VCF-VSAN-8
WW	VMware vSAN 8 - 5yr w/lenovo support - All segments	SCXG	7S1P000CWW	VCF-VSAN-8
WW	VMware Avi Load Balancer 1yr w/lenovo support - All segments. For Co-term	SCXP	7S1P000KWW	ANS-VMW-ALB
WW	VMware Avi Load Balancer 3yr w/lenovo support - All segments	SCXQ	7S1P000LWW	ANS-VMW-ALB
WW	VMware Avi Load Balancer 5yr w/lenovo support - All segments	SCXR	7S1P000MWW	ANS-VMW-ALB
WW	VMware Live recovery 1yr w/lenovo support - All segments. For Co-term	SCXS	7S1P000NWW	VCF-VLR-PVM
WW	VMware Live recovery 3yr w/lenovo support - All segments	SCXT	7S1P000PWW	VCF-VLR-PVM
WW	VMware Live recovery 5yr w/lenovo support - All segments	SCXU	7S1P000QWW	VCF-VLR-PVM
WW	VMware Firewall with Advanced Threat Prevention 1yr w/lenovo support - All segments. For Co-term	SCXL	7S1P000GWW	ANS-FW-ATP-B
WW	VMware Firewall 1yr w/lenovo support - All segments. For Co-term	SCXH	7S1P000DWW	ANS-VMW-FW-B
WW	VMware Firewall 3yr w/lenovo support - All segments	SCXJ	7S1P000EWW	ANS-VMW-FW-B
WW	VMware Firewall 5yr w/lenovo support - All segments	SCXK	7S1P000FWW	ANS-VMW-FW-B
WW	VMware Firewall with Advanced Threat Prevention 3yr w/lenovo support - All segments	SCXM	7S1P000HWW	ANS-FW-ATP-B
WW	VMware Firewall with Advanced Threat Prevention 5yr w/lenovo support - All segments	SCXN	7S1P000JWW	ANS-FW-ATP-B
WW	VMware Advanced Threat Prevention Add-on to VMware Firewall 1yr w/lenovo support - All segments. For Co-term	SCXV	7S1P000RWW	ANS-FW-ATPAD-B
WW	VMware Advanced Threat Prevention Add-on to VMware Firewall 3yr w/lenovo support - All segments	SCXW	7S1P000SWW	ANS-FW-ATPAD-B
WW	VMware Advanced Threat Prevention Add-on to VMware Firewall 5yr w/lenovo support - All segments	SCXX	7S1P000TWW	ANS-FW-ATPAD-B

Services

Lenovo provides an array of services focused on fulfillment, hardware compatibility and support.

Fulfillment

License activation of the VMware products purchased from Lenovo is fulfilled directly from VMware by sending the Key to the mail defined in the Product Order as the license Owner.

By downloading or using a VMware by Broadcom offering, Customer agrees to be bound by the terms of the End User License Agreement (EULA). See EULA here https://www.vmware.com/vmware-general-terms.html

Server Compatibility

The Lenovo Server Operating System Interoperability Guide (OSIG) is a comprehensive source of information about operating system compatibility with Lenovo servers. It includes servers in the ThinkSystem, ThinkAgile, System x, ThinkServer, NeXtScale, Flex System and BladeCenter product families and covers servers that are currently supported by Lenovo under warranty.

To use the OSIG application, go to http://lenovopress.com/osig

Use the dropdown menus to filter and fine tune your search. In each of the search results, the support statement column contains clickable links that opens a popup window with details about the support.

Option Compatibility

The ServerProven program validates selected products for compatibility with ThinkSystem, System x, BladeCenter and Flex System servers. Through the ServerProven Program, Lenovo works with industry leaders to test their equipment with Lenovo products.

To search the ServerProven list, go to http://www.lenovo.com/us/en/serverproven

For more details, click on the Lenovo product. For compatibility with OS, click on the green + button to expand the section.

Lenovo L1-L2 Support

VMware software from Lenovo includes the option of 1 (For Co-term), 3, or 5 years of 24x7 unlimited global support and subscription services. The Lenovo support team provides L1 and L2 support for all VMware solutions purchased from Lenovo - there is no need to call a third party. This ensures a better level of service and faster resolution. Lenovo does extensive testing on the interoperability of the software and the compatibility with the rest of the system. Lenovo also provides offerings with a VMware-based support – look for "VMware provided" description in the part.

Lenovo Data Center support: https://datacentersupport.lenovo.com/

Systems Management

Lenovo XClarity Integrator offerings for VMware provides IT administrators with the ability to integrate the management features of Lenovo XClarity Administrator with VMware vCenter and VMware vRealize solutions. Lenovo XClarity Administrator is a centralized resource management solution that reduces complexity, speeds up response, and enhances the availability of Lenovo ThinkSystem infrastructure and ThinkAgile solutions. For more information on the XClarity family of software tools, visit https://www.lenovo.com/us/en/data-center/software/management/

Lenovo XClarity Integrator extends the virtualization management capabilities of VMware with Lenovo hardware management functionality, providing affordable foundational, basic management of physical and virtual environments to reduce the time and effort required for routine system administration.

