Lenovo ThinkAgile Converged Solution for VMware V4

Product Guide

The Lenovo ThinkAgile Converged Solution for VMware V4 is a disaggregated infrastructure platform that combines the operational simplicity and lifecycle management of ThinkAgile VX Series of software defined infrastructure (SDI) servers with the robust data management features offered by ThinkSystem DG Series Unified Storage Arrays to provide a unified, flexible platform for hybrid-cloud and storage workloads.
It features three workload-ready profiles comprising of the 2-socket 1U VX630 V4, 2U VX650a V4, or 2U VX650 V4 Hyperconverged Systems that feature the 6th Generation Intel Xeon Scalable processors (formerly codenamed "Granite Rapids) and provides a minimum of 16 cores to a maximum of up to 86 cores with support for the new PCIe 5.0 standard for I/O.
It is complemented with the Lenovo ThinkSystem DG5200 Unified Storage Array, an all-QLC flash storage system, which is designed to provide performance, simplicity, capacity, security, and high availability for medium-sized enterprises. Powered by the Lenovo ThinkSystem storage management software (ONTAP), the DG5200 delivers enterprise-class storage management capabilities with a wide choice of host connectivity options and enhanced data management features.
Lenovo ThinkSystem DG5200 is a 2U rack-mount controller enclosure that includes two controllers, 128 GB RAM and 16 GB battery-backed NVRAM (64 GB RAM and 8 GB NVRAM per controller), and 24 SFF hot-swap drive bays (2U24 form factor).
With this solution, you can optimize your virtualization investments and flexibly scale compute with the powerful ThinkAgile VX Series and storage with blazing fast all-NVMe ThinkSystem DG Series, independently, with centralized control in VMware vCenter & Lenovo XClarity.
A single ThinkSystem DG5200 Storage Array can also be scaled out to 72 QLC SSDs with the attachment of two Lenovo ThinkSystem DG242N 2U24 NVMe Expansion Enclosure. It can be combined with other DM and DG systems to create a clustered system.

Suggested uses: Virtualization, VDI, ERP, Databases, VMware

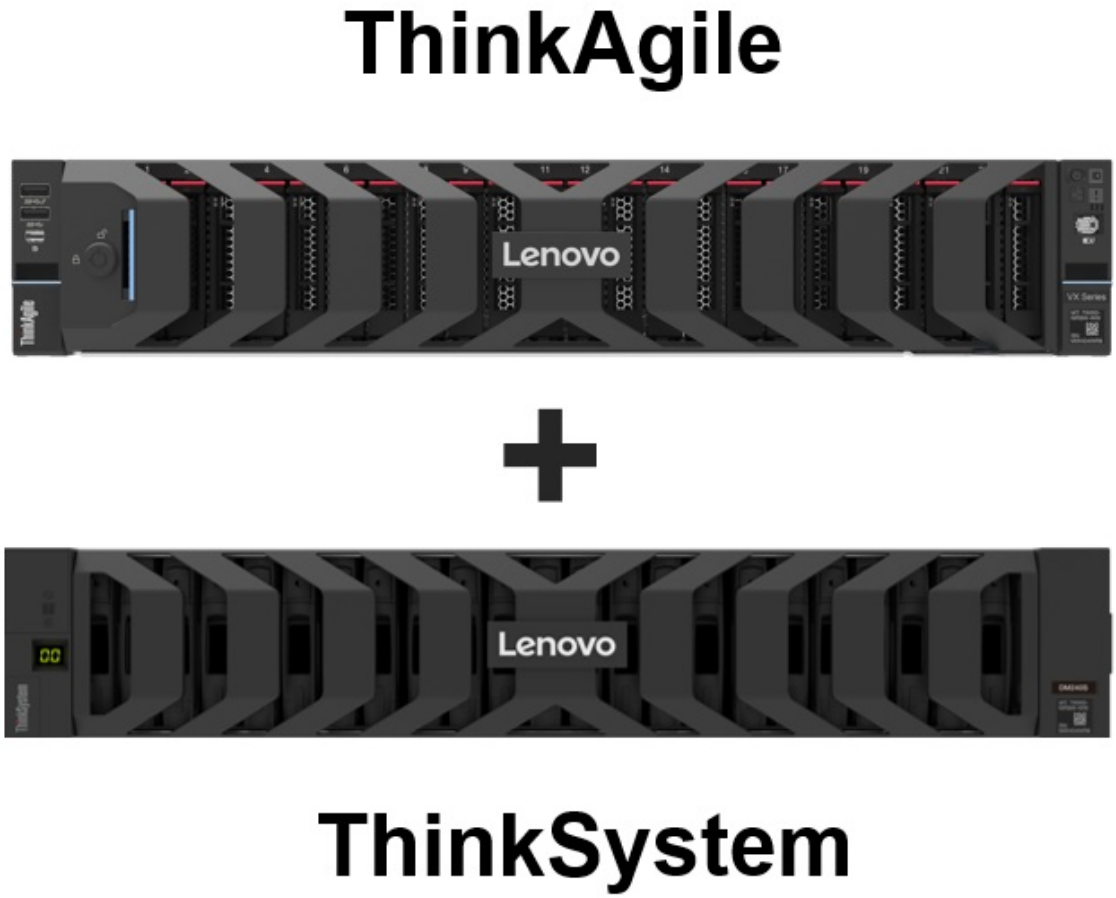

Figure 1. Lenovo ThinkAgile Converged Solution for VMware V4

Did you know?

The ThinkAgile VX630 V4, VX650a V4 and VX650 V4 are built on the Lenovo ThinkSystem SR630 V4, SR650a V4 and SR650 V4 servers that feature enterprise-class reliability, management, and security.
Lenovo ThinkAgile Converged Solution for VMware V4 features ThinkAgile VX Series servers with TLC (triple level cell) NVMe drives backed by vSAN Express Storage Architecture (ESA) and ThinkSystem DG5200 Unified Storage Array with QLC (quad-level cell) flash drives as an end-to-end All Flash storage solution. QLC increases flash storage density and reduces costs because it stores four bits per cell compared to Triple-level cell (TLC) drives which store three bits per cell. QLC is ideal for replacing hard drive technology because it offers better performance, comparable cost, and better TCO due to increased density and lower power consumption.
The ThinkAgile Converged Solution for VMware V4 comes paired with Premier Support that offers a single point of support for quick 24/7 problem reporting and resolution.

Key features

ThinkAgile Converged Solution for VMware features

The ThinkAgile Converged Solution for VMware offers the following key features:

- Provide quick and convenient path to implement a converged solution powered by VMware Cloud Foundation (VCF) or VMware vSphere Foundation (VVF) software stacks with a single point of contact provided by Lenovo for purchasing, deploying, and supporting the solution. Licenses for VCF or VVF can be obtained by contacting a Broadcom Seller directly or a Broadcom authorized software partner.
- Disaggregated infrastructure that enables flexible scaling of compute resources with ThinkAgile VX Series and scaling storage with drives, expansion enclosures or scale out clustering with ThinkSystem DG Series storage.
- Meet various workload demands with cost-efficient, performance-optimized all-flash storage configurations.
- Deliver fully validated and integrated hardware and firmware that is certified with VMware by Broadcom.
- All-flash storage with dual active/active controller configurations for high availability and performance.
- Available as a unified storage (File, Block, Object) platform.
- Compact QLC Flash storage system delivering high-performance and low-latency at an affordable price point, enabling customers of all sizes to enhance their analytics and AI deployments and accelerate applications' access to data.
- A rich set of storage management functions available, including snapshots, volume copy, quality of service, thin provisioning, compression, deduplication, encryption, disk-based backup, application- and virtual machine-aware backup, quick data recovery, clustering, synchronous replication, and asynchronous replication.
- Redundant, hot-swappable and customer replaceable hardware components, including transceivers, controllers, I/O modules, power supplies, and drives.
- Intuitive, web-based GUIs for easy system management with integration into VMware vCenter for streamlined provisioning, management and monitoring.
- Designed for 99.9999% availability with redundant hot-swap components, including controllers and I/O modules, power supplies, and non-disruptive firmware upgrades.
- Bundled with Lenovo Premier Support with 3-year or 5-year warranty options providing a single-point-of-contact for quick 24/7 hardware support, problem reporting and resolution.
- Remote and Onsite deployment options delivered by Lenovo Professional Services (optional).

Hardware features

For details on the feature of the individual hardware components, please refer to the product guides for each model:
ThinkAgile VX630 V4 – https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#hardware-features

ThinkAgile VX650a V4 – https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#hardware-features

ThinkAgile VX650 V4 – https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#hardware-features

ThinkSystem DG5200 – https://lenovopress.lenovo.com/lp2074

Models

The solution model for the ThinkAgile Converged Solution for VMware can be configured by using the Lenovo Data Center Solution Configurator (DCSC), http://dcsc.lenovo.com

The following table lists the base CTO models.

Table 1. CTO solution models

Description	Solution CTO Model
ThinkAgile Converged Solution for VMware V4	7DP1CTO1WW

The solution model for the ThinkAgile Converged Solution for VMware (V4) ships with the following profile types:

- Profile A: 3x VX630 V4 Hyperconverged System (7DG5CTO1WW) + 1x DG5200 All Flash Storage Array (7DHYCTO1WW)
- Profile B: 3x VX650a V4 Hyperconverged System (7DG6CTO2WW) + 1x DG5200 All Flash Storage Array (7DHYCTO1WW)
- Profile C: 4x VX650 V4 Hyperconverged System (7DG6CTO1WW) + 1x DG5200 All Flash Storage Array (7DHYCTO1WW)

Note: The node count in the profile is the default/minimum count that has been sized for the profile, however, you may choose to increase the node count within the cluster scalability limits indicated in Table 2. Comparison of features

Components and connectors

Front Views

The following figure shows the front of the ThinkAgile VX650 V4 with 2.5-inch drives.

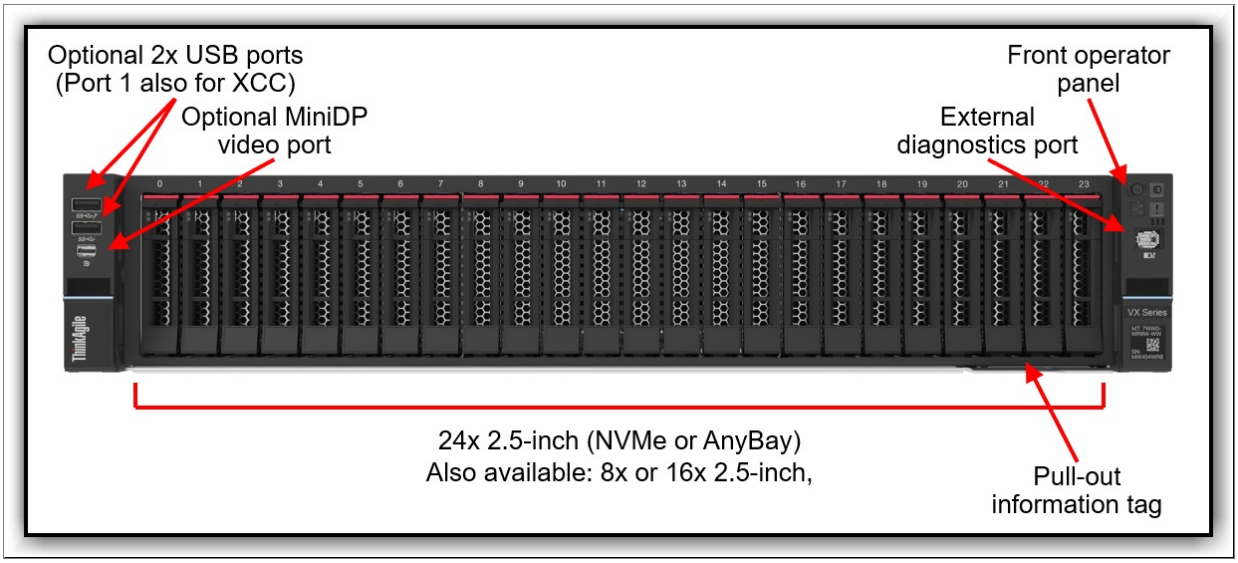

Figure 2. Front view of the ThinkAgile VX650 V4 with 2.5-inch drives

The following figure shows the front of the ThinkAgile VX650a V4 with 2.5-inch drives.

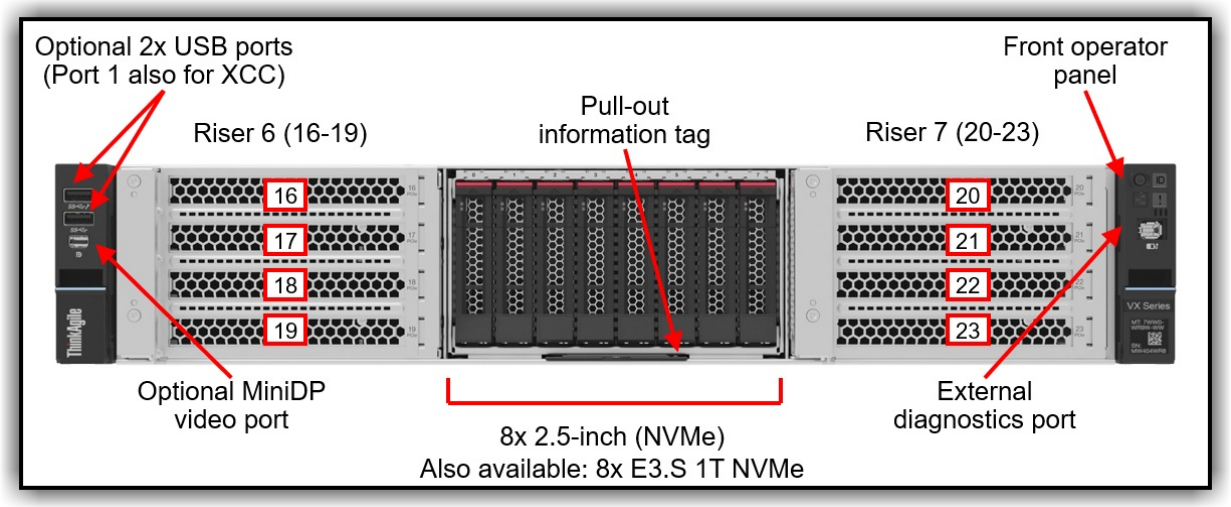

Figure 3. Front view of the ThinkAgile VX650a V4 with 2.5-inch drives

The following figure shows the front of the ThinkAgile VX630 V4 with 2.5-inch drives.