Lenovo XClarity Integrator integrates XClarity Administrator into VMware software, providing the functionality you need to manage Lenovo infrastructure right in the console of VMware software. Lenovo offers XClarity Integrators for VMware vCenter, VMware vRealize Orchestrator and VMware vRealize Log Insight.

XClarity integrated with vRealize and VMware vCenter management provides the following benefits:

- A single pane of glass management for virtualization management, workflow provisioning, and Lenovo server infrastructure
- Automates deployment and streamlines management reducing deployment time by 48%
- Deep VMware integration enables more precise insight and control into all layers than with other systems

For more information, please refer to the Lenovo XClarity Administrator Product Guide:
https://lenovopress.com/tips1200-lenovo-xclarity-administrator

For more information about Lenovo XClarity Integrator for VMware and for links to online documentation, see the following web page:
https://support.lenovo.com/us/en/documents/lnvo-vmware

Lenovo XClarity Integrator for VMware vCenter

The Lenovo XClarity Integrator for VMware vCenter provides the following features and benefits:

- Extends Lenovo XClarity Administrator features to the virtualization management console
- Enables management of legacy infrastructure from the virtualization management console
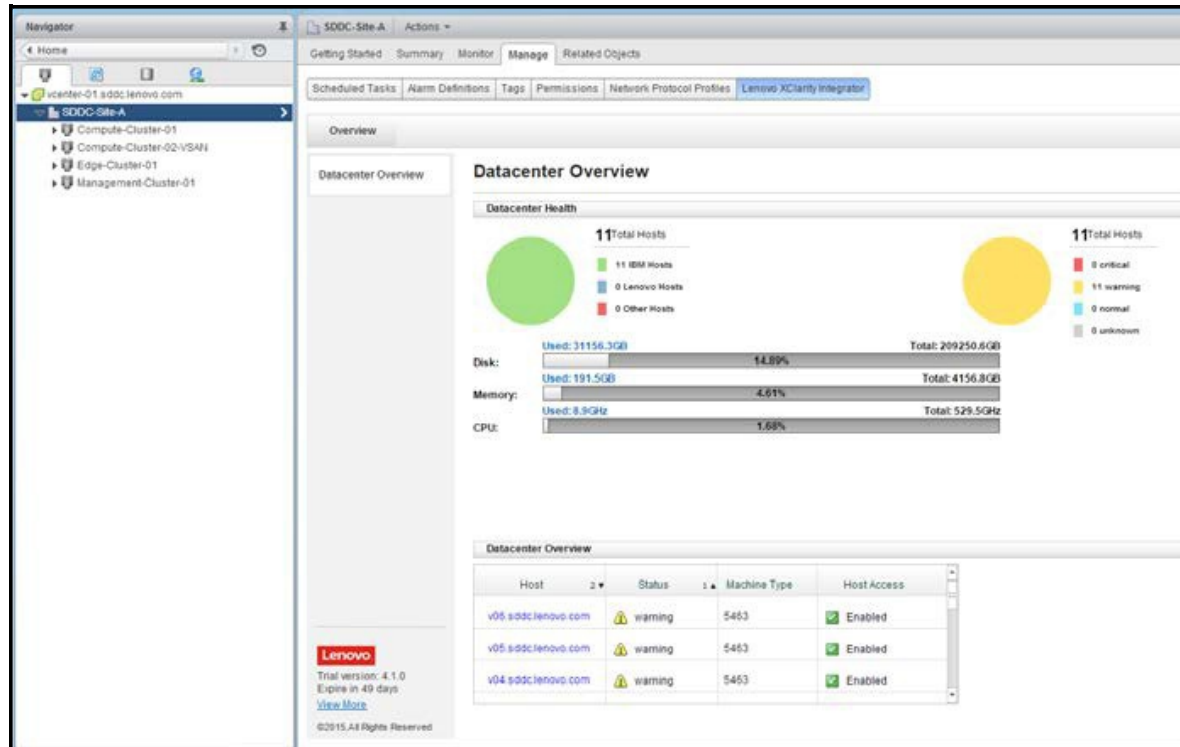- Reduces workload downtime by dynamically triggering workload migration in clustered environments during rolling server reboots or firmware updates, and predicted hardware failures

Figure 1. Lenovo XClarity Integrator for VMware vCenter

Lenovo XClarity Integrator for VMware vRealize Orchestrator

The Lenovo XClarity Integrator for VMware vRealize Orchestrator provides IT administrators with the ability to coordinate physical server provisioning features of Lenovo XClarity Pro with broader vRealize Orchestrator workflows. Lenovo XClarity Integrator for VMware vRealize Orchestrator provides a library of simple yet robust and customizable workflow routines and actions designed to automate complex, repetitive IT infrastructure tasks such as system discovery and configuration, hypervisor installation, and addition of new hosts to vCenter.
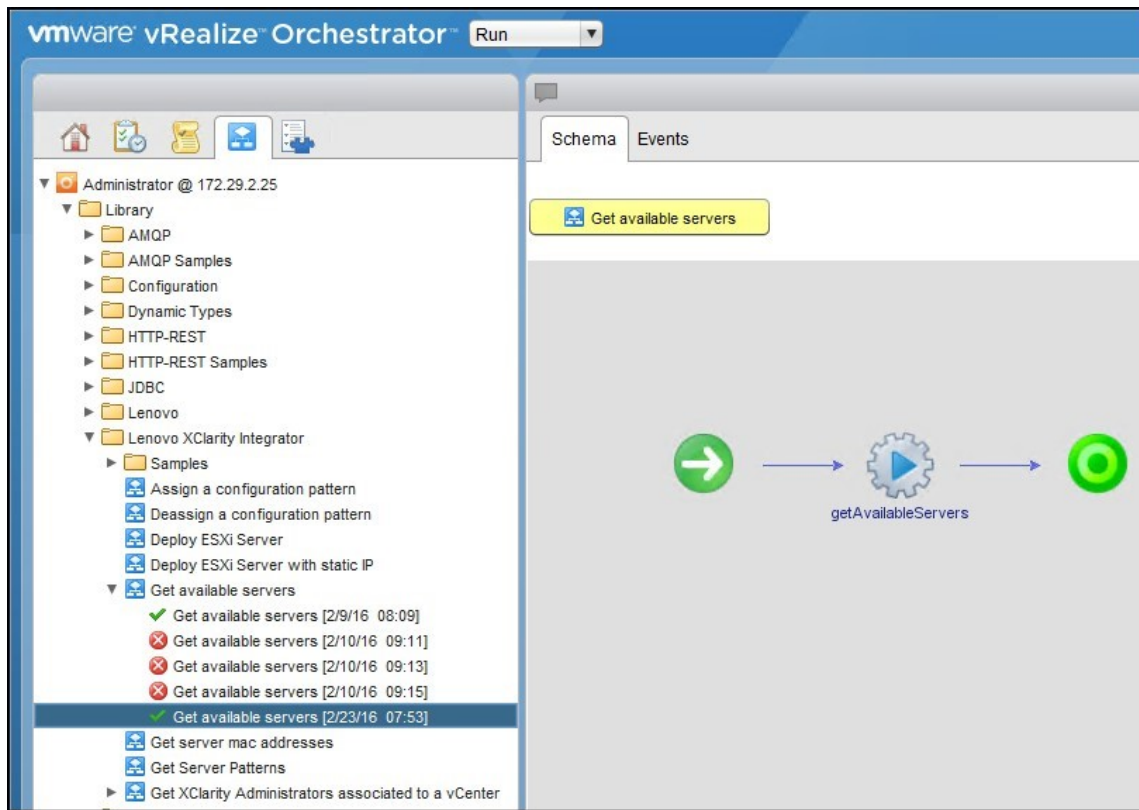
Figure 2. Lenovo XClarity Integrator for VMware vRealize Orchestrator

Lenovo XClarity Integrator for VMware vRealize Log Insight

The Lenovo XClarity Administrator Content Pack for VMware vRealize Log Insight simplifies the collection and forwarding of Lenovo XClarity Administrator logs to VMware vRealize Log Insight for powerful processing and analytics, and displaying insightful information in an intuitive format.
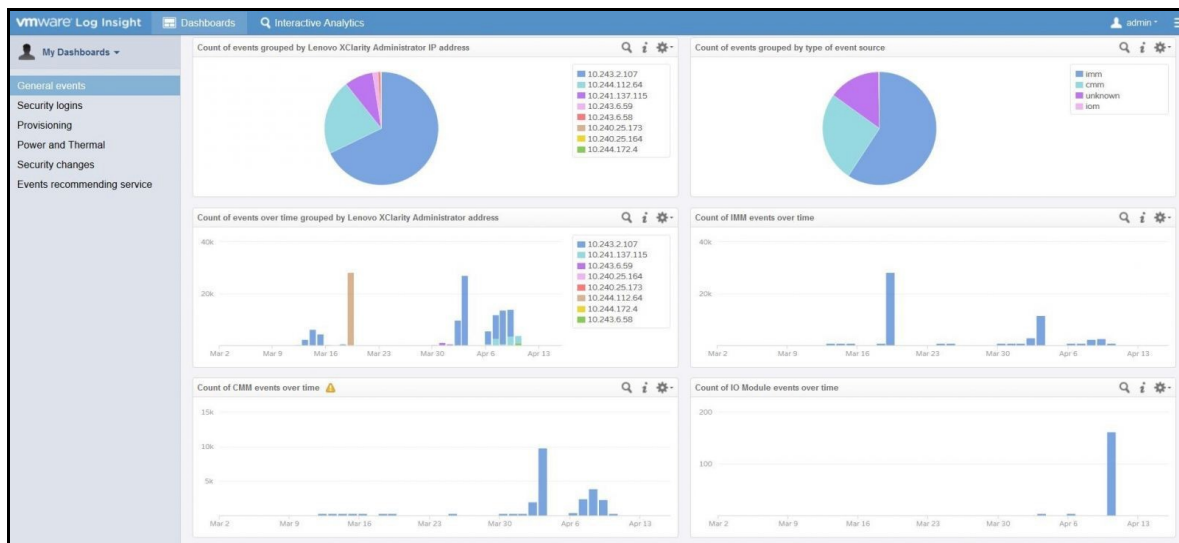

Figure 3. Lenovo XClarity Integrator for VMware vRealize Log Insight

The VMs for VMware vCenter, vRealize Orchestrator, Lenovo XClarity Administrator and Lenovo XClarity Administrator Integrator should have access to the management network used for managing servers, storage and networking.