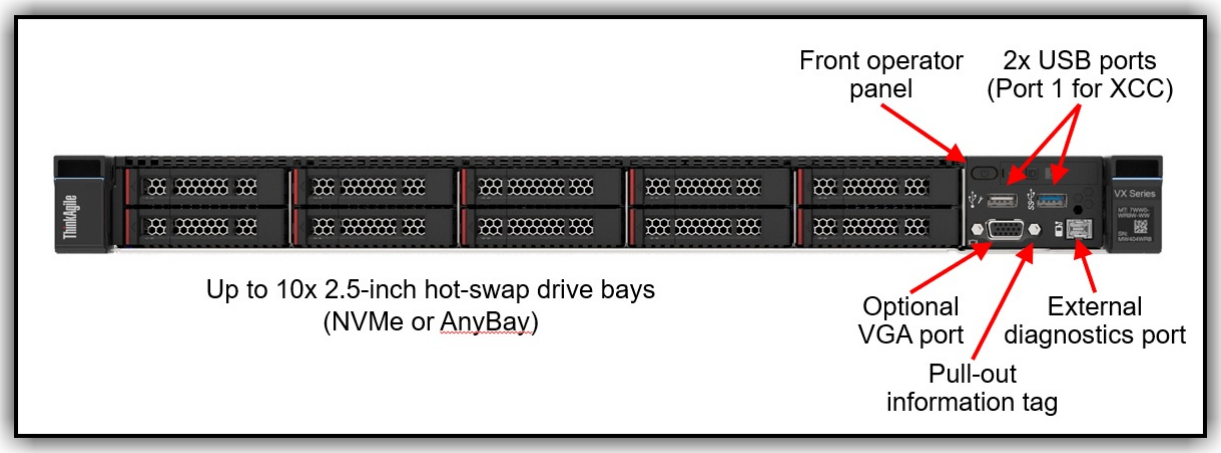

Figure 4. Front view of the ThinkAgile VX630 V4 with 2.5-inch drives

The following figure shows the front of the ThinkSystem DG5200

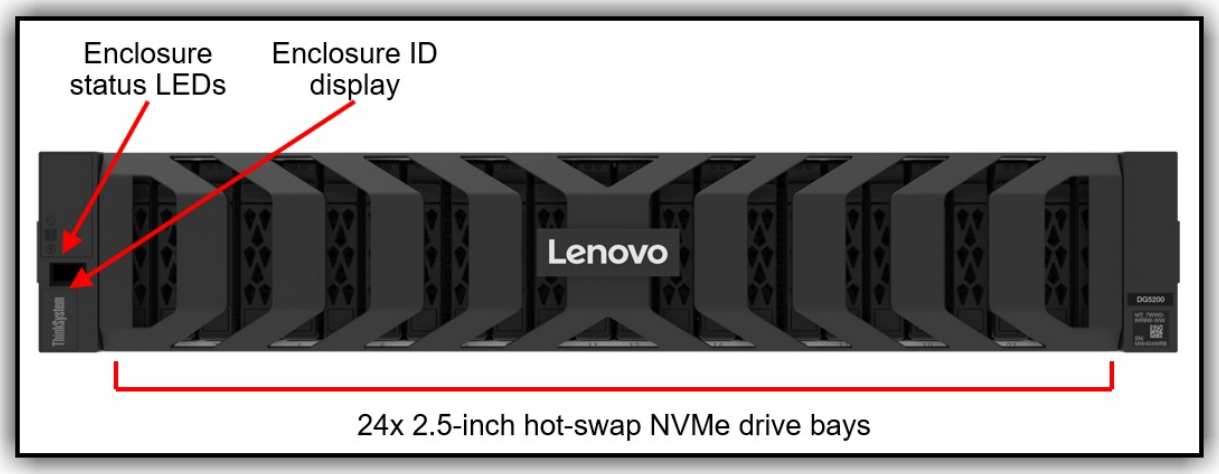

Figure 5. Front view of the ThinkSystem DG5200 with 2.5-inch drives

Rear Views

The following figure shows the components visible from the rear of the systems.

The following figure shows the rear of the ThinkAgile VX650 V4 with 2.5-inch drives.

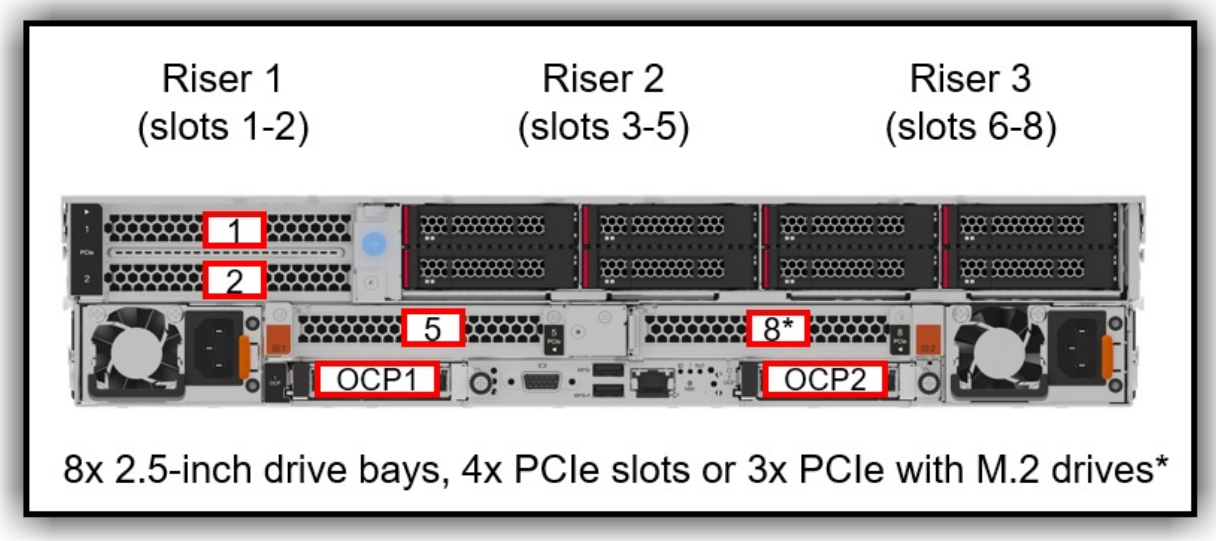

Figure 6. Rear view of the VX650 V4 system

The following figure shows the rear of the ThinkAgile VX650a V4 with 2.5-inch drives.

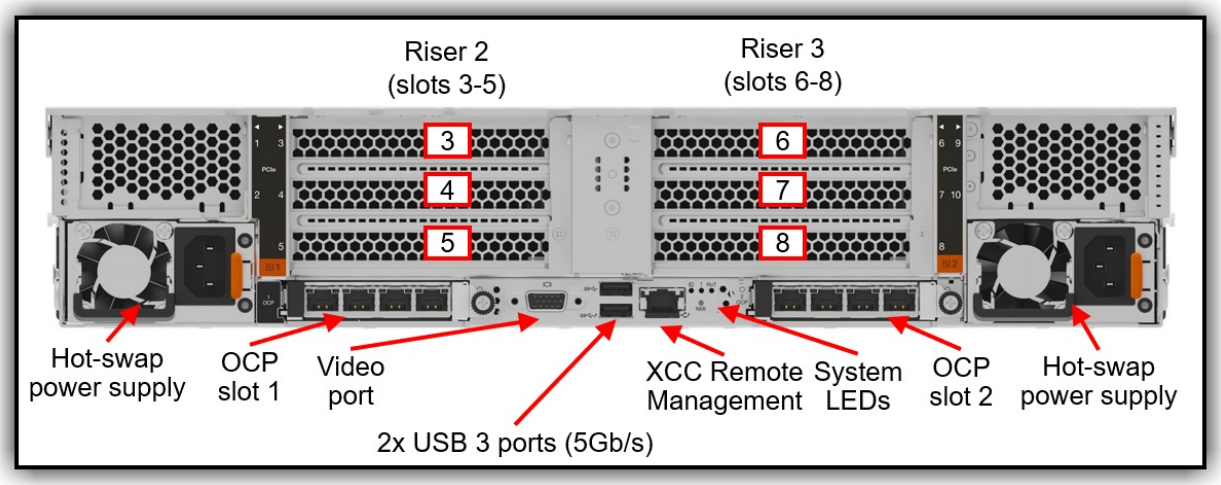

Figure 7. Rear view of the VX650a V4 system

The following figure shows the rear of the ThinkAgile VX630 V4 with 2.5-inch drives.

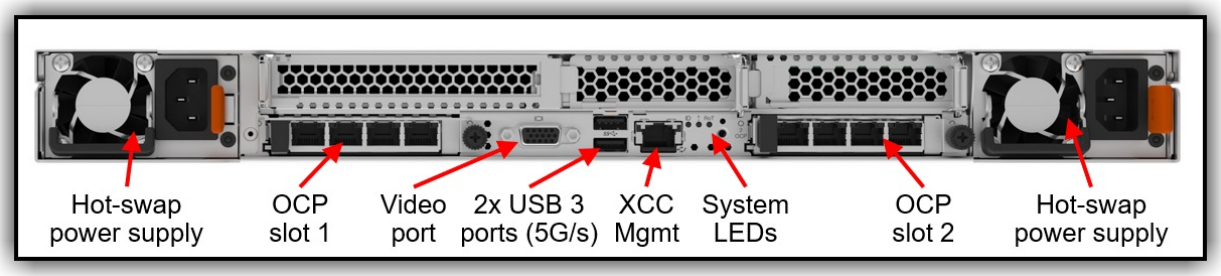

Figure 8. Rear view of the VX630 V4 system

The following figure shows the rear of the ThinkSystem DG5200

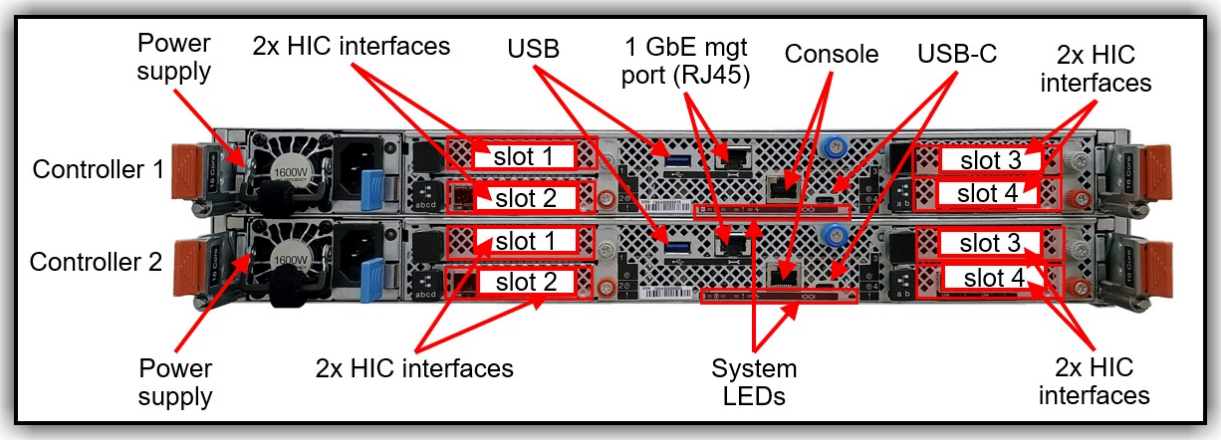

Figure 9. Rear view of the ThinkSystem DG5200 system

Standard specifications

The ThinkAgile Converged Solution for VMware V4 is offered in three workload-ready profiles that includes the ThinkAgile VX630 V4, ThinkAgile VX650a V4 or VX650 V4 for compute, coupled with the ThinkSystem DG5200 all flash storage array.
The following table provides an overview comparison between the profiles.

- Profile A:
  - 3x VX630 V4 Hyperconverged System (7DG5CTO1WW) + 1x DG5200 QLC All Flash Storage Array (7DHYCTO1WW)
- Profile B:
  - 4x VX650a V4 Hyperconverged System (7DG6CTO2WW) + 1x DG5200 QLC All Flash Storage Array (7DHYCTO1WW)
- Profile C:
  - 4x VX650 V4 Hyperconverged System (7DG6CTO1WW) + 1x DG5200 QLC All Flash Storage Array (7DHYCTO1WW)

Table 2. Comparison of features

	Profile A - 50 Virtual Machines	**Profile B - 150 Virtual Machines**	**Profile C - 150 Virtual Machines**
Feature Code	CC75	CC76	CC77
Target workloads	• General Purpose Virtualization • Business Applications • VDI • Analytics Platforms • File Servers & Centralized Storage	• AI Inferencing • Private AI and LLMs • GPU-Rich Business Applications • Graphics intensive VDI • Analytics Platforms • File Servers & Centralized Storage	• General Purpose Virtualization • Private AI and LLMs • Business Applications • Analytics Platforms • File Servers & Centralized Storage
Compute Nodes			
Compute MTM	7DG5CTO1WW	7DG6CTO2WW	7DG6CTO1WW
Form Factor	1U	2U	2U
Base platform	VX630 V4 Hyperconverged System (SR630 V4)	VX650a V4 Hyperconverged System (SR650a V4)	VX650 V4 Hyperconverged System (SR650 V4)
Minimum Cluster Size	3 Hosts	3 Hosts	4 Hosts
Maximum Cluster Size	32 Hosts	16 Hosts	16 Hosts
CPU	2x Intel Xeon SP Gen 6 (Granite Rapids)	2x Intel Xeon SP Gen 6 (Granite Rapids)	2x Intel Xeon SP Gen 6 (Granite Rapids)
Memory	32x DDR5 5600 MHz (8TB maximum)	32x DDR5 5600 MHz (8TB maximum)	32x DDR5 5600 MHz (8TB maximum)
Drive Bays	12 x 2.5"	8 x 2.5"	24 x 2.5"
Drive configurations	All Flash NVMe with vSAN ESA	All Flash NVMe with vSAN ESA	All Flash NVMe with vSAN ESA
Boot drives	2x M.2 SATA or NVMe 2x 7mm hot-swap	2x M.2 SATA or NVMe 2x 7mm hot-swap	2x M.2 SATA or NVMe 2x 7mm hot-swap

	Profile A - 50 Virtual Machines	Profile B - 150 Virtual Machines	Profile C - 150 Virtual Machines
OCP networking	2x OCP 3.0 adapter 1Gb, 10Gb, 25Gb	2x OCP 3.0 adapter 1GB, 10Gb, 25Gb	2x OCP 3.0 adapter 1GB, 10Gb, 25Gb
PCIe networking	Up to 5x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 6x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb	Up to 10x adapters 1Gb, 10Gb BASE-T, 10Gb, 25Gb, 100Gb, 200Gb
GPUs	3x single-wide GPUs	8x single-wide GPUs 4x double-wide GPUs	10x single-wide GPUs 2x double-wide GPUs
Hypervisor	ESXi 8.0u3 (Factory Installed)	ESXi 8.0u3(Factory Installed)	ESXi 8.0u3(Factory Installed)
Storage Node			
Storage MTM	7DHYCTO1WW	7DHYCTO1WW	7DHYCTO1WW
Cluster Scaling Limits	• NAS: 2 HA Pairs • SAN: 2 HA Pairs	• NAS: 2 HA Pairs • SAN: 2 HA Pairs	• NAS: 2 HA Pairs • SAN: 2 HA Pairs
Form Factor	2U	2U	2U
CPU Cores (per node)	10	10	10
Memory (per node)	128GB	128GB	128GB
I/O Expansion Slots	4	4	4
Minimum Drives	8	8	8
Max Drives	24	24	24
NVMe Drives-QLC	15.36 TB, 30.72TB	15.36 TB, 30.72TB	15.36 TB, 30.72TB
Direct Attach NVMe Shelves	2	2	2
Switch Attach Shelves	2	2	2
HA/CL	2x100GbE	2x100GbE	2x100GbE

The following table lists the standard specifications.

Table 3. Compute Node Standard specifications

Components	Specification
Machine types	• 7DG5- 3 or 5 year warranty ThinkAgile VX630 V4 • 7DG6- 3 or 5 year warranty ThinkAgile VX650a V4 • 7DG6- 3 or 5 year warranty ThinkAgile VX650 V4
Form factor	1U - ThinkAgile VX630 V4 2U - ThinkAgile VX650a V4 2U - ThinkAgile VX650 V4

Components	Specification
Cluster Size	With Profile A and B, you can create a compute cluster with a minimum 3 hosts and a maximum of 64 hosts. With Profile C, you can create a compute cluster with a minimum 4 hosts and a maximum of 64 hosts. Requires vSAN 8.0u3 and later releases. Note: Profile minimums mentioned above are applicable to VMware vSphere Foundation (VVF) software stack. For VMware Cloud Foundation (VCF) stack, a minimum of 4 hosts are required for management domain with a minimum of 3 hosts are required for compute domain clusters.
Processor	Supports two 6th generation Intel Xeon Scalable processor (formerly codenamed "Granite Rapids") up to 86 cores per processor, core speeds of up to 4.0 GHz, and TDP ratings of up to 350 W.
Chipset	None. Integrated into the processor.
Memory	32 DIMM slots with two processors (16 DIMM slots per processor). Each processor has 8 memory channels, with 2 DIMMs per channel (DPC). Lenovo TruDDR5 RDIMMs, 9x4 RDIMMs, and 3DS RDIMMs are supported. DIMMs operate at up to 6400 MHz at 1 DPC and up to 5200 MHz at 2 DPC. MRDIMMs are supported up to 8000 MHz at 1 DPC (no support for 2 DPC).
Memory maximum	Up to 8TB by using 32x 256GB 3DS RDIMMs
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs excluding 9x4 RDIMMs, requires Platinum or Gold processors), and memory mirroring.
Disk drive bays	Up to 12x 2.5-inch hot-swap drive bays, Up to 8x 2.5-inch hot-swap drive bays or 24x 2.5-inch hot-swap drive bays: ● Front bays can be 2.5-inch ○ 12x bays with VX630 V4 ○ 8x bays with VX650a V4 ○ 24x bays with VX650 V4 ● Front bays can be E3.S ○ 16x bays with VX630 V4 ○ 8x bays with VX650a V4 ○ 16x bays with VX650 V4 ● Supporting NVMe only. The server also supports these drives for OS boot or drive storage: M.2 support for OS boot: ● 2x front or rear hot-swap M.2 drive bays, or ● Internal M.2 module supporting up to two M.2 drives
Storage controller	● Onboard NVMe ports ○ Up to 16x for VX630 V4 ○ Up to 8x for VX650a V4 ○ Up to 24x for VX650 V4 ● NVMe Retimer Adapter
Network interfaces	Two dedicated OCP 3.0 SFF slots with a PCIe 5.0 host interface, either x8 or x16. Support a variety of 2-port and 4-port adapters with up to 400 GbE network connectivity. One port of each installed OCP adapter can optionally be shared with the XClarity Controller 3 (XCC3) management processor for Wake-on-LAN and NC-SI support.