Lenovo XClarity Integrator for VMware vRealize Automation

Lenovo XClarity Integrator for vRealize Automation provides cloud administrators with pre-built, reusable vRealize service blueprints for end-to-end infrastructure provisioning and management. XClarity blueprints enable you to deliver hosts, clusters, and virtual resource pools on demand, as a service. Well-coordinated automation of complex, repetitive tasks help you put more focus on innovation, spend less time on infrastructure, and compress application development times.
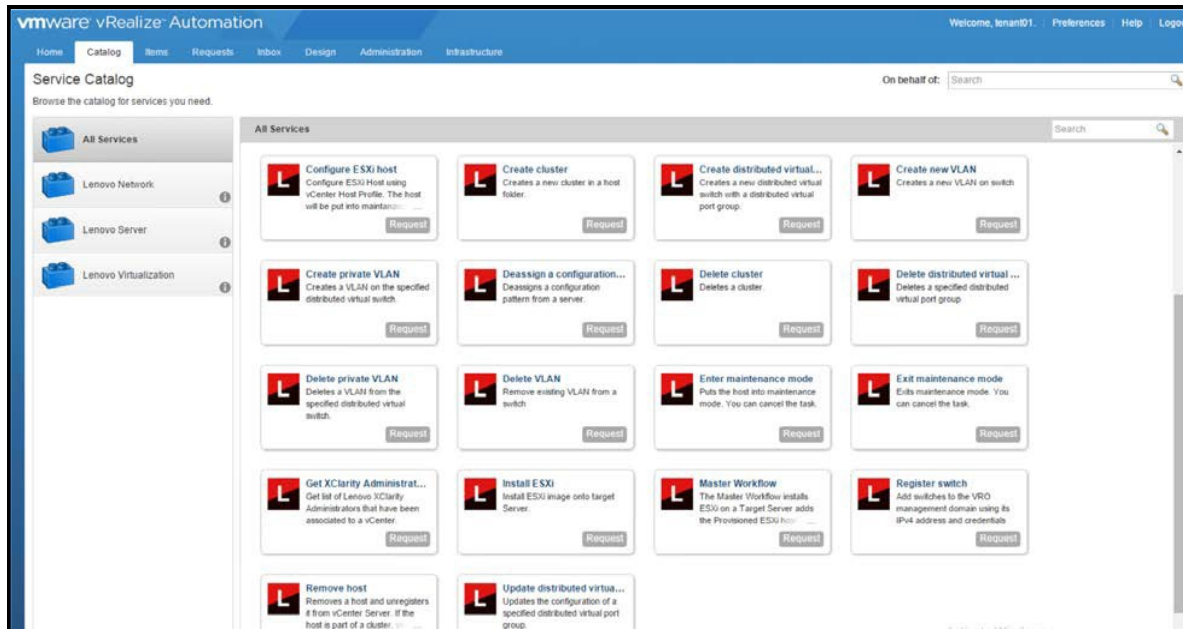

Figure 4. Lenovo XClarity Integrator for VMware vRealize Automation

Firmware and Drivers

The Lenovo OS Support Center for VMware web page provides quick and easy access to supported firmware and drivers for VMware. Lenovo maintains this repository of all qualified drivers with links to firmware and utilities qualified in conjunction with these drivers.

Custom Image

The Lenovo VMware ESXi custom image is tested across Lenovo's server and adapter portfolio with the same ServerProven® support guarantee as VMware's base release. The image enables support of Lenovo's tools, including ToolCenter that give the customer the ability to flash server firmware such as: UEFI, XCC, and vendor firmware for supported IO adapters. The image includes the latest drivers that align with VMware's release schedule. These updated drivers support Lenovo's portfolio.

For additional information on VMware customized images and download links, visit:
https://download.lenovo.com/servers_pdf/customized_image_reference_guide.pdf

VUM Repository

Lenovo VMware Update Manager (VUM) Repository is a one-stop repository that provides access to Lenovo developed bundles along with device drivers that are part of the Lenovo Customized VMware images.

The Lenovo VUM Repository is at https://vmware.lenovo.com/content/

These bundles and associated VIBs (vSphere Installation Bundles) can be used with VMware applications and tools like VMware Update Manager (VUM), ESXCLI & PowerCLI. To learn more about these tools, refer to the VMware documentation.