Components	Specification

PCIe slots	VX630 V4: Up to 3x slots, all at the rear, plus 2 OCP slots. All slots are PCIe 5.0.
	• Four choices for rear-access slots:
	  ◦ 3x PCIe 5.0 x16 low-profile slots
	  ◦ 2x PCIe 5.0 x16 full-height half-length slots
	  ◦ 1x PCIe 5.0 x16 full-height half-length slot + 1x PCIe 5.0 x16 low-profile slot (also supports 2x rear hot-swap M.2 drive bays)
	  ◦ 1x PCIe 5.0 x16 low-profile slot (also supports 2x rear 2.5-inch drive bays)
	VX650a V4: Up to 8x slots at the front for GPUs, up to 6x slots at the rear, plus 2x OCP slots. All slots are PCIe 5.0.
	• Two choices:
	  ◦ 3x PCIe 5.0 x 16 full-height slots (Rear)
	  ◦ 4x PCIe 5.0 x 16 full-height slots (Front)
	VX650 V4: Up to 10x slots, all at the rear, plus 2x OCP slots. All slots are PCIe 5.0.
	• Two choices
	  ◦ 2x low-profile slots, x8 or x16
	  ◦ 3x full-height slots, two x16 and one x8
	Slots are configured using three riser cards. Riser 1 (slots 1-3) and Riser 2 (slots 4-6) are installed on slots in the system board, Riser 3 (slots 7-8) is cabled to ports on the system board.
	A variety of riser cards are available. See thel/O expansion for details.
	For 2.5-inch front drive configurations, the server supports the installation of a RAID adapter.

GPU support	Supports up to 10x single-wide GPUs or up to 4x double-wide GPUs.
	• VX630 V4
	  ◦ 3x single-wide
	• VX650a V4
	  ◦ 8x single-wide
	  ◦ 4x double-wide
	• VX650 V4
	  ◦ 10x single-wide
	  ◦ 2x double-wide

Ports	Front: External diagnostics port, optional 2x USB 3 (5 Gb/s) port, one supports XCC local management, optional Mini DisplayPort 1.1a video port. Rear: 2x USB 3 (5 Gb/s) ports, 1x VGA video port, 1x RJ-45 1GbE systems management port for XCC remote management. Optional DB-9 COM serial port (installs in a slot). Support for an optional second RJ-45 1GbE systems management port for XCC remote management (installs in OCP adapter slot). Support for an optional adapter to share an incoming remote management network connection across 4 servers (installs in an OCP slot). Internal: 1x USB 3.1 G1 connector for operating system or license key purposes
Cooling	6x single-rotor or dual-rotor hot swap 60 mm fans, configuration dependent. Fans are N+1 redundant, tolerating a single-rotor failure. One fan integrated in each power supply.
Power supply	Up to two hot-swap redundant AC power supplies, 80 PLUS Platinum or 80 PLUS Titanium certification. 750 W, 1100 W, 1800 W, 2400 W and 2600W AC options, supporting 220 V AC. 750 W and 1100 W options also support 110V input supply. In China only, all power supply options support 240 V DC. Also available is a 1100W power supply with a -48V DC input.

Components	Specification

Video	Embedded graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity Controller 2 management controller. Maximum resolution is 1920x1200 32bpp at 60Hz.
Hot-swap parts	Drives, power supplies, and fans.
Systems management	Operator panel with status LEDs. Optional External Diagnostics Handset with LCD display. Models with 8x or 16x 2.5-inch front drive bays can optionally support an Integrated Diagnostics Panel. XClarity Controller 2 (XCC2) embedded management controller, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Platinum to enable remote control and other functions
Security features	Chassis intrusion switch, Power-on password, administrator's password, Root of Trust module supporting TPM 2.0 and Platform Firmware Resiliency (PFR). Optional lockable front security bezel.
Software	See Software Section:
Hypervisors	VMware ESXi. See Operating system support section for details.
Limited warranty	Three-year or Five-year customer-replaceable unit and onsite limited warranty with 9x5 next business day (NBD).
Service and support	Optional service upgrades are available through Lenovo Services: 4-hour response, 6-hour fix time, 1-year or 2-year warranty extension, software support for Lenovo hardware and some third-party applications.
Dimensions	VX630 V4: • Width: 440 mm (17.3 in.), height: 43 mm (1.7 in.), depth: 788 mm (31 in.). Servers with E3.S front drives have a longer depth VX650a V4: • Width: 445 mm (17.5 in.), height: 87 mm (3.4 in.), depth: 924 mm (36.4 in.). VX650 V4: • Width: 445 mm (17.5 in.), height: 87 mm (3.4 in.), depth: 796 mm (31.3 in.)
Weight	VX630 V4: • Maximum weight: 20.2 kg (44.5 lb) VX650a V4: • Maximum weight: 38.8 kg (85.5 lb) VX650 V4: • Maximum weight: 38.8 kg (85.5 lb)

The following table lists the ThinkSystem DG5200 storage systems specifications.

Note: The supported hardware options, software features, and interoperability listed in this product guide are based on the ONTAP software version 9.16.1 or later. For details about specific software releases that introduced support for certain hardware options and software features, refer to the Release notes of the particular software release for the ThinkSystem DG5200 that can be found at:
http://datacentersupport.lenovo.com

Table 4. Storage Node standard specifications

Attribute	Specification
Model	DG5200
Machine type	7DHY
Form factor	2U rack mount
NAS Cluster limit	4 HA pairs
System memory (per HA pair)	128 GB
System NVMEM (per HA pair)	16 GB
Cluster Scaling Limit NAS (HA pair)	4 HA Pairs
Cluster Scaling Limit SAN (HA pair)	4 HA Pairs
Drive bays (per HA pair)	24
Max NVMe SSDs (per HA pair)	72
Drive Minimum (per HA pair)	8
Capacity Minimum (per HA pair)	122 TB
Direct Connected Shelves (per HA pair)	2
Switch Connected Shelves (per HA pair)	2
Cluster Connected Shelves (per HA pair)	2x 100Gbe
Host/Storage HIC options (per HA Pairs)†	Select up to (6) Host/Storage HICs. Ordered in pairs

	• 2-port, 40/100Gb Ethernet, QSFP28 (RoCEv2)
	  ◦ RoCE is not supported for host connectivity (intended for storage expansion connectivity)
	• 4-port, 64Gb Fiber Channel, SFP+
	• 2-port, 10/25Gb Ethernet, SFP28
	• 4-port, 10/25Gb Ethernet, SFP28 (IPSec support)
	• 4-port, 10GBASE-T, RJ45
	  ◦ All HICs require SFPs and optical cables or DAC cables
	  ◦ All ethernet SFPs run at posted speed only and do not support dual line rates

RAID levels	RAID-4, RAID-DP, RAID-TEC
Supported NVMe SSD capacities	• 15.36 TB and 30.72 TB NVMe SED SSDs
Storage Protocols	FC, iSCSI, NVMe/FC, NVMe/TCP, NFS, NFSv4/RDMA, SMB, S3
Host operating systems	VMware ESXi

Attribute	Specification
Standard software features	RAID data protection, snapshots, volume copy (FlexClone), storage quality of service (QoS), thin provisioning, compression, deduplication, encryption, disk-based backup (SnapVault), application-aware backup (SnapCenter), quick data recovery (SnapRestore), clustering, clustering with data mirroring (MetroCluster IP), and synchronous and asynchronous replication (SnapMirror)
Optional software features	Object storage tiering (FabricPool). Tiering to other DG or DM Series systems require no additional licensing
Cooling	Redundant cooling with built-in power supply fans
Power Supply	Two redundant hot-swap 1600 W Titanium AC power supplies
	200 to 240
Hot-swap parts	Controllers, I/O modules, drives, power supplies, and transceivers and DAC cables
Management ports	1x 1 GbE port (UTP, RJ-45) per controller for out-of-band management
	2x Serial console ports (RJ-45 and Micro-USB) for system configuration
Management interfaces	ThinkSystem Storage Manager web-based GUI; SSH CLI; Serial console CLI; SNMP, email, and syslog alerts; optional Lenovo XClarity.
Security features	Secure Socket Layer (SSL), Secure Shell (SSH), user level security, role-based access control (RBAC), LDAP authentication.
Warranty and support	Premier Support with Three or five-year customer-replaceable unit and onsite limited warranty with selectable service levels: 9x5 service coverage next business day (NBD) onsite response or 24x7 service coverage with 4-hour onsite response. Software support for DG Storage is included for the duration of the warranty period.
Dimensions	• Height: 87 mm (3.4 in.) • Width with flange: 483 mm (19 in.) • Width without flange: 447 mm (17.6 in.) • Depth: 543 mm (21.4 in.)
Weight (fully configured)	25.3 kg (55.8 lb)

† For a detailed list of configuration limits and restrictions for a specific version of the software, refer to the Lenovo Data Center Support website:
http://datacentersupport.lenovo.com

ThinkAgile Converged Solution for VMware Compute

The following section provides the compute nodes for the ThinkAgile Converged Solution for VMware Profile A, B and C.

Processors

The compute nodes in the Lenovo ThinkAgile Converged Solution for VMware V4 supports a configuration of 2 processors from the 6th Gen Intel Xeon Scalable Processor family (codenamed Granite Rapids).

Topics in this section:

6th Gen Intel Xeon Scalable processors

For details about these options, including configuration rules, see the VX630 V4, VX650a V4 or VX650 V4 product guide:
https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#processors

https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#processors

https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#processors

Table 5. Granite Rapids Processor choices

Part number	Feature	Description	QTY (Min/Max)		
			Profile A VX630 V4	Profile B VX650a V4	Profile C VX650 V4
None	C5RD	Intel Xeon 6515P 16C 150W 2.3GHz Processor	2/2	2/2	2/2
None	C5QV	Intel Xeon 6517P 16C 190W 3.2GHz Processor	2/2	2/2	2/2
None	C5QR	Intel Xeon 6520P 24C 210W 2.4GHz Processor	2/2	2/2	2/2
None	C659	Intel Xeon 6527P 24C 255W 3.0GHz Processor	2/2	2/2	2/2
None	C5QT	Intel Xeon 6530P 32C 225W 2.3GHz Processor	2/2	2/2	2/2
None	C5R5	Intel Xeon 6724P 16C 210W 3.6GHz Processor	2/2	2/2	2/2
None	C5R4	Intel Xeon 6730P 32C 250W 2.5GHz Processor	2/2	2/2	2/2
None	CARB	Intel Xeon 6732P 32C 350W 3.8GHz Processor	2/2	2/2	2/2
None	C5R0	Intel Xeon 6736P 36C 205W 2.0GHz Processor	2/2	2/2	2/2
None	C5QX	Intel Xeon 6737P 32C 270W 2.9GHz Processor	2/2	2/2	2/2
None	C5R3	Intel Xeon 6740P 48C 270W 2.1GHz Processor	2/2	2/2	2/2
None	CARA	Intel Xeon 6745P 32C 300W 3.1GHz Processor	2/2	2/2	2/2
None	C5R2	Intel Xeon 6746P 48C 250W 2.0GHz Processor	2/2	2/2	2/2
None	C5R8	Intel Xeon 6747P 48C 330W 2.7GHz Processor	2/2	2/2	2/2
None	C5R1	Intel Xeon 6760P 64C 330W 2.2GHz Processor	2/2	2/2	2/2
None	C5QY	Intel Xeon 6767P 64C 350W 2.4GHz Processor	2/2	2/2	2/2
None	C5QM	Intel Xeon 6787P 86C 350W 2.0GHz Processor	2/2	2/2	2/2

Lenovo Processor Neptune Core Module - Open-loop liquid cooling

The compute nodes in the ThinkAgile Converged Solution for VMware V4 also supports advanced direct-water cooling (DWC) capability with the Lenovo Processor Neptune Core Module. This module implements a liquid cooling solution where heat from the processors is removed from the rack and the data center using an open loop and coolant distribution units.

With the Processor Neptune Core Module, all heat generated by the processors is removed from the server using water. This means that the server fans and data center air conditioning units only need to remove the heat generated by the other components. This results in lower air conditioning costs and it enables the use of slower fans which results in lower overall power consumption.

The following figure shows the Lenovo Processor Neptune Core Module.

Figure 10. Lenovo Processor Neptune Core Module

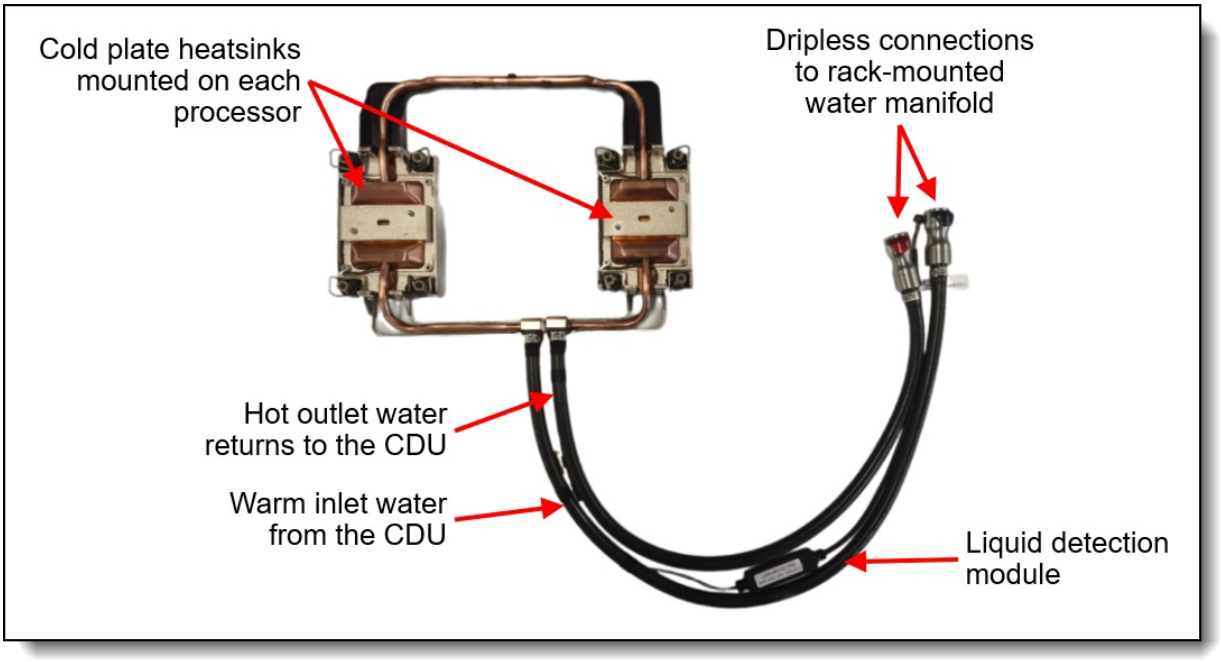

Figure 11. Lenovo Processor Neptune Core Module

The Processor Neptune Core Module also includes a leak detection module which can detect a leakage of more than 0.5ml (about 10 drops) along the length of the tube and then issue an event to the XClarity Controller. XCC will then post an error to the System Event Log and enable further actions. Once the liquid evaporates, a further event is issue to XCC.

The Processor Neptune Core Module is only available in CTO orders, not as a field upgrade. Ordering information is listed in the following table.

Table 6. Lenovo Processor Neptune Core Module

Part number	Feature code	Description
CTO only	C1XH*	ThinkSystem V4 1U/2U Processor Neptune Core Module

* In DCSC, this feature code is listed in the Processor tab

ThinkAgile VX630 V4 Compute Node Configuration notes:

- The Processor Neptune Core Module requires water infrastructure to be available in the rack cabinet and data center, as described in the Water infrastructure section.
- All processor SKUs are supported
- Either one or two CPUs are supported
- All front drive bay configurations are supported
- Slot 2 is not available for adapters - the water loop is routed through the space otherwise occupied by

slot 2

- Only the following slot configuration is supported:
  - 1x PCIe x16 full-height slot (slot 1) + 1x PCIe x16 low-profile slot (slot 3)
- Rear 2.5-inch drive bays are not supported
- RAID flash power module (supercap) support is limited only to positions 1 (2.5-inch drives only) or position 4 (slot 3), as described in the RAID flash power module (supercap) support section. Location 2 on the air baffle is not supported.
- M.2 adapters are supported based on the configurations in the Storage configurations section
- Standard fans can be configured in most configurations
- The use of a cable management arm (CMA) is not supported

For more information, see the Thermal Rules page for the direct water-cooling module: https://pubs.lenovo.com/sr630-v4/thermal_rules#server-models-with-direct-water-cooling-module

ThinkAgile VX650a V4 Compute Node Configuration notes:

- The Processor Neptune Core Module requires water infrastructure to be available in the rack cabinet and data center, as described in the Water infrastructure section.
- All processor SKUs are supported
- Either one or two CPUs are supported
- All front drive bay configurations are supported
- Slot 8 is not available for adapters - the water loop is routed through the space otherwise occupied by slot 8
- Rear drive bays are supported
- M.2 adapters are supported based on the configurations in the Storage configurations section
- Standard fans can be configured in most configurations
- The use of a cable management arm (CMA) is not supported

For more information, see the Thermal Rules page: https://pubs.lenovo.com/sr650-v4/thermal_rules

ThinkAgile VX650 V4 Compute Node Configuration notes:

Configuration notes:

- The Processor Neptune Core Module requires water infrastructure be available in the rack cabinet and data center, as described in the Water infrastructure section.
- All processor SKUs are supported
- Either one or two CPUs are supported
- All front drive bay configurations are supported
- Slot 8 is not available for adapters - the water loop is routed through the space otherwise occupied by slot 8
- Rear drive bays are supported
- M.2 adapters are supported based on the configurations in the Storage configurations section
- Standard fans can be configured in most configurations
- The use of a cable management arm (CMA) is not supported

For more information, see the Thermal Rules page:
https://pubs.lenovo.com/sr650-v4/thermal_rules

Memory

6th Generation Memory options

The compute nodes in the ThinkAgile Converged Solution for VMware support the following 6th generation memory options.

For details about these options, including configuration rules, see the VX650 V4 or VX630 V4 product guide:
https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#memory

https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#memory

https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#memory

Table 7. Emerald Rapids Memory options

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V4	Profile B VX650a V4	Profile C VX650 V4
x4 RDIMMs					
4X77A90964	COU9	ThinkSystem 32GB TruDDR5 6400MHz (1Rx4) RDIMM	16	16	16
4X77A90966	C0TQ	ThinkSystem 64GB TruDDR5 6400MHz (2Rx4) RDIMM	32	32	32
4X77A90997	BZ7D	ThinkSystem 96GB TruDDR5 6400MHz (2Rx4) RDIMM	32	32	32
4X77A90993	C0U1	ThinkSystem 128GB TruDDR5 6400MHz (2Rx4) RDIMM	32	32	32
x8 RDIMMs					
4X77A90963	C0U2	ThinkSystem 16GB TruDDR5 6400MHz (1Rx8) RDIMM	16	16	16
4X77A90965	BYTJ	ThinkSystem 32GB TruDDR5 6400MHz (2Rx8) RDIMM	32	32	32
4X77A90996	BZ7C	ThinkSystem 48GB TruDDR5 6400MHz (2Rx8) RDIMM	32	32	32
3DS RDIMMs - 6400 MHz					
4X77A90994	C0U0	ThinkSystem 256GB TruDDR5 6400MHz (4Rx4) 3DS RDIMM	32	32	32
MRDIMMs (operate at 8000 MHz in the VX650 V4) (Note: Not all processors support MRDIMMs - see Processor features)					
4X77A90998	COTY	ThinkSystem 32GB TruDDR5 8800MHz (2Rx8) MRDIMM	16	16	16
4X77A90999	COTX	ThinkSystem 64GB TruDDR5 8800MHz (2Rx4) MRDIMM	16	16	16

Internal storage (Compute Nodes)

The compute nodes in the ThinkAgile Converged Solution for VMware - Profile A with VX630 V4 supports up to 12x 2.5-inch drives. The server alternatively supports up to 16x E3.S 1T or 8x E3.S 2T drive bays, depending on the selected chassis and backplane configuration. The server can be configured without any drive bays if desired.

The server supports front and rear drive bays, are as follows:

- Front accessible:
  - Up to 10x 2.5-inch hot-swap bays, or
  - 16x E3.S 1T hot-swap bays, or
  - 8x E3.S 2T hot-swap bays, or
  - Mix of E3.S 1T and E3.S 2T hot-swap bays
- Rear accessible:
  - 2x 2.5-inch hot-swap bays

The server also supports one or two M.2 drives, in three possible locations:

- Installed in an M.2 adapter internal to the server (non-hot-swap)
- Hot-swap in the rear of the server
- Hot-swap in the front of the server

The choice of backplanes supported varies by system, as listed in the following table.

For details about these options, including configuration rules, see the VX630 V4 product guide:
https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#internal-storage

Table 8. Drive backplanes

Part number	Feature	Description	Maximum supported
			VX630 V4
Front 2.5-inch drive backplanes			
None	C2NN	ThinkSystem 1U V4 4x2.5" NVMe Gen5 Backplane	2
None	C21X	ThinkSystem 1U V4 10x2.5" NVMe Gen5 Backplane	1
Front E3.S drive backplanes			
None	C221	ThinkSystem V4 EDSFF E3.S 4x1T NVMe Gen5 Backplane	4
None	C222	ThinkSystem V4 EDSFF E3.S 2x2T NVMe Gen5 Backplane	4
Rear - 2.5-inch drive backplanes			
None	C226	ThinkSystem 1U V4 2x2.5" NVMe Gen5 Rear Backplane	1

The compute nodes in the ThinkAgile Converged Solution for VMware - Profile B with VX650a V4 supports up to 8x 2.5-inch drive bays or E3.S drive bays, depending on the selected chassis and backplane configuration.

- Front:
  - Up to 8x 2.5-inch hot-swap bays, or
  - Up to 8x E3.S 1T hot-swap drive bays

All drives are hot-swap and are accessible from the front, from the rear, or from drive bays that are located in the middle of the server (accessible when you remove the top cover of the server).

The server also supports one or two M.2 drives, in three possible locations, configuration dependent:

- Installed in an M.2 adapter internal to the server (non-hot-swap)
- Hot-swap in the rear of the server
- Hot-swap in the front of the server

For details about these options, including configuration rules, see the VX650a V4product guide:
https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#internal-storage

Table 9. Drive backplanes

Part number	Feature	Description	Maximum supported VX650a V4
Front 2.5-inch drive backplanes			
None	C46P	ThinkSystem 2U V4 8x2.5" NVMe Backplane	1
Front E3.S drive backplanes			
None	C221	ThinkSystem V4 EDSFF E3.S 4x1T NVMe Gen5 Backplane	2

The compute nodes in the ThinkAgile Converged Solution for VMware - Profile C with VX650 V4 supports up to 22x 2.5-inch hot-swap drive bays or a combination of drive bays, depending on the selected chassis and backplane configuration. The server also supports configurations with E3.S 1T and E3.S 2T drive bays. The server supports configurations without any drive bays if desired.

The drive bay zone is as follows:

- Front:
  - Up to 22x 2.5-inch hot-swap bays, or
  - Up to 22x E3.S hot-swap drive bays

All drives are hot-swap and are accessible from the front, from the rear, or from drive bays that are located in the middle of the server (accessible when you remove the top cover of the server).

The server also supports one or two M.2 drives, in three possible locations, configuration dependent:

- Installed in an M.2 adapter internal to the server (non-hot-swap)
- Hot-swap in the rear of the server
- Hot-swap in the front of the server

For details about these options, including configuration rules, see the VX650 V4product guide:
https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#internal-storage

Table 10. Drive backplanes

Part number	Feature	Description	Maximum supported VX650 V4
Front 2.5-inch drive backplanes			
None	C46P	ThinkSystem 2U V4 8x2.5" NVMe Backplane	3
Front E3.S drive backplanes			
None	C221	ThinkSystem V4 EDSFF E3.S 4x1T NVMe Gen5 Backplane	8
None	C222	ThinkSystem V4 EDSFF E3.S 2x2T NVMe Gen5 Backplane	6

For OS boot functions, the systems also supports two M.2 drives installed on an adapter internal to the server. The following table lists the supported controllers/enablement kits for M.2 boot drives.

For details about these options, including configuration rules, see the VX630 V4, VX650a V4, or VX650 V4 product guide:
https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#table-boot-drive-enablement

https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#table-boot-drive-enablement

https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#table-boot-drive-enablement

Table 11. Boot Drive Enablement

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V4	Profile B VX650a V4	Profile C VX650 V4
Front M.2 enablement kits					
4XH7B03857	C217	ThinkSystem M.2 RAID B540d-2HS SATA/NVMe Hot-Swap Controller Board	1	1	1
4Y37A93014	C0TT	ThinkSystem M.2 RAID B540d-2HS SATA/NVMe Adapter	1	1	1
Rear M.2 enablement kits					
4Y37A90064	C0JJ	ThinkSystem M.2 RAID B540p-2HS SATA/NVMe Adapter	1	1	1
Internal M.2 (non-hot-swap)					
4Y37A93746	C26V	ThinkSystem M.2 RAID B545i-2i SATA/NVMe Adapter	1	1	1

Internal drive options

This section lists the supported drives:

- Boot drives
- Internal drives for VX630 V4 for Profile A
- Internal drives for VX650a V4 for Profile B
- Internal drives for VX650 V4 for Profile C

Configuration Note:

- VMware will no longer support higher capacity hard drives greater than 8TB
- Express Storage Architecture (ESA) supports a minimum of 1 drive and a maximum of 24 drives. Please reference the vSAN ESA ReadyNode Hardware Guidance for additional requirements.
- VMware vSAN certification for Generic NVMe drives: The drives are listed in the VMware Compatibility Guide (VCG) under the drive vendor company name instead of Lenovo. To check a drive for vSAN certification, search the VCG using the Supplier part number. Part numbers can be found using the Product Guide for the corresponding Drive Family on Lenovo Press https://lenovopress.lenovo.com/servers/options/drives#sort=last_update.

Boot drives

The compute nodes in the ThinkAgile Converged Solution for VMware V4 systems supports the following drive for boot functions.

Table 12. Boot drives

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V4	Profile B VX650a V4	Profile C VX650 V4
M.2 6 Gb SATA SSDs					
4XH7B03857	BQ1Z	ThinkSystem M.2 5400 PRO 240GB Read Intensive SATA 6Gb NHS SSD	2	2	2
4XB7A82287	BQ1Y	ThinkSystem M.2 5400 PRO 480GB Read Intensive SATA 6Gb NHS SSD	2	2	2
4XB7A82288	BQ20	ThinkSystem M.2 5400 PRO 960GB Read Intensive SATA 6Gb NHS SSD	2	2	2
M.2 ER3 6 Gb SATA SSDs					
4XB7A90049	BYF8	ThinkSystem M.2 ER3 480GB Read Intensive SATA 6Gb NHS SSD	2	2	2
4XB7A90230	BYF9	ThinkSystem M.2 ER3 960GB Read Intensive SATA 6Gb NHS SSD	2	2	2
M.2 NVMe PCIe 4.0 SSD					
4XB7A82636	BS2P	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2	2	2
4XB7A13999	BKSR	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2	2	2

Internal drives for VX630 V4 for Profile A

The following table lists the drives supported in the ThinkAgile VX630 V4 for Profile A. For All NVMe Storage configurations, drives are classified as ESA only.

Table 13. Maximum Drives supported in the VX630 V4 for Profile A

Cores in node	Max Node Capacity	Max Drive Count on Profile A			
		1.6/1.92TB	3.2/3.84TB	6.4/7.68TB	12.8/15.36TB
32	7.68TB	4	2	No	No
48	11.52TB	6	2	No	No
64	15.36TB	8	4	2	No
72	17.28TB	8	4	2	No
96	23.04TB	12	6	2	No
128	30.72TB	12	8	4	2
172	42.24TB	12	10	4	2

Table 14. Drives supported in the VX630 V4 for Profile A

Part number	Feature	Description	All Flash ESA
2.5-inch hot-swap PCIe 5.0 NVMe SSDs			
4XB7A93067	C0GL	ThinkSystem 2.5" U.2 PM9D3a 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93068	C0GN	ThinkSystem 2.5" U.2 PM9D3a 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93069	C0GP	ThinkSystem 2.5" U.2 PM9D3a 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93095	C1WL	ThinkSystem 2.5" U.2 PM9D3a 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93098	C1WN	ThinkSystem 2.5" U.2 PM9D5a 1.6TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93099	C1WP	ThinkSystem 2.5" U.2 PM9D5a 3.2TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93100	C1WR	ThinkSystem 2.5" U.2 PM9D5a 6.4TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12
4XB7A93101	C1WQ	ThinkSystem 2.5" U.2 PM9D5a 12.8TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	12
2.5-inch hot-swap PCIe 4.0 NVMe SSDs			
4XB7A95055	C2BV	ThinkSystem 2.5" U.3 7500 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12
4XB7A95056	C2BW	ThinkSystem 2.5" U.3 7500 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12
4XB7A95057	C2BF	ThinkSystem 2.5" U.3 7500 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12
4XB7A95058	C2BX	ThinkSystem 2.5" U.3 7500 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	12
4XB7A95050	C2BR	ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12
4XB7A95051	C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12
4XB7A95052	C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12

Part number	Feature	Description	All Flash ESA
4XB7A95053	C2BU	ThinkSystem 2.5" U.3 7500 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	12
E3.S hot-swap SSDs - PCIe 5.0 NVMe			
4XB7A93810	C0R2	ThinkSystem E3.S CD8P 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93811	C0R3	ThinkSystem E3.S CD8P 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93812	C0R4	ThinkSystem E3.S CD8P 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93813	C0R5	ThinkSystem E3.S CD8P 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95510	C3P7	ThinkSystem E3.S CD8P 1.6TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95511	C3P8	ThinkSystem E3.S CD8P 3.2TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95512	C3P9	ThinkSystem E3.S CD8P 6.4TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95513	C3PA	ThinkSystem E3.S CD8P 12.8TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16

Note: ThinkAgile Converged Solution for VMware supports maximum drive quantities (as indicated in above table) to stay within the free tier of vSAN capacity allocated through CPU core licensing with VVF SW license. Customers can perform a field upgrade to a maximum drives per system, however, that may incur additional vSAN capacity licensing.