VMware Solutions from Lenovo

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: https://lenovopress.com/datasheet/ds0023-lenovo-thinkagile-vx-series

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 Lenovo 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:
https://docs.vmware.com/en/VMware-Cloud-Foundation/2.1.3/vcf-21-ovdeploy-guide.pdf

VMware Cloud Foundation FAQ:
https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/datasheet/products/vmware-cloud-foundation-faq.pdf

Technical Briefs:

Client Virtualization

Technical Brief: Lenovo Client Virtualization with VMware Horizon on ThinkSystem and ThinkAgile VX Servers

Abstract: This reference architecture was updated in the following way:

- Removed information on withdrawn products (networking/DS storage)
- Added benchmark results for Lenovo systems with 3rd Gen Intel Xeon Scalable Processor and 3 [rd] Gen

AMD EPYC Processors

- Updated deployment examples and configs with latest processors
- Added Windows 11 Performance results for Lenovo ThinkAgile VX
- Author: Chandrakandh Mouleeswaran
- Link: http://www.lenovopress.com/lp0663

Cloud Computing

Technical Brief: Lenovo ThinkAgile VX Systems with Google Anthos On-Prem on VMware Hybrid Cloud

Abstract: Running Google Anthos on-premises allows customers to lower costs by hosting containerized applications on their own virtual infrastructure, improve security as sensitive data remains within the data center, and streamline application development since customers can test and deploy the same container applications designed to run in Google Cloud on premises before publishing publicly.

- Author: Vinay Kulkarni

Link: https://www.lenovo.com/content/dam/lenovo/dcg/global/en/solutions/devops/architecture-briefs/thinkagile_vx_with_google_anthos_on-prem_on_vmware_hybrid_cloud.pdf

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:
https://datacentersupport.lenovo.com/us/en/solutions/ht505293

vSan Hardware Quick Reference Guide from VMware:
https://www.vmware.com/resources/compatibility/pdf/vi_vsan_profile.pdf

Engineered Solutions

For customers that prefer to build their own, Lenovo provides Engineered Solutions to speed deployment, optimize performance and ensure scalability of industry-leading enterprise applications on Lenovo hardware infrastructure. Lenovo Engineered Solutions are a range of pre-configured, tested, and validated best practice configurations, system-level appliances, rack-based appliances, and professional services offerings designed to reduce TCO, risk, and complexity. Guidance is provided in reference architectures, configuration guides, and solution guides.

Lenovo Engineered Solutions for VMware offerings include:

- Lenovo Validated Design for VMware vCloud Suite with ThinkSystem Servers
  - Reference architecture: https://lenovopress.com/lp0660
- Lenovo Client Virtualization Validated Design for VMware Horizon with VMware vSAN
  - Reference architecture: https://lenovopress.com/lp0663
- Lenovo Client Virtualization Validated Design for VMware Horizon on ThinkAgile HX:
  - Reference architecture: https://lenovopress.com/lp0665
- **Reference Architecture: Red Hat OpenShift Container Platform on Lenovo ThinkSystem and ThinkAgile HX Servers**
  - Abstract: This popular reference architecture was updated to add OpenShift with ThinkAgile HX, upgrade the OpenShift version to OCP 4.11, and add multi-cluster management. The RA will be updated again in two weeks to link to new Solution IDs in DCSC under "Deployment Ready Solutions – Container Platforms".
  - Author: Xiaotong XT6 Jiang
  - Link: http://www.lenovopress.com/lp0968

Seller training courses

The following sales training courses are offered for employees and partners (login required). Courses are listed in date order.

1. **Understanding Lenovo XClarity**
   2024-01-31 | 8 minutes | Employees and Partners

   This course is designed to give Lenovo sales and partner representatives an understanding of Lenovo XClarity.

   Learning Objectives:

   • Identify the different components of XClarity
   • Describe the primary benefits to customers
   • Define its core features

   Published: 2024-01-31
   Length: 8 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: SXXW2118

2. **Partner Technical Webinar - VMware by Broadcom update for Lenovo**
2024-01-22 | 60 minutes | Employees and Partners

   In this 60-minute replay, Todd Frederking and Mat Remillard, Lenovo VMware BDM team, and Baker Hull, Broadcom VMware Solutions Architect reviewed the recent changes in what Lenovo's VMware offerings. Todd reviewed the most recent partner communication about the VMware by Broadcom OEM program. Then the panel took questions for the audience.

   Published: 2024-01-22
   Length: 60 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: 011924

3. **VMware Cloud Foundation**
2024-01-17 | 720 minutes | Employees Only

   In this series of course, Kyle Gleed, Technical Marketing Group Manager from VMware will provide a technical overview of VMware Cloud Foundation (VCF). Through the series of courses, he will discuss architectural deep dive of VCF and the individual components that make up VCF. You will view Kyle walk you through various demos of the components and the important information your customers will need to provide to have a successful VCF implementation.