Internal drives for VX650a V4 for Profile B

The following table lists the drives supported in the ThinkAgile VX650a V4 for Profile B. For All NVMe Storage configurations, drives are classified as ESA only.

Table 15. Maximum Drives supported in the VX650a V4 for Profile B

Cores in node	Max Node Capacity	Max Drive Count on Profile B			
		1.6/1.92TB	3.2/3.84TB	6.4/7.68TB	12.8/15.36TB
32	7.68TB	4	2	No	No
48	11.52TB	6	2	No	No
64	15.36TB	8	4	2	No
72	17.28TB	8	4	2	No
96	23.04TB	8	6	2	No
128	30.72TB	8	8	4	2
172	30.72TB	8	8	4	2

Table 16. Drives supported in the VX650a V4 for Profile B

Part number	Feature	Description	All Flash ESA
2.5-inch hot-swap PCIe 5.0 NVMe SSDs			
4XB7A93067	C0GL	ThinkSystem 2.5" U.2 PM9D3a 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93068	C0GN	ThinkSystem 2.5" U.2 PM9D3a 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8

Part number	Feature	Description	All Flash ESA
4XB7A93069	C0GP	ThinkSystem 2.5" U.2 PM9D3a 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93095	C1WL	ThinkSystem 2.5" U.2 PM9D3a 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93098	C1WN	ThinkSystem 2.5" U.2 PM9D5a 1.6TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93099	C1WP	ThinkSystem 2.5" U.2 PM9D5a 3.2TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93100	C1WR	ThinkSystem 2.5" U.2 PM9D5a 6.4TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93101	C1WQ	ThinkSystem 2.5" U.2 PM9D5a 12.8TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	8
2.5-inch hot-swap PCIe 4.0 NVMe SSDs			
4XB7A95050	C2BR	ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95051	C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95052	C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95053	C2BU	ThinkSystem 2.5" U.3 7500 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95055	C2BV	ThinkSystem 2.5" U.3 7500 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95056	C2BW	ThinkSystem 2.5" U.3 7500 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95057	C2BF	ThinkSystem 2.5" U.3 7500 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	8
4XB7A95058	C2BX	ThinkSystem 2.5" U.3 7500 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	8
E3.S hot-swap SSDs - PCIe 5.0 NVMe			
4XB7A93810	C0R2	ThinkSystem E3.S CD8P 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93811	C0R3	ThinkSystem E3.S CD8P 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93812	C0R4	ThinkSystem E3.S CD8P 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A93813	C0R5	ThinkSystem E3.S CD8P 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	8
4XB7A95510	C3P7	ThinkSystem E3.S CD8P 1.6TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	8
4XB7A95511	C3P8	ThinkSystem E3.S CD8P 3.2TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	8
4XB7A95512	C3P9	ThinkSystem E3.S CD8P 6.4TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	8
4XB7A95513	C3PA	ThinkSystem E3.S CD8P 12.8TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	8

Note: ThinkAgile Converged Solution for VMware supports maximum drive quantities (as indicated in above table) to stay within the free tier of vSAN capacity allocated through CPU core licensing with VVF SW license. Customers can perform a field upgrade to a maximum drives per system, however, that may incur additional vSAN capacity licensing.

Internal drives for VX650 V4 for Profile C

The following table lists the drives supported in the ThinkAgile VX650 V4 for Profile C. For All NVMe Storage configurations, drives are classified as ESA only.

Table 17. Maximum Drives supported in the VX650 V4 for Profile C

Cores in node	Max Node Capacity	Max Drive Count on Profile C			
		1.6/1.92TB	3.2/3.84TB	6.4/7.68TB	12.8/15.36TB
32	7.68TB	4	2	No	No
48	11.52TB	6	2	No	No
64	15.36TB	8	4	2	No
72	17.28TB	8	4	2	No
96	23.04TB	12	6	2	No
128	30.72TB	16	8	4	2
172	42.24TB	22	10	4	2

Table 18. Drives supported in the VX650 V4 for Profile C

Part number	Feature	Description	All Flash ESA
2.5-inch hot-swap PCIe 4.0 NVMe SSDs			
4XB7A95055	C2BV	ThinkSystem 2.5" U.3 7500 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95056	C2BW	ThinkSystem 2.5" U.3 7500 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95057	C2BF	ThinkSystem 2.5" U.3 7500 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95058	C2BX	ThinkSystem 2.5" U.3 7500 MAX 12.8TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95050	C2BR	ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95051	C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95052	C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24
4XB7A95053	C2BU	ThinkSystem 2.5" U.3 7500 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	24
2.5-inch hot-swap PCIe 5.0 NVMe SSDs			
4XB7A93067	C0GL	ThinkSystem 2.5" U.2 PM9D3a 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	24
4XB7A93068	C0GN	ThinkSystem 2.5" U.2 PM9D3a 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	24
4XB7A93069	C0GP	ThinkSystem 2.5" U.2 PM9D3a 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	24
4XB7A93095	C1WL	ThinkSystem 2.5" U.2 PM9D3a 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	24
4XB7A93098	C1WN	ThinkSystem 2.5" U.2 PM9D5a 1.6TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	24

Part number	Feature	Description	All Flash ESA
4XB7A93099	C1WP	ThinkSystem 2.5" U.2 PM9D5a 3.2TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	24
4XB7A93100	C1WR	ThinkSystem 2.5" U.2 PM9D5a 6.4TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	24
4XB7A93101	C1WQ	ThinkSystem 2.5" U.2 PM9D5a 12.8TB Mixed Use NVMe NVMe PCIe 5.0 x4 HS SSD	24
E3.S hot-swap SSDs - PCIe 5.0 NVMe			
4XB7A95510	C3P7	ThinkSystem E3.S CD8P 1.6TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93810	C0R2	ThinkSystem E3.S CD8P 1.92TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95513	C3PA	ThinkSystem E3.S CD8P 12.8TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93813	C0R5	ThinkSystem E3.S CD8P 15.36TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95511	C3P8	ThinkSystem E3.S CD8P 3.2TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93811	C0R3	ThinkSystem E3.S CD8P 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16
4XB7A95512	C3P9	ThinkSystem E3.S CD8P 6.4TB Mixed Use NVMe PCIe 5.0 x4 HS SSD	16
4XB7A93812	C0R4	ThinkSystem E3.S CD8P 7.68TB Read Intensive NVMe PCIe 5.0 x4 HS SSD	16

Note: ThinkAgile Converged Solution for VMware supports maximum drive quantities (as indicated in above table) to stay within the free tier of vSAN capacity allocated through CPU core licensing with VVF SW license. Customers can perform a field upgrade to a maximum drives per system, however, that may incur additional vSAN capacity licensing.

Network adapters

The compute nodes in the ThinkAgile Converged Solution for VMware V4 systems supports the following networking options.

For details about these options, including configuration rules, see the VX630 V4, VX650a V 4, or VX650 V4 product guide:
https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#network-adapters

https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#network-adapters

https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#network-adapters

Table 19. OCP network adapters

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V4	Profile B VX650a V4	Profile C VX650 V4
Gigabit Ethernet					
4XC7A08235	B5T1	ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter	2	2	2
10 Gb Ethernet - 10GBASE-T					
4XC7A95696	C4GB	ThinkSystem Broadcom 57412 10GBase-T 4-Port OCP Ethernet Adapter	2	2	2
4XC7A08236	B5ST	ThinkSystem Broadcom 57416 10GBASE-T 2-port OCP Ethernet Adapter	2	2	2
4XC7A96732	C4HS	ThinkSystem Intel E610-T2 10GBase-T 2-Port OCP Ethernet Adapter(Generic FW)	2	No	No
25 Gb Ethernet					
4XC7A08237	BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	2	2	2
4XC7A80567	BPPW	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-Port OCP Ethernet Adapter	2	2	2
4XC7A62582	BE4T	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-port OCP Ethernet Adapter	2	2	2
100 Gb Ethernet					
4XC7A08243	BPPX	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port OCP Ethernet Adapter	2	2	2
400 Gb Ethernet					
4XC7A95695	C4CQ	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 OCP Ethernet Adapter(Generic FW))	2	2	2

Table 20. PCIe network adapters

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V4	Profile B VX650a V4	Profile C VX650 V4
Gigabit Ethernet					
7ZT7A00484	AUZV	ThinkSystem Broadcom 5719 1GbE RJ45 4-Port PCIe Ethernet Adapter	4	6	10
10 Gb Ethernet - 10GBASE-T					
4XC7A95697	C4GC	ThinkSystem Broadcom 57412 10GBase-T 4-Port PCIe Ethernet Adapter	4	4	4
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	5	6	10
25 Gb Ethernet					
4XC7A08238	BK1H	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	5	6	10
4XC7A80566	BNWM	ThinkSystem Broadcom 57504 10/25GbE SFP28 4-port PCIe Ethernet Adapter	4	4	4
4XC7A62580	BE4U	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-port PCIe Ethernet Adapter	5	6	10
100 Gb Ethernet					
4XC7A08297	BK1J	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port PCIe 4 Ethernet Adapter	5	4	4
4XC7A08248	B8PP	ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter	5	4	4
200 Gb Ethernet					
4XC7A81883	BQBN	ThinkSystem NVIDIA ConnectX-7 NDR200/200GbE QSFP112 2-port PCIe Gen5 x16 Adapter	5	4	4
4XC7A95572	C4GA	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter	5	4	4

GPU adapters

The compute nodes in the ThinkAgile Converged Solution for VMware V4 supports the following GPU options.

For details about these options, including configuration rules, see the VX630 V4, VX650a V4 , or VX650 V4 product guide:
https://lenovopress.lenovo.com/lp2134-lenovo-thinkagile-vx630-v4-hyperconverged-system#gpu-adapters

https://lenovopress.lenovo.com/lp2228-lenovo-thinkagile-vx650a-v4-hyperconverged-system#gpu-adapters

https://lenovopress.lenovo.com/lp2135-lenovo-thinkagile-vx650-v4-hyperconverged-system#gpu-adapters

Configuration Note:

Controlled GPU is not supported in factory integrated configuration.

Customer may use GPU-ready installation kits and buy standalone GPUs to install in the field – Supported only in a non-restricted country.

Table 21. GPU adapters

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V3	Profile B VX650a V4	Profile C VX650 V4
Double-wide GPUs					
4X67A96491	C4RX	ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU	No	No	2
4X67A90669	BYFH	ThinkSystem NVIDIA L40S 48GB PCIe Gen4 Passive GPU	No	4	2
4X67A89324	C2DP	ThinkSystem NVIDIA RTX 6000 Ada 48GB PCIe Active GPU	No	No	2
4X67A89325	BXAK	ThinkSystem NVIDIA H100 NVL 94GB PCIe Gen5 Passive GPU	No	4	2
Single-wide GPUs					
4X67A84824	BS2C	ThinkSystem NVIDIA L4 24GB PCIe Gen4 Passive GPU	3	8	10
4X67A97287	C4S1	ThinkSystem NVIDIA RTX 4000 Ada 20GB PCIe Active GPU	No	No	4

Table 22. GPU Ready installation kits

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V3	Profile B VX650a V4	Profile C VX650 V4
None	CBFQ	ThinkSystem NVIDIA 4000 Ada GPU-Ready Installation	No	No	4
None	CBFN	ThinkSystem High Power GPU-Ready Installation	No	2	No
None	BP4X	ThinkSystem DW GPU-Ready Installation	No	4	2
None	CBFP	ThinkSystem NVIDIA 4500 Ada GPU-Ready Installation	No	No	2

Fibre Channel host bus adapters

Table 23. Fibre Channel host bus adapters

Part number	Feature	Description	Maximum supported		
			Profile A VX630 V3	Profile B VX650a V4	Profile C VX650 V4
64 Gb Fibre Channel HBAs					
4XC7A96458	C5FD	ThinkSystem Emulex LPe38102 64Gb 2-port SecureHBA PCIe Fibre Channel Adapter(Generic FW)	5	6	10
32 Gb Fibre Channel HBAs					
4XC7A96457	C5FC	ThinkSystem Emulex LPe37102 32Gb 2-port SecureHBA PCIe Fibre Channel Adapter(Generic FW)	5	6	10
4XC7A08279	BA1G	ThinkSystem QLogic QLE2770 32Gb 1-Port PCIe Fibre Channel Adapter	5	No	No
4XC7A08276	BA1F	ThinkSystem QLogic QLE2772 32Gb 2-Port PCIe Fibre Channel Adapter	5	6	10

Operating system support

The compute nodes for Profile A, B and C for the ThinkAgile Converged Solution for VMware V4 supports the following operating system:

- ESXi 8.0u3 (via VX Deployer)

Configuration Note:

The ESXi version to be installed is selected on the ThinkAgile VX Deployer. The system ships out of the factory with the Feature Code (FC) BLA3 which includes the Lenovo custom image with the VX Deployer SW installed as a VM. The customer can then use the VX deployer SW to select the ESXi version of their choice and follow the step-by-step installation process to deploy/install/activate/configure vSphere, vSAN, vCenter, LXCi (HSM), etc. Once the deployer completes its activity, the customer follows the regular management flow using VMware vCenter.

Important: While the VX Deployer also supports deployment of ESXi 9.0, integration support for external storage with ONTAP Tools for VMware is not supported with ESXi 9.0 (future support planned). For features like SnapMirror ActiveSync with vSphere Metro Storage Cluster and Storage Management in VMware vCenter, please select deployment of ESXi 8.0u3.

For further details, including any restrictions, see the OS Interoperability Guide:
https://lenovopress.lenovo.com/osig#term=vx&support=all

ThinkAgile Converged Solution for VMware Storage

The ThinkSystem DG5200 provides the enterprise-grade storage for the ThinkAgile Converged Solution for VMware for both Profile A and Profile B.

Controller enclosures

Preconfigured and factory-integrated, the Lenovo ThinkSystem DG5200 Unified Storage Arrays is configured by using the Lenovo Data Center Solution Configurator (DCSC), http://dcsc.lenovo.com

The following table lists the CTO base model for the ThinkSystem DG5200.

Table 24. ThinkSystem DG5200 CTO base model

Machine Type/Model	Feature code	Description
7DHYCTO1WW	BF3C	Lenovo ThinkSystem DG5200

The models of the ThinkSystem DG5200 ships with the following items:

- One chassis with the following components:
  - Two controllers
  - Two power supplies
- Rack Mount Kit
- 2m USB Cable (USB Type A to Micro-USB)
- Documentation flyer
- Two customer-configured power cables

The following table lists the feature codes for controller software. The selection here must match the software license selected as described in the Software section. DG Series controller software is available as a Unified offering, supporting SAN, NAS, and Object storage protocols.

The following table lists the software options for the ThinkSystem DG5200.

Table 25. Controller software offerings

Machine Type/Model	Feature code	Description
CTO only	BWU9	Storage Essential Bundle Offering
CTO only	BWU8	Storage Complete Bundle Offering

Controllers

The ThinkSystem DG5200 enclosure ships with two 64GB NVMe controllers. A controller provides interfaces for host connectivity, management, and internal drives, and it runs ONTAP storage management software. Each DG5200 controller enclosure provides 128 GB RAM and 16 GB battery-backed NVMEM (64 GB RAM and 8 GB NVMEM per controller).

Each ThinkSystem DG5200 controller has two interconnect 25 GbE SFP28 ports to cable a directly-connected dual-controller HA pair or for switched cluster interconnect with multiple dual-controller HA pairs. Up to four HA pairs can be combined into a single SAN cluster or a single NAS cluster.

Each DG5200 controller also has the following host interface:

- 2x or 3x slots for additional host interfaces using HIC adapters; choices of HIC adapters are:
  - 25GbE HIC, with 4x 10/25 GbE SFP28 (DAC cables or SW fiber optic cables, LC)
  - Fibre Channel HIC, with 4x 16/32/64 Gb FC SFP+ host ports (SW fiber optic cables, LC)
    - All HICs require SFPs and optical cables or DAC cables
    - All ethernet SFPs run at posted speed only and do not support dual line rates

2 slots for host interfaces if you have expansion and cluster connectivity. If you have no expansion there are three adapter slots for host connectivity.

Two controllers are required for selection and must have the same HIC adapters installed. The use of a DG242N expansion enclosure requires a 100GbE HIC for connectivity installed in port 3 in each controller.

The following table lists the controllers for the DG5200 Storage Array and supported connectivity options.

- RoCE is not supported for host connections

Table 26. DG5200 controllers and connectivity options

Part number	Feature code	Description	Maximum quantity per controller
Host Interface Cards - DG5200			
4XC7A97035	C4AC	Lenovo ThinkSystem Storage 10/25Gb 4 port Ethernet (Host/Cluster)	3
4XC7A97034	C4AB	Lenovo ThinkSystem Storage 10/25Gb 2 port Ethernet (Host)	3
4XC7A97031	C4A8	Lenovo ThinkSystem Storage 64/32Gb 4 Port Fiber Channel Adapter	3
4XC7A97032	C4A9	Lenovo ThinkSystem Storage 10Gb BaseT 4 Port Adapter (Host)	3
4XC7A97033	C4AA	Lenovo ThinkSystem Storage 100Gb 2 port Ethernet (Host/Cluster)	4
CTO Only	C4W5	Lenovo ThinkSystem Storage 100Gb 2 Port Ethernet, RoCE Adapter (NVMe Shelf)	2
SFP+ and transceiver for 25Gb/100Gb optical cables			
4XF7A14919	B4K9	10G SW Optical iSCSI SFP+ Module 1 pack	12
4TC7A94751	C4K4*	Lenovo 25G SR SFP28 Amphenol Ethernet Transceiver	12
4M27A67042	BFH1	Lenovo 100Gb SR4 QSFP28 Ethernet Transceiver	8
Fiber SFP+ transceivers			
4TC7A97241	C4AF	Lenovo 64/32G Fiber Channel SFP+ SW Transceiver	12
4M17A13528	B4B3	Lenovo 32Gb FC SFP+ Transceiver	12

*25 Gbps transceivers are not auto-negotiating down to 10 Gbps

Expansion enclosures

The Lenovo ThinkSystem DG5200 supports attachments of ThinkSystem DG242N 2U24 expansion enclosures. The expansion enclosures can be added to the system non-disruptively.

The following table lists the CTO base models for the ThinkSystem DG Series expansion enclosures.

Table 27. CTO base models for the ThinkSystem DG Series expansion enclosures

Description	Machine Type/Model	Feature code
Lenovo ThinkSystem DG242N 2U24 NVMe Expansion Enclosure (with 2x PSUs)	7DJ9CTO1WW	BF3C

Configuration note: Two NVMe I/O expansion modules (feature code B73A) are pre-selected by the configurator.

The models of the ThinkSystem DG242N ship with the following items:

- One chassis with the following components:
  - Two NVMe I/O modules
  - Two power supplies
- Rack Mount Kit
- Publications Flyer
- Two customer-configured power cables
- Four customer-configured 100G QSFP28 Passive DAC cables

The ThinkSystem DG242N expansion enclosure ships with two NVMe I/O expansion modules. Each NVMe I/O expansion module provides two external 100 GbE QSFP28 ports (labeled Ports A and B) that are used for direct-attach connections to the DG base enclosures.

The DG5200 enclosure supports direct attachment of one DG242N NVMe expansion enclosure for a total of up to 48 NVMe drives. To connect the DG242N, a 100 GbE HIC (4XC7A97033) in port 3 is required to be installed in each controller for DG5200 units.

The following table lists ordering information for the NVMe expansion enclosure connectivity options.

Table 28. NVMe expansion enclosure connectivity options

Part number	Feature code	Description	Required quantity
7Z57A03561	AV1Z	Lenovo 1m Passive 100G QSFP28 DAC Cable	4
7Z57A03562	AV20	Lenovo 3m Passive 100G QSFP28 DAC Cable	4
7Z57A03563	AV21	Lenovo 5m Passive 100G QSFP28 DAC Cable	4

Configuration note: Four 100G QSFP28 DAC cables are needed per expansion enclosure for directly connecting the expansion enclosure to the controller enclosure (two from each controller)

ThinkSystem DG5200 Drives

The ThinkSystem DG5200 and DG242N enclosures each support up to 24 SFF hot-swap drives, in packs of 2 drives.

The following table lists supported drive packs for the controller and expansion enclosures.

Configuration notes:

- When ordering the systems, select the drives that match the ONTAP offering and bundle you are installing on the DG controller. Drive feature codes are specific to Unified Essentials and Unified Complete bundles. See the Software section for details.
- Drives are sold in packs. Supported quantities are as follows:
  - The DG5200 2U24 SFF controller enclosure supports only 8, 10, 12, 14, 16, 18, 20, 22 or 24 SFF drives
  - The DG242N 2U24 SFF expansion enclosure supports only 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 or 24 SFF drives
  - A minimum number of drive packs is 8. (4 packs of 2 drives is required)
- For factory-installed drive packs, all drives in the enclosure must be of the same type and capacity.
- In DCSC, use "guided mode" to configure controller and add expansion accordingly. DCSC will auto display supported drives based on selected software bundle: unified complete or unified essential.

Note that the feature code varies, based on the software license Unified Essentials or Unified Complete with Unified.

Table 29. DG5200 enclosure drive pack options

Part number	Feature code	Description	Maximum quantity per 2U enclosure
QLC NVMe SSD			
CTO only	C5RH	Lenovo ThinkSystem 61.4TB (2x 30.72TB QLC NVMe SED) Drive Pack for DG5200/DG7200	12
CTO only	C5RG	Lenovo ThinkSystem 30.7TB (2x 15.36TB QLC NVMe SED) Drive Pack for DG5200/DG7200	12

The following table lists supported drive pack options for the DG242N Enclosure.

Table 30. DG242N expansion enclosure drive pack options

Part number	Feature code	Description	Maximum quantity per 2U enclosure
QLC NVMe SSD			
CTO only	C5RH	Lenovo ThinkSystem 61.4TB (2x 30.72TB QLC NVMe SED) Drive Pack for DG5200/DG7200	12
CTO only	C5RG	Lenovo ThinkSystem 30.7TB (2x 15.36TB QLC NVMe SED) Drive Pack for DG5200/DG7200	12

ThinkSystem DG5200 Management

The ThinkSystem DG5200 supports the following management interfaces:

- Lenovo ThinkSystem Storage Manager, a web-based interface via HTTPS for single-system management or centralized management of the cluster of systems, that runs on the storage system itself and requires only a supported browser (Microsoft Internet Explorer, Google Chrome, or Mozilla Firefox), so there is no need for a separate console or plug-in.
- Command line interface (CLI) via SSH or through serial console.
- Syslog, SNMP, and e-mail notifications.

Physical specifications

The Lenovo ThinkSystem DG5200 Unified Storage Arrays controller enclosure has the following dimensions and weight:

- Height: 87 mm (3.4 in.)
- Width with flange: 483 mm (19 in.)
- Width without flange: 447 mm (17.6 in.)
- Depth: 543 mm (21.4 in.)
- Weight (fully configured): 24.6 kg (54.3 lb)

The ThinkSystem DG242N 2U24 SFF enclosure has the following dimensions and weight:

- Height: 87 mm (3.4 in.)
- Width with flange: 483 mm (19 in.)
- Width without flange: 447 mm (17.6 in.)
- Depth: 543 mm (21.4 in.)
- Weight (fully configured): 30.2 kg (66.6 lb)

Software

The ThinkAgile Converged Solution for VMware V4 offering supports VMware Cloud Foundation (VCF) and VMware vSphere Foundation (VVF) primary software stack options. Subscription Licenses can be purchased by contacting Broadcom Seller directly or a Broadcom authorized software partner. It is recommended that the VMWare subscription license should match the length of the Lenovo hardware warranty, 3-year or 5-year durations. In addition to the primary stack options, advanced service options are available for features like vSAN additional capacity, Live Recovery, Firewall with Advanced Threat Prevention and Avi Load Balancer, Private AI Foundation is no longer a standalone add-on but part of the VCF license.
The following VMware subscription software license are available for purchase by contacting a Broadcom Seller directly or a Broadcom authorized software partner.:

- Primary Software

1. VMware Cloud Foundation (VCF)
2. VMware vSphere Foundation (VVF)

For the current list of available add-ons for the VMware primary software, see the Broadcom feature comparison document. https://www.vmware.com/docs/vmware-cloud-foundation-9-0-feature-comparison-and-upgrade-paths.

Configuration notes:

- For more information on ThinkAgile VX Series Hardware needed for the respective VMware license quantities, please use the VMware SW license calculator at https://lets.lenovo.com/vlets-calculator/.

ThinkAgile VX Deployer Tool

The ThinkAgile VX Deployer tool is a web-based UI tool used to simplify and automate the deployment of Lenovo ThinkAgile VX systems within your VMware environment. The ThinkAgile VX Deployer tool can install and configure the following software:

VMware ESXi

VMware ESXi is a bare-metal hypervisor that the ThinkAgile VX Deployer tool installs on the hardware of each host in the cluster. ESXi translates requests between the physical and virtual resources, making virtualization possible.

VMware vCenter Server

VMware vCenter Server is a management console that provides a centralized platform for controlling VMware vSphere environments. One service that runs in VMware vCenter Server is VMware vLCM, which provides centralized and simplified management to install software, maintain that software through updates and upgrades, and decommission it.

Lenovo® XClarity Integrator

Lenovo XClarity Integrator is the hardware support manager (HSM) used by vCenter for firmware upgrades. Lenovo XClarity Integrator fully integrates with VMware vLCM to give the VMware vCenter Server software visibility into Lenovo hardware. The interface for the ThinkAgile VX Deployer tool is a straightforward web-based installation wizard with three top-level options:

- Install a new cluster (using the wizard).
- Add nodes to an existing cluster (using the wizard).
- Use a configuration file to install a new cluster or add nodes to an existing cluster.

Prowess testing included all three of these options, plus some key lifecycle-management features in VMware vCenter Server. To view the results of our testing please use the link https://prowessconsulting.com/wp-content/uploads/2023/07/lenovo-thinkagile-vx-hci-easy-deployment-operation-vmware-1.pdf

Storage Feature bundles

Controller software for the DG5200 Storage in the ThinkAgile Converged Solution for VMware is available in the following bundles of features:

Table 31. Software features and specifications summary

Attribute	Unified Essential	Unified Complete
Controller software feature code	BWU9	BWU8
RAID-4, RAID-DP, and RAID-TEC data protection	Included	Included
SAN (Block access): iSCSI, FC, NVMe/FC	Included	Included
NAS (File access): NFS, CIFS/SMB	Included	Included
All Flash Array (AFA) capability	Included	Included
Thin provisioning	Included	Included
Compression	Included	Included
Compaction	Included	Included
Deduplication	Included	Included
Snapshots	Included	Included
Encryption*	Included*	Included*
Balanced placement	Included	Included
Dynamic capacity expansion	Included	Included

Attribute	Unified Essential	Unified Complete
Adaptive Quality of Service	Included	Included
SnapRestore	Included	Included
FlexClone	Included	Included
FlexVol	Included	Included
FlexCache	Included	Included
SnapMirror asynchronous replication	No	Included
SyncMirror data protection	Included	Included
Trusted Platform Module (TPM) support	Included**	Included**
MetroCluster IP	Included	Included
NVMe over FC Protocol	Included	Included
NVMe over TCP Protocol	Included	Included
SnapMirror Business Continuity (SMBC)	No	Included
SnapMirror synchronous replication	No	Included
FlexGroup	Included	Included
SnapVault disk-based storage backup	No	Included
SnapCenter	No	Included
ONTAP S3	Included	Included
Autonomous Anti-ransomware Protection	No	Included
Multitenant Key Management	No	Included
SnapLock	No	Included
SnapMirror Cloud	No	Included
SnapMirror S3	No	Included
FarbricPool	Optional	Optional

* Requires the encryption version of ONTAP. See the ONTAP software section
** Not available in PRC

The features are summarized as follows:

- **RAID-4, RAID-DP, and RAID-TEC data protection** : Provides the flexibility to choose the level of data protection required and helps improve performance and availability with built-in spare capacity and by distributing data across all physical drives in the aggregate, sustaining to up to one (RAID-4), two (RAID-DP), or three (RAID-TEC) concurrent drive failures.
- **Thin provisioning**: Optimizes efficiency by allocating storage space based on the minimum space required by each application at any given time, so that applications consume only the space they are actually using, not the total space that has been allocated to them, which allows customers to purchase storage they need today and add more as application requirements grow.
- **Compression:** Provides transparent inline and post-process data compression to reduce the amount of storage that customers need to purchase and manage.
- **Deduplication:** Performs general-purpose deduplication for removal of redundant data to reduce the amount of storage that customers need to purchase and manage.
- **Snapshots**: Enables creation of read-only copies of data for backup, parallel processing, testing, and development, and have the copies available almost immediately.
- **Encryption:** Provides software-based encryption for data at rest for enhanced data security with the traditional drives and embedded key management (requires the encryption-capable version of the ONTAP software).
- **Balanced placement:** Provides automated workload distribution across the cluster to help increase utilization and performance.

- **Dynamic capacity expansion:** Allows the capacity of a volume or aggregate to be expanded by adding new physical drives.
- **Adaptive Quality of Service:** Simplifies operations and maintains consistent workload performance by defining QoS policies and automatically adjusting storage resources to respond to workload changes.
- **SnapRestore:** Enables quick recovery of data by reverting a local volume or file to its previous state from a particular snapshot copy stored on the file system.
- **FlexClone:** References snapshot metadata to create writable point-in-time copies of a volume.
- **FlexVol:** Provides abstraction layer between the logical volume and its physical location in the storage array.
- **FlexCache:** Speeds up access to data and offloads traffic from heavily accessed volumes for read-intensive workloads by placing frequently used data in cache locally or remotely (closer to the point of client access) and serving the data to the clients directly from cache without accessing the data source.
- **SnapMirror asynchronous replication:** Provides storage system-based data replication between the storage systems containing source (local) and destination (remote) volumes by using asynchronous (at specified regular intervals) data transfers over IP communication links.
- **SyncMirror data protection:** Adds extra level of data protection and availability by mirroring a pair of RAID aggregates.
- **Trusted Platform Module (TPM)**: For encryption enabled systems. The encryption keys for the onboard key manager (OKM) are no longer stored in the boot device, but instead are stored in the physical TPM for systems so equipped, offering greater security and protection. Moving to the TPM is a nondisruptive process.
- **MetroCluster IP:** Provides storage system-based clustering with online, real-time data mirroring between the local and remote sites by using synchronous data transfers over IP communication links to deliver continuous availability with zero RPO and near-zero RTO. All storage systems in a MetroCluster IP configuration must be of the same model. New to ONTAP 9.11: MetroCluster with Storage Virtual Machine Disaster Recovery (SVM-DR) can now use a third site for the SVM-DR
- **NVMe over TCP Protocol**: Enables NVMe over TCP
- **Data Protection Optimized (DPO)**: Increases the amount of concurrent SnapMirror sessions per node, as well as improving SnapMirror performance to the cluster.
- **SnapMirror synchronous replication:** Provides storage system-based data replication between the storage systems containing source (local) and destination (remote) volumes by using synchronous (as soon as the data is written to the source volume)
- **FlexGroup:** Enables a single volume to span across multiple clustered storage arrays to maximize storage capacity and automate load distribution. New to ONTAP 9.11: FlexGroups can now be created as SnapLock volumes.
- **SnapVault disk-based storage backup:** Enables data stored on multiple systems to be backed up to a central, secondary system quickly and efficiently as read-only snapshot copies.
- **SnapCenter:** Provides application- and virtual machine-aware backup and restoration of data by using the Snapshots technology and leverages the SnapMirror capabilities of storage systems to provide onsite or offsite backup set mirroring for disaster recovery.
- **ONTAP S3**: Expands the DG/DM Series unified story and allows customers to manage, block, file, and object data from one interface. Customers can now natively store data in S3 buckets onboard the DG/DM Series.
- **SnapMirror S3** : Enables you to protect buckets in ONTAP S3 object stores using familiar SnapMirror mirroring and backup functionality. Requires ONTAP 9.11 or later on both source and destination clusters. Requires the Unified Premium Bundle.
- **SnapMirror Cloud**: A backup and recovery technology designed for ONTAP users who want to transition their data protection workflows to the cloud. SnapMirror Cloud is an extension to the family of SnapMirror replication technologies. While SnapMirror is frequently used for ONTAP-to-ONTAP

backups, SnapMirror Cloud uses the same replication engine to transfer Snapshot copies for ONTAP to S3-compliant object storage backups.