   Published: 2024-01-17
   Length: 720 minutes
   Employee link: Grow@Lenovo
   Course code: DVXS110

4. **VTT: VMware and Lenovo - Transforming Industries with VMware Edge Compute Jan. 2024**
2024-01-10 | 60 minutes | Employees Only

   Join Josh David from VMware and Trent Richardson from Lenovo as they discuss the latest news from Project Bullwark, and what's new from the VMware Edge Compute Stack. Topics will include VMware Edge real-time capabilities, Edge Orchestration, and more. Josh and Trent will also discuss determining factors when choosing between the ThinkEdge SE350 V2 and ThinkEdge SE360 V2. Together they will explore what lies in the near future for Lenovo and VMware at the Edge.

   Published: 2024-01-10
   Length: 60 minutes
   Employee link: Grow@Lenovo
   Course code: DVEDG210

5. **A Lenovo Seller's Journey in the Cloud Space – Clarifying Your Customer's Challenge**
2024-01-03 | 20 minutes | Employees and Partners

   The intention of this learning module is to provide suggestions and guidance for those first customer conversations after the opportunity has been initially identified. In this simulation, the Seller's objective is to learn about the business and qualify the business gap.

   After completing this course, you will be able to:
   • Verify the customer business need
   • Guide the customer conversation to qualify and confirm the business gap
   • Determine next steps to progress the sale

   Published: 2024-01-03
   Length: 20 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DCLDB217r2

6. **Gaining Insight to Lenovo Cloud Solutions Customers - Practical Scenario**
   2024-01-03 | 20 minutes | Employees and Partners

   In this course we are going to explore a productive sequence of questions to gather information about the customer's business, business processes, and data flow to help position related Lenovo Cloud Solutions.

   This course aims to help Lenovo and Partner Sellers identify customers' business landscape in relation to their intended and/or current IT Cloud eco-system.

   Completing this learning content will enable you to:
   • Ask questions to uncover your customer's business operations and IT landscape
   • Assess and identify possible opportunities for Lenovo Cloud Solutions and Services
   • Identify the next step to progress the conversation with the customer

   Published: 2024-01-03
   Length: 20 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DCLDO115r2

7. **Gaining Insight to Lenovo Cloud Solutions Customers**
   2024-01-03 | 25 minutes | Employees and Partners

   In this course we are going to explore how to start the conversation about customer's business and technology.

   This course aims to provide the Lenovo and Partner sellers with the foundation to ask fundamental questions about customers' business and technology to help position related Lenovo Cloud Solutions.

   After completing this training, you will be able to:
   • Ask fundamental questions about your customers' business
   • Ask fundamental questions about your customers' technology
   • Understand what a company needs to consider to execute a cloud strategy

   Published: 2024-01-03
   Length: 25 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DCLDO114r2

8. **The Basics of Cloud Computing**
   2024-01-03 | 20 minutes | Employees and Partners

   As the first course in the ISG Cloud Solutions curriculum, it goes all-out to help Lenovo and Partner General/Technical sellers by providing the foundational information regarding the cloud technology.

   This course aims to increase the seller's ability to articulate basic cloud technology concepts and help position related Lenovo Solutions and services.

   Published: 2024-01-03
   Length: 20 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DCLDO111r2

9. **Lenovo XClarity Administrator**
2023-12-12 | 60 minutes | Employees and Partners

This course contains a demo with an overview of the Lenovo XClarity family of products and covers guidelines for using Lenovo XClarity Administrator.

Learning Objectives:

• Describe when to use Lenovo XClarity Administrator
• Recognize the Lenovo XClarity Administrator menu options and screens.
• Explain how to update firmware using XClarity Administrator
• Recall how to apply a configuration pattern using Lenovo XClarity Administrator.

Published: 2023-12-12
Length: 60 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: DLXCO102

10. **Lenovo XClarity Controller and Lenovo XClarity Provisioning Manager**
2023-12-04 | 60 minutes | Employees and Partners

This course contains a demo with an overview of the Lenovo XClarity family of products and covers guidelines regarding how to use Lenovo XClarity Essentials, Lenovo XClarity Controller, and Lenovo XClarity Provisioning Manager.

Learning Objectives:

• Describe when to use Lenovo XClarity Essentials, Lenovo XClarity Controller, and Lenovo XClarity Provisioning Manager.
• Explain how to launch Lenovo XClarity Controller and Lenovo XClarity Provisioning Manager.
• Recognize the menu options and screens of both Lenovo XClarity Controller and Lenovo XClarity Provisioning Manager.

Published: 2023-12-04
Length: 60 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: DLXCO101

11. **VMware Cloud Foundation Build - Tech Overview**
2023-11-02 | 15 minutes | Employees and Partners

This light board presentation describes the basics of building the management and workload domains of a VMware Cloud Foundation infrastructure. The presenter covers the VMware software products which automate many of the buildup tasks and eases the entire process for the operations team.

Objectives:

1) Recognize VMware software packages which automate the buildup process
2) Identify Minimum configurations for management and workload domains
Automation of the life cycle management

Published: 2023-11-02
Length: 15 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: DVMT2001

12. **VMware Cloud Foundation Overview**
    2023-09-28 | 16 minutes | Employees and Partners

    In this Bright Idea Lightboard session, Nimish Vora from VMware walks you through how to show customers Lenovo VMware Cloud Solution can solve enterprise business customers' need for a cloud solution.