- **Multitenant Key Management (MTKM)**: Provides the ability for individual tenants or storage virtual machines (SVMs) to maintain their own keys through KMIP for NVE. With multitenant external key management, you can centralize your organization's key management functions by department or tenant while inherently confirming that keys are not stored near the assets. This approach decreases the possibility of compromise.
- **Anti-ransomware**: Uses workload analysis in NAS (NFS and SMB) environments to proactively detect and warn about abnormal activity that might indicate a ransomware attack. When an attack is suspected, anti-ransomware also creates new Snapshot backups, in addition to existing protection from scheduled Snapshot copies. New to ONTAP 9.11: Optional multi-admin verification to approve administration functions that could result in data loss.

Optional Extended features also available via Feature on Demand (FoD) (see the Extended ONTAP features section)

- **FabricPool**: FabricPool is a hybrid storage solution that uses an all flash (all SSD) aggregate as the performance tier and an object store as the external capacity tier. Data in a FabricPool is stored in a tier based on whether it is frequently accessed or not. Using a FabricPool helps you reduce storage cost without compromising performance, efficiency, or protection.
- No license is required when tiering to StorageGRID or ONTAP S3.

ONTAP software versions

The following table lists the software selection options for the ThinkSystem DG5200 Storage in theThinkAgile Converged Solution for VMware V4.

Table 32. Software selection

Feature code	Description	Availability
ONTAP 9.1x		
C4AG	Lenovo ThinkSystem Storage ONTAP 9.16 Software Encryption - IPAv2	All markets
C4AH	Lenovo ThinkSystem Storage ONTAP 9.16 Software NonEncryption - IPAv2	All markets

Software maintenance is included in the ThinkAgile Converged Solution for VMware V4 warranty and support (see Warranty and support for details).

Extended ONTAP features

FabricPool is an optional extended feature. To obtain this feature license, order the part numbers as listed in the following table.

Note: Extended features are only available as field upgrades and are not orderable as part of a CTO configuration.

Table 33. Optional software features

Part number	Feature code	Description	Quantity
4P47A37057	None*	DM Series FabricPool – 1TB Increment – 3 years	1 per TB of storage capacity
4P47A37288	None*	DM Series FabricPool – 1TB Increment – 5 years	1 per TB of storage capacity

* Field upgrade only; no factory installation.

Configuration notes:

- The FabricPool feature is a cluster-wide, capacity-based license that is available for 3-year or 5-year subscription terms.
- No license is required when tiering to StorageGRID or ONTAP S3.

Ansible playbooks for DG Series

Ansible Playbooks give customers the ability to quickly deploy and use DG Series storage systems using a standard open-source deployment tool. Each playbook executes a set of tasks to achieve a configuration/provisioning goal.

Lenovo has created playbooks that can be used with DG Series storage systems to help with:

- Provisioning
- Configuring

To access the Ansible Playbooks for Lenovo ThinkSystem DG Series storage systems, go to the following page:
https://github.com/lenovo/ansible-dm-series-ontap

ThinkAgile Converged Solution for VMware Cluster Interconnect

It is recommended to use a minimum of 25GbE links and isolate traffic with VLANs for management, vSAN, backup and application workloads. When all the components and workloads are co-hosted on the shared compute infrastructure, the networking bandwidth needs to be sized appropriately.

Important: Networking is not included in the scope of this solution, and it is assumed that the customer has their own network fabric that they would like to connect to. In case customers require network switches, this is sold separately. Lenovo is an official Cisco Solution Technology Integrator (STI) for Cisco Nexus 9300 Switches, licenses, and Cisco Smart Net Services, integrated with our Lenovo ISG Servers and Storage solutions. The Cisco Nexus 9300 Series Network Switches are designed to meet the evolving demands of modern data centers, providing high-density, nonblocking, and low-power-consuming solutions. These switches are ideal for top-of-rack (ToR), middle-of-row (MoR), and end-of-row (EoR) deployments in enterprise data centers, service provider facilities, and large virtualized and cloud computing environments.

The table below shows the recommended switches that are compatible with the ThinkAgile Converged Solution for VMware.

Table 34. Network Switch options

Model	CTO Model	Description	Form Factor	Ports	Uplinks
25 Gb Ethernet with 100 Gb Uplinks					
93180YC-FX3	7DL4CTO1WW	Cisco Nexus 9300-FX3 Series Switch (N9K-C93180YC-FX3)	1U	48x 10/25 Gb	6p 40/100G
100 Gb Ethernet					
9336C-FX2	7DLBCTO1WW	Cisco Nexus 9300-FX2 Series Switch (N9K-C9336C-FX2)	1U	36x 100 Gb	None

For more details on model summary, market availability and support, please refer to the Lenovo Cisco Nexus 9300 Series Network Switches Product Guide. https://lenovopress.lenovo.com/lp2034-cisco-nexus-9300-series-network-switches

Warranty and Support

The ThinkAgile Converged Solution for VMware can be configured with a three- or five-year hardware warranty with 24x7 or Next Business Day Premier Single Point of Support and various levels of coverage with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions. The Lenovo local support centers perform determination and resolution for hardware-related issues and escalate to Broadcom, on behalf of the customer, for software-related problem determination. Broadcom will contact the customer and will own the software-related problem resolution until closure.

Our global network of regional support centers offers consistent, local-language support enabling you to vary response times and level of service to match the criticality of your support needs:

- **Standard Next Business Day** – Best choice for non-essential systems requiring simple maintenance.
- **Premier Next Business Day** – Best choice for essential systems requiring technical expertise from senior-level Lenovo engineers.
- **Premier 24x7 4-Hour Response** – Best choice for systems where maximum uptime is critical.
- **Premier Enhanced Storage Support 24x7 4-Hour Response** – Best choice for storage systems where maximum uptime is critical.

For more information, consult the brochure Lenovo Operational Support Services for Data Centers Services.

Software maintenance

The software maintenance from Broadcom for ThinkAgile VX Series should match the three-, or five-year duration of the selected Lenovo hardware warranty period that entitles customers to submit service requests to troubleshoot VMware software issues and receive code updates, including fixes, patches, and new software releases.
The Lenovo local support centers perform problem determination and resolution for hardware-related issues and escalate to Broadcom, on behalf of the customer for software-related problem determination. Lenovo will contact the customer and will own the software-related problem resolution until closure.

Deployment & Hardware Installation Services

Optimize your IT operations by shifting labor-intensive functions to Lenovo's skilled technicians for seamless on-site or remote deployment, configuration, and migration. Enjoy peace of mind, faster time to value, and comprehensive knowledge sharing with your IT staff, backed by our best-practice methodology.

- Deployment Services for Storage and ThinkAgile

A comprehensive range of remote and onsite options tailored specifically for your business needs to ensure your storage and ThinkAgile hardware are fully operational from the start.

- Hardware Installation Services

A full-range, comprehensive setup for your hardware, including unpacking, inspecting, and positioning components to ensure your equipment is operational and error-free for the most seamless and efficient installation experience, so you can quickly benefit from your investments.

- DM/DG File Migration Services

Take the burden of file migration from your IT's shoulders. Our experts will align your requirements and business objectives to the migration plans while coordinating with your team to plan and safely execute the data migration to your storage platforms.

- DM/DG/DE Health Check Services

Our experts perform proactive checks of your Firmware and system health to ensure your machines are operating at peak and optimal efficiency to maximize up-time, avoid system failures, ensure the security of IT solutions, and simplify maintenance.

- Factory Integrated Services

A suite of value-added offerings provided during the manufacturing phase of a server or storage system that reduces time to value. These services aim at improving your hardware deployment experience and enhance the quality of a standard configuration before it arrives at your facility.

For more information, refer to the Data Center Implementation Services web page:
https://www.lenovo.com/us/en/data-center/services/implementation-services/

Lenovo TruScale

Lenovo TruScale XaaS is your set of flexible IT services that makes everything easier. Streamline IT procurement, simplify infrastructure and device management, and pay only for what you use – so your business is free to grow and go anywhere.

Lenovo TruScale is the unified solution that gives you simplified access to:

- The industry's broadest portfolio – from pocket to cloud – all delivered as a service
- A single-contract framework for full visibility and accountability
- The global scale to rapidly and securely build teams from anywhere
- Flexible fixed and metered pay-as-you-go models with minimal upfront cost
- The growth-driving combination of hardware, software, infrastructure, and solutions – all from one single provider with one point of accountability.

For information about Lenovo TruScale offerings that are available in your region, contact your local Lenovo sales representative or business partner.

Regulatory compliance

The ThinkAgile VX650 V3 and ThinkAgile VX630 V3 servers conforms to the following standards:

- ANSI/UL 62368-1
- IEC 62368-1(CB Certificate and CB Test Report)
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 7, Class A
- CSA C22.2 No. 62368-1
- CISPR 32, Class A, CISPR 35
- Japan VCCI, Class A
- Taiwan BSMI CNS13438, Class A; CNS 14336-1; Section 5 of CNS15663
- CE, UKCA Mark (EN55032 Class A, EN62368-1, EN55024, EN55035, EN61000-3-2, EN61000-3-3, (EU) 2019/424, and EN50581)
- Korea KN32, Class A, KN35
- Russia, Belorussia and Kazakhstan, TP EAC 037/2016 (for RoHS)
- Australia/New Zealand AS/NZS CISPR 32, Class A; AS/NZS 62368.1
- China CELP certificate, HJ 2507-2011
- UL Green Guard, UL2819
- Energy Star 3.0
- EPEAT (NSF/ ANSI 426) Bronze
- China CCC certificate, GB17625.1;GB4943.1;GB/T9254
- China CECP certificate, CQC3135
- Japanese Energy-Saving Act

The ThinkSystem DG Series enclosures conform to the following regulations:

- United States: FCC Part 15, Class A; UL 60950-1
- Canada: ICES-003, Class A; CAN/CSA-C22.2 60950-1
- Mexico NOM
- European Union: CE Mark (EN55032 Class A, EN55024, IEC/EN60950-1); ROHS Directive 2011/65/EU
- Russia, Kazakhstan, Belarus: EAC
- China: CCC GB 4943.1, GB 17625.1, GB 9254 Class A; CELP; CECP
- Japan: VCCI, Class A
- Taiwan: BSMI CNS 13438, Class A; CNS 14336-1
- Korea KN32/35, Class A
- Australia/New Zealand: AS/NZS CISPR 22 Class A

Lenovo Financial Services

Why wait to obtain the technology you need now? No payments for 90 days and predictable, low monthly payments make it easy to budget for your Lenovo solution.

- **Flexible**

  Our in-depth knowledge of the products, services and various market segments allows us to offer greater flexibility in structures, documentation and end of lease options.

- **100% Solution Financing**

  Financing your entire solution including hardware, software, and services, ensures more predictability in your project planning with fixed, manageable payments and low monthly payments.

- **Device as a Service (DaaS)**

  Leverage latest technology to advance your business. Customized solutions aligned to your needs. Flexibility to add equipment to support growth. Protect your technology with Lenovo's Premier Support service.

- **24/7 Asset management**

  Manage your financed solutions with electronic access to your lease documents, payment histories, invoices and asset information.

- **Fair Market Value (FMV) and $1 Purchase Option Leases**

  Maximize your purchasing power with our lowest cost option. An FMV lease offers lower monthly payments than loans or lease-to-own financing. Think of an FMV lease as a rental. You have the flexibility at the end of the lease term to return the equipment, continue leasing it, or purchase it for the fair market value. In a $1 Out Purchase Option lease, you own the equipment. It is a good option when you are confident you will use the equipment for an extended period beyond the finance term. Both lease types have merits depending on your needs. We can help you determine which option will best meet your technological and budgetary goals.

Ask your Lenovo Financial Services representative about this promotion and how to submit a credit application. For the majority of credit applicants, we have enough information to deliver an instant decision and send a notification within minutes.

Seller training courses

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

1. **Lenovo Storage Sales Certification Exam Study Guide**
   2025-09-12 | 10 minutes | Employees and Partners

   This guide includes information to help candidates prepare and register for the Lenovo Storage Sales Certification Exam (LENU-123C).

   Tags: Storage

   Published: 2025-09-12
   Length: 10 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: LENU-123C-SG

2. **Lenovo Data Center Technical Certification Exam Study Guide**
   2025-09-11 | 10 minutes | Employees and Partners

   This guide includes information to help candidates prepare and register for the Data Center Technical practice and certification exams.

   Published: 2025-09-11
   Length: 10 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: LENU-322C-SG
3. **Lenovo Data Center Sales Certification Exam Study Guide**
   2025-09-11 | 10 minutes | Employees and Partners

   This guide includes information to help candidates prepare and register for the Data Center Sales practice and certification exams.

   Published: 2025-09-11
   Length: 10 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: LENU-122C-SG
4. **Lenovo VTT Cloud Architecture: How VCF 9 delivers a Modern Sovereign Private Cloud with Intel Xeon 6 on ThinkAgile VX**
   2025-08-22 | 84 minutes | Employees and Partners

   Join Lenovo, Intel and VMware by Broadcom SMEs and learn how the next generation of VMware Cloud Foundation 9.0 is the ideal platform for customers to implement a modern private cloud. They will demonstrate simplified deployment, operations and cloud developer experience to run traditional, mission critical workloads as well as new AI workloads and containerized applications all in one unified, resilient and secure platform. VCF 9 is supported on the latest Intel Xeon 6 processors that are now available on ThinkAgile VX V4 systems

   Tags: Architecture, Engineering & Construction, Artificial Intelligence (AI),Cloud, ThinkAgile, VMware

   Published: 2025-08-22
   Length: 84 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: DVCLD226

5. **Partner Technical Webinar - Commvault**
   2025-08-11 | 60 minutes | Employees and Partners

   In this 60-minute replay, Commvault provided an in-depth look into Hyperscale X, Bundles, IntelliSnap and licensing.

   Tags: Data Management

   Published: 2025-08-11
   Length: 60 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: AUG0825
6. **Lenovo ThinkSystem DM/DG series Portfolio Overview**
   2025-07-23 | 60 minutes | Employees and Partners

   This course builds on the Data Management Overview DSTOO201 course by introducing you to the Lenovo ThinkSystem DG/DM Series Portfolio.

   By the end of this course, you will be able to:
   Position the Lenovo ThinkSystem DE Series products and features based on the needs of your customers
   Correlate the Lenovo ThinkSystem DE Series Portfolio with Lenovo's comprehensive Data Management Portfolio
   Use the qualifying questions to identify customer needs during conversations

   Tags: Data Management, Storage, ThinkSystem

   Published: 2025-07-23
   Length: 60 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: DDMO103

7. **Unlock the full potential of AI in your organization with a private and secure solution that leverages your own data**
   2025-06-26 | 61 minutes | Employees and Partners

   Join Scott Stricker, World-Wide Leader for Advanced Services within the VMware Cloud Foundation Division and Alex Fanous Advanced Services Architects VMware Cloud Foundation Org at VMware by Broadcom as they lead us in this session. We'll explore the critical need for a private AI solution that enables enterprises to serve AI models with confidence, while maintaining control over their sensitive data and adhering to operational governance & standards. We'll discuss the benefits of a Lenovo-VMware joint solution, including robust lifecycle management, agility, and the ability to deliver AI outcomes that drive business success. We'll also delve into real-world use cases and identify the new personas within our customers' business that will be the consumers of these AI services, and how they can benefit from a private AI foundation. Join us for this technical deep dive into the solution, including a live demonstration, to see how you can harness the power of AI while protecting your organization's most valuable assets and wrangle the cost of today's most expensive workload.