    Upon completion of this training, you will be able to:
    • Understanding VMware Cloud Foundation and its Role in Hybrid Cloud Adoption
    • Identifying Use Cases and Benefits of Cloud Foundation
    • Articulating the Role of Lenovo and VMware in Cloud Foundation Deployment

    Published: 2023-09-28
    Length: 16 minutes
    Employee link: Grow@Lenovo
    Partner link: Lenovo Partner Learning
    Course code: DVCFL001

13. **Partner Technical Webinar - VMware Playbook**
    2023-09-18 | 60 minutes | Employees and Partners

    In this 60-minute replay, Tate Davis, Lenovo VMware BDM, and Randy Brubaker, Lenovo VMware Sales Engagement Manager, reviewed the highlights of the Lenovo VMware Playbook. They reviewed Lenovo's OEM program for VMware including VEO (formerly ELAs), Licensing, Support and How to Engage the Lenovo VMware team.

    Published: 2023-09-18
    Length: 60 minutes
    Employee link: Grow@Lenovo
    Partner link: Lenovo Partner Learning
    Course code: 091523

14. **VTT Cloud Architecture - Application Migration September 2023**
    2023-09-12 | 35 minutes | Employees Only

    This VTT Cloud Architecture training aims to equip participants with the knowledge necessary to help your customers successfully migrate applications to a cloud infrastructure. With the increasing adoption of cloud computing, organizations are looking to harness the benefits of private and hybrid clouds, such as enhanced security, control, and customization. However, migrating applications to cloud requires careful planning, architectural considerations, and a deep understanding of the migration process.
    In this training, we will delve into cloud infrastructure and learn about the key components involved in application migration. We will explore various migration strategies, including lift-and-shift, re-platforming, and re-architecting, and understand the factors that influence the selection of an appropriate migration approach. We will also cover best practices for evaluating application readiness, assessing dependencies, identifying potential challenges and risks, and solution design considerations.
    We will discuss using migration tools, technologies specific to cloud environments and automation techniques for streamlining the migration process, ensuring minimal disruption to business operations.

    Published: 2023-09-12
    Length: 35 minutes
    Employee link: Grow@Lenovo
    Course code: DVCLD204

15. **Partner Technical Webinar - VMware vSAN ESA**
2023-09-11 | 60 minutes | Employees and Partners

In this 60-minute replay, Baker Hull, VMware Global Partner Solutions Architect, discussed vSAN 8 and ESA (Enterprise Storage Architecture) and how it compares to OSA (Original Storage Architecture).

Published: 2023-09-11
Length: 60 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: 090823

16. **Partner Technical Webinar - Demo of XClarity Basics**
2023-08-28 | 60 minutes | Employees and Partners

In this 60-minute replay, Joe Allen, Lenovo Solutions Architect, demo'd XClarity Controller 2 (XCC2), XClarity Administrator and XClarity Integrator with VMware vCenter. No slides were used for this session, but a reference is included with handy links.

Published: 2023-08-28
Length: 60 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: 082523

17. **VTT: VMware Edge Compute Stack, August 2023**
2023-08-17 | 60 minutes | Employees Only

Edge Compute drives business transformation in sectors like retail, manufacturing & utilities. It intersects with IoT sensors, robotics & AI, and supports use cases requiring computing closer to operations. Implementing Edge Compute at scale requires a platform supporting verticalized applications, manageability, reliability & security. Join Josh David from VMware and Alejandro Perez from Lenovo as they discuss how the VMware Edge Stack enables real-time intelligence & immersive experiences at the Edge.

Published: 2023-08-17
Length: 60 minutes
Employee link: Grow@Lenovo
Course code: DVEDG203

18. **VTT: Cloud Architecture Hybrid Cloud Discussion from Lenovo/VMware POV - June2023**
2023-06-15 | 90 minutes | Employees Only

We design solutions for hybrid cloud solutions but that is only half the discussion. How do we ensure the public cloud side of hybrid will match the Lenovo\VMWare on-premises solution? In this VTT discussion we see what setting up the public cloud side of hybrid looks like, and review configuration decision customer will have to consider. Listen as Niels Hagoort, VMware Technical Marketing Architect discusses this topic.

Published: 2023-06-15
Length: 90 minutes
Employee link: Grow@Lenovo
Course code: DVCLD201

19. **VTT: Understanding Lenovo xClarity - June 2023**
2023-06-14 | 71 minutes | Employees Only

Join us as we review the individual products that make up the XClarity Management Suite and discuss the development roadmap for XClarity.

Published: 2023-06-14
Length: 71 minutes
Employee link: Grow@Lenovo
Course code: DVSYS201

20. **ThinkAgile VX & VMware**
2023-03-07 | 15 minutes | Employees and Partners

In this lightboard presentation, Mike McDermott explains the changes done in the last months for the elements of ThinkAgile VX: Ready nodes, Certified Node and Integrated Systems.

Upon completion of the training, you will be able to:
• Explain ThinkSystem Ready Node
• Explain ThinkAgile VX Certified Node
• Explain ThinkAgile VX Integrated Node
• Explain Lenovo TruScale

Published: 2023-03-07
Length: 15 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: DVXS118

21. **LXCI for vCenter - Overview**
2023-02-13 | 25 minutes | Employees and Partners

This course includes an overview of Lenovo XClarity Integrator (LXCI) for vCenter.
After completing this course, you will be able to:

- Explain what VMware vCenter is
- Describe Lenovo XClarity Integrator for VMware vCenter
- Discuss the features and functions of Lenovo XClarity Integrator for VMware vCenter

Published: 2023-02-13
Length: 25 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: DLXCIO207

22. **Partner Technical Webinar - XCC update and XClarityOne overview**
2023-02-07 | 60 minutes | Employees and Partners

In this 60-minute replay, Chuck Weber, Sr Product Manager for XClarity presented an update on XClarity Controller's new features, an overview of XClarity One and look ahead at how we plan to support Edge devices.

Published: 2023-02-07
Length: 60 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: 020323

23. **VMware Cloud Foundation Network Services - Tech Review**
2022-12-20 | 9 minutes | Employees and Partners

How does VMware Cloud Foundation manage networking to automate and streamline customer networking needs? This video provides a technical overview of the VMware NSX operations within VMware Cloud Foundation. Topics include the VXLAN Network ID (VNI) and the NSX Edge. Published January 2020

Published: 2022-12-20
Length: 9 minutes
Employee link: Grow@Lenovo
Partner link: Lenovo Partner Learning
Course code: DVMT2003

24. **VMware Cloud Foundation**
2022-12-16 | 15 minutes | Employees Only

What does VMware mean when they say "Cloud Foundation"? It all starts with the Data Center infrastructure and customer services. VMware Cloud Foundation (VCF) is a set of VMware products working together to streamline data center operations and services. This lightboard presentation covers the basics of VCF with a bit of the Lenovo perspective added to the story. By completing this course, you'll be informed of:
• VMware products included in the VMware Cloud Foundation
• VMware Cloud Foundation can connect with VMware Managed Cloud
• How Lenovo brings value to the VMware customer
Published January 2020

Published: 2022-12-16
Length: 15 minutes
Employee link: Grow@Lenovo
Course code: DVMO1001

25. **How to Sell VMware - Lenovo ISG Sales Process Recording**
2022-12-16 | 65 minutes | Employees Only

Hear Mike Tilt describe Selling Best Practices and the Lenovo Process of Selling VMware. Topics included are Deal Registration and the Quote process, VMware software options and OEM licensing. Additional FAQs about process and licensing will be covered and specific contacts if the seller needs assistance.

Published: 2022-12-16
Length: 65 minutes
Employee link: Grow@Lenovo
Course code: DVMS100

26. **Partner Technical Webinar - XClarity Workshop Lite**
2022-08-10 | 60 minutes | Partners Only

In this 60-minute replay, Marilee Smith, NA Technical Trainer and XClarity SME showed an abridged version of the XClarity Workshop for Partners. She gave an overview of the XClarity family and then gave a bit more depth and short demo of XClarity Controller, Essentials, Provisioning Manager, Administrator, Orchestrator and Integrator.

Published: 2022-08-10
Length: 60 minutes
Partner link: Lenovo Partner Learning
Course code: 080522

Related publications and links

3rd Party Research Report: Measuring the Ease of Deployment and Operation of Lenovo ThinkAgile VX HCI Solutions

- Abstract: Prowess Consulting put to test recent enhancements Lenovo has made to improve the deployment and lifecycle management of ThinkAgile VX systems. Prowess tested the ThinkAgile VX Deployer tool to evaluate how well it works, how easy it is to use, and how long it takes to perform key operations. They also tested that VMware vCenter could perform a successful remediation of a cluster created with the ThinkAgile VX Deployer.

Executive Summary: https://www.lenovo.com/content/dam/lenovo/dcg/global/en/products/software-defined-infrastructure/Prowess_Exec_Summ_Measuring_the_Ease_of_Deployment_of_ThinkAgile_VX.pdf

Full Report: https://www.lenovo.com/content/dam/lenovo/dcg/global/en/products/software-defined-infrastructure/Prowess_Measuring_the_Ease_of_Deployment_of_ThinkAgile_VX.pdf

- VMware compatibility guide:
- https://www.vmware.com/resources/compatibility/search.php

VMware Cloud Foundation FAQ
https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/datasheet/products/vmware-cloud-foundation-faq.pdf

- Firmware/Drivers for Lenovo ThinkSystem and System x: https://support.lenovo.com/us/en/solutions/ht506028
- Lenovo Repository for VMware Update Manager (VUM): https://vmware.lenovo.com/content/
- Lenovo OS Interoperability Guide
- Lenovo Server Proven Compatibility
- Lenovo vSAN Certified Devices

Related product families

Product families related to this document are the following:

- VMware Alliance
- VMware vSphere

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