   Tags: Artificial Intelligence (AI), Cloud, Software Defined Infrastruture (SDI), ThinkAgile

   Published: 2025-06-26
   Length: 61 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: DVCLD224

8. **Data Storage Solutions Overview**
   2025-06-18 | 25 minutes | Employees and Partners

   After completing this course you will be able to:
   1. Know more about the data management trends and challenges
   2. Understand the data storage solutions portfolio
   3. Find out how data drives business value

   Tags: Storage

   Published: 2025-06-18
   Length: 25 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: DSTOO102

9. **ThinkAgile VX in 3 minutes**
   2025-06-18 | 5 minutes | Employees and Partners

   Learn about ThinkAgile VX in under 3 minutes. The business challenges it solves and how it can increase the size of your sales opportunities.

   By the end of this training, you should be able to:

   1) Learn how to sell Lenovo ThinkAgile VX
   2) Describe what differentiates ThinkAgile VX from other VMware offerings

   Tags: Sales, Sales Tools, Technical Sales, ThinkAgile

   Published: 2025-06-18
   Length: 5 minutes

   Start the training:
   Employee link: Grow@Lenovo
   Partner link: Lenovo 360 Learning Center

   Course code: DVXS101

10. **Lenovo Data Center Product Portfolio**
    2025-06-11 | 20 minutes | Employees and Partners

    This course introduces the Lenovo data center portfolio, and covers servers, storage, storage networking, and software-defined infrastructure products. After completing this course about Lenovo data center products, you will be able to identify product types within each data center family, describe Lenovo innovations that this product family or category uses, and recognize when a specific product should be selected.

    Course objectives:
    1.Identify product types within each data center family
    2.Describe the features of the product family or category
    3.Recognize when a specific product should be selected

    Tags: Advanced DataCenter, DataCenter Products, Server, ThinkAgile, ThinkEdge, ThinkSystem

    Published: 2025-06-11
    Length: 20 minutes

    Start the training:
    Employee link: Grow@Lenovo
    Partner link: Lenovo 360 Learning Center

    Course code: SXXW1110r8

11. **VTT: Nutanix Integration in XClarity One - SAM - May 2025**
2025-06-10 | 56 minutes | Employees Only

Please join this session as our speaker Sorin Tacu, will be sharing us a preview of SAM (Solutions Advanced Manager) - a powerful new tool developed by the ThinkAgile HX team in collaboration with XClarity One. Designed to seamlessly integrate the Nutanix Solution into XClarity One, SAM is set to streamline solution management and drive greater value for our customers. Get a first look at its future capabilities and learn more about it.

Tags: Nutanix, XClarity

Published: 2025-06-10
Length: 56 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVSYS217

12. **Partner Technical Webinar - ThinkAgile V4**
2025-06-09 | 60 minutes | Employees and Partners

In this 60-minute replay, Pawan Misra, Lenovo SDI Product Manager and Adam Mandelbloom, Lenovo SDI Technical Marketing Manager, reviewed the newly announced ThinkAgile V4 systems for HX, VX and MX.

Tags: Microsoft, Nutanix, VMware

Published: 2025-06-09
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: JUN0625

13. **Family Portfolio: Storage**
2025-04-30 | 50 minutes | Employees and Partners

This course covers the Lenovo storage portfolio, from tape drives used for backups and archiving all the way through high-performance storage systems. After completing this course about the Storage family, the learner will be able to identify products and features within the family, describe the features of this Product Family, and recognize when a specific product should be selected.

Tags: Storage, ThinkSystem

Published: 2025-04-30
Length: 50 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: SXSW1201r17

14. **Family Portfolio: ThinkAgile Systems**
2025-04-30 | 45 minutes | Employees and Partners

This course covers the foundational components of the ThinkAgile family, including server configurations, key system differences, and the unique features of the HX, MX, and VX product families.
By the end of this course, you should be able to:
•List the ThinkSystem and ThinkEdge servers that the ThinkAgile family is based on
•Explain the difference between Certified Nodes and Integrated Systems
•List two features each of the HX, MX, and VX families

Tags: ThinkAgile, ThinkSystem

Published: 2025-04-30
Length: 45 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: SXSW2150r2

15. **Partner Technical Webinar - Storage Announcements**
2025-04-29 | 60 minutes | Employees and Partners

In this 60-minute replay, the April 23 Storage Announcement was presented. Adam Mandelbloom, Lenovo Technical Marketing Manager, presented the ThinkAgile announcements. Next, Roger Yarosh, Senior Storage Product Manager, presented the DG and DM announcements.

Tags: Data Management, ThinkAgile

Published: 2025-04-29
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: 042525

16. **Think AI Weekly: Simplifying AI Deployments with ThinkAgile**
2025-04-11 | 54 minutes | Employees Only

Please view this session to hear Adam Mandelbloom, Technical Marketing Manager for ISG explain these topics:

-Overall value proposition of ThinkAgile in AI solutions
-Use cases for ThinkAgile HX
-Use cases for ThinkAgile VX and MX

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2025-04-11
Length: 54 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DTAIW137

17. **Partner Technical Webinar - Cost Effective Storage Solutions**
2025-01-14 | 60 minutes | Employees and Partners

In this 60-minute replay, Lenovo Storage Architect, Dan Beins presented Lenovo's strategy, capabilities, and portfolio for Data Management. Dan did a super job going beyond the product feature / function and talking about where our products bring value to our customer's Data Management.

Tags: Data Management

Published: 2025-01-14
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: 011025

18. **ThinkAgile VX - How to sell**
2024-12-18 | 15 minutes | Employees and Partners

This module will introduce you to the ThinkAgile VX product line. It also introduces the latest updates to the VMware software packages available with the ThinkAgile VX product line.

Course Objectives:
1. Find out more about the competitive advantage of ThinkAgile VX.
2. Learn about the hardware and software solutions in the ThinkAgile VX line.
3. Understand the business needs and how you can sell more.

Tags: ThinkAgile, VMware

Published: 2024-12-18
Length: 15 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVXS100

19. **Selling On Prem Value - Private Cloud and Private AI**
2024-12-13 | 40 minutes | Employees Only

This course provides Lenovo Sellers with a series of five videos that are designed to help you better articulate our joint value in the Private Cloud and Private AI solution opportunity. After completing this course, Lenovo Sellers should be prepared to elevate customer discussions by transitioning from product features to explaining value-driven benefits, enabling a deeper understanding of the strategic impact for their business.

Tags: Artificial Intelligence (AI), Industry solutions, Technology solutions, ThinkAgile, VMware

Published: 2024-12-13
Length: 40 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVMB101

20. **Partner Technical Webinar - Data Center 101 - Why HCI? Why 3-tier?**
2024-11-14 | 60 minutes | Employees and Partners

October 11, 2024 – In this 60-minute webinar Alex Docherty, Channel Technical Strategist, discussed When to HCI vs 3 Tier.

Tags: ThinkAgile, ThinkSystem

Published: 2024-11-14
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: 101124

21. **ThinkAgile Solutions for AI - Security and Compliance Considerations**
2024-10-01 | 15 minutes | Employees and Partners

This course, tailored specifically for Lenovo and its partner technical sellers, is designed to equip participants with essential knowledge and skills to effectively assess security measures and address compliance considerations for ThinkAgile Solutions for AI.

Upon completion of this training, you will be able to:
• Describee security features of ThinkAgile for AI data protection.
• Explain how to mitigate risk and address compliance considerations in AI deployments.

Last Updated: September 2024

Tags: Artificial Intelligence (AI), High-Performance Computing (HPC), ThinkAgile

Published: 2024-10-01
Length: 15 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDAI203

22. **Integration of ThinkAgile and AI**
2024-09-11 | 25 minutes | Employees and Partners

Designed specifically for Lenovo and its partner technical sellers, this course aims to equip you with the knowledge and skills to effectively communicate the integration of ThinkAgile Solutions and AI.

Upon completion of this training, you will be able to:
•Highlight the advantages of using ThinkAgile for AI workloads
•Explore how ThinkAgile platforms are specifically optimized for AI

Last Updated: September 2024

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-09-11
Length: 25 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDAI204

23. **Key Features of Lenovo ThinkAgile Solutions for AI**
2024-09-10 | 15 minutes | Employees and Partners

Designed specifically for Lenovo and its partner technical sellers, this course aims to equip you with the knowledge and skills to effectively communicate the key features of ThinkAgile Solutions for AI. By completing this course, you'll be better prepared to understand customer needs and present the most suitable AI solutions, ensuring successful engagements and driving value for your clients.

In this course, you will learn how to:
• Present compute capabilities for AI processing
• Articulate optimized storage solutions with ThinkAgile for high-speed AI performance
• Identify essential networking considerations for ThinkAgile AI workloads
• Present ThinkAgile AI Ready solutions

Last Updated: September 2024

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-09-10
Length: 15 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDAI201

24. **ThinkAgile Solutions for AI - Sales Strategies and Messaging**
2024-09-06 | 15 minutes | Employees and Partners

This course is designed exclusively for Lenovo and its partner technical sales teams, with the goal of empowering you with the knowledge and strategies necessary to effectively engage customers in conversations about ThinkAgile Solutions for AI.

In this course, you'll learn how to:
• Identify customer pain points.
• Recommend ThinkAgile Solutions for AI tailored to those needs. And lastly,
• Communicate the benefits of ThinkAgile for AI to key stakeholders.

Last Updated: September 2024

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-09-06
Length: 15 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDAI202

25. **Position Lenovo ThinkAgile Solutions for AI**
2024-08-19 | 10 minutes | Employees and Partners

Designed specifically for Lenovo and partner technical sellers, this course aims to equip you with the knowledge and skills necessary to effectively evaluate and position ThinkAgile Solutions for AI to your customers. By completing this course, you will be better prepared to understand customer needs and present the most suitable AI solutions, ensuring successful engagements and driving value for your clients.

In this course, you will learn how to position ThinkAgile Solutions for AI to your customers by:
•Evaluating the key challenges in the enterprise landscape
•Advocating the value proposition of ThinkAgile Hyper-Converged Infrastructure
•Exploring use cases of ThinkAgile in AI environments
•Implementing ThinkAgile-based AI deployments

Tags: Artificial Intelligence (AI), ThinkAgile

Published: 2024-08-19
Length: 10 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDAI200

26. **Lenovo VTT Cloud Architecture - Unlock Gen AI with VMware Private AI Foundation with NVIDIA**
2024-07-16 | 60 minutes | Employees and Partners

In today's rapidly evolving digital landscape, businesses are hungry for the transformative power of Artificial Intelligence (AI). They see AI as the key to streamlining operations and unlocking exciting new opportunities. However, widespread adoption has been hampered by concerns surrounding privacy, the complexity of implementation, and the hefty costs associated with deploying and managing AI solutions at an enterprise level.
Join Chris Gully and Baker Hull, Solutions Architects from VMware by Broadcom, as they discuss how Lenovo, NVIDIA, and VMware By Broadcom are partnering to deliver a private, secure, scalable, and flexible AI infrastructure solution that helps enterprise customers build and deploy AI workloads within their own private cloud infrastructure, ensure the control of sensitive data and compliance with regulatory requirements, ultimately driving faster time to value and achieving their AI objectives.

Tags: Artificial Intelligence (AI), Cloud, Nvidia, ThinkAgile, VMware

Published: 2024-07-16
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVCLD214

27. **SAP Webinar for Lenovo Sellers: Lenovo Portfolio Update for SAP Landscapes**
2024-06-04 | 60 minutes | Employees Only

Join Mark Kelly, Advisory IT Architect with the Lenovo Global SAP Center of Competence as he discusses:
•Challenges in the SAP environment
•Lenovo On-premise Solutions for SAP
•Lenovo support resources for SAP solutions

Tags: SAP, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-06-04
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DSAPF101

28. **Start the Conversation - Lenovo Cloud Strategy**
2024-05-20 | 25 minutes | Employees and Partners

The purpose of this course is to help sellers use the Lenovo cloud strategy as a foundation to start the customer cloud conversation.

Course Objectives:
•Understand why customers choose the cloud
•Describe the Lenovo Cloud Strategy
•Be able to start the customer cloud conversation

Tags: Cloud, Technology solutions

Published: 2024-05-20
Length: 25 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDS103r3

29. **VTT Data Management How to sell storage - April 2024**
2024-04-10 | 60 minutes | Employees and Partners

In this course, you will know:

- Why do we sell storage?
- What are the basics you need to get an opportunity rolling?
- Why Lenovo for Storage?
- What is happening in the market today?
- How to determine traction?

Tags: Data Management, Storage

Published: 2024-04-10
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVDAT209

30. **ONTAP Technical Positioning**
2024-03-14 | 45 minutes | Employees and Partners

This course focuses on enabling you to interpret the technical market trends and challenges that ONTAP customers face. You also learn to ask qualifying questions that identify which industries, companies, and customer contacts are appropriate targets for ONTAP software. Module two covers explaining ONTAP features and functionality and enabling you to strengthen ONTAP marketing claims with technical details.
Learning Objectives:
•Interpret the technical market trends and challenges that ONTAP customers face
•Ask qualifying questions that identify which industries, companies, and customer contacts are appropriate targets for ONTAP software
•Explain ONTAP features and functionality
•Strengthen ONTAP marketing claims with technical details

Tags: Data Management, Sales, Storage, Technical Sales, ThinkSystem

Published: 2024-03-14
Length: 45 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DDMT200r2

31. **Technical Overview: ThinkAgile HCI and Cloud Platforms**
2024-03-07 | 35 minutes | Employees and Partners

This course is designed to give Lenovo sales and partner representatives a technical overview of Lenovo's ThinkAgile hyperconverged infrastructure and cloud platforms. Turnkey cloud platforms along with their architectural makeup, and container and data protection solutions are also covered.

Learning Objectives:

•Describe Lenovo's ThinkAgile hyperconverged infrastructure and cloud platforms
•Explain do-it-yourself and turnkey cloud platforms along with their architectural makeup
•Describe container and data protection solutions

Tags: Architecture, Engineering & Construction, Cloud, Technical Sales, ThinkAgile

Published: 2024-03-07
Length: 35 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDT2001r3

32. **VTT ONTAP 9.14.1 and Bundle Change Update - February 2024**
2024-03-07 | 25 minutes | Employees and Partners

In this course, you will know more about:
- The new Features of ONTAP 9.14.1 update
- ONTAP Bundle Update

Tags: Data Management, Storage

Published: 2024-03-07
Length: 25 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVDAT207

33. **Lenovo Solutions for the Cloud**
2024-01-03 | 30 minutes | Employees and Partners

Understanding your customer's needs around cloud solutions is imperative. This course aims to increase Lenovo and Partner Seller's ability to identify various Lenovo Cloud offerings and services to position related Lenovo Cloud Solutions.

Tags: Cloud, Technology solutions, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-01-03
Length: 30 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDO112r2

34. **VTT Cloud Architecture: Google Cloud Platform with Anthos on ThinkAgile VX - October 2023**
2023-10-11 | 54 minutes | Employees and Partners

Join Chandrakandh Mouleeswaran, Lenovo Senior Software Engineer and Cristian Ghetau, Lenovo Software Engineer for a discussion on Google Cloud Platform (GCP) with Anthos solution based on the Lenovo ThinkAgile VX VMware vSAN certified platform. They will cover a technical overview of Google Kubernetes Engine (GKE) On-prem, which is a containerized workload orchestration software. We will cover the functional aspects of Anthos core components including the Kubernetes, Istio service mesh, Anthos config management, Hybrid and multi-cloud management, and Google cloud marketplace. We will also provide an architecture overview and deployment of Anthos on top of Lenovo ThinkAgile VX hyperconverged infrastructure (HCI) platform. Cristian and Chandrakandh will cover customer use cases for Anthos, including Continuous Integration/Continuous Delivery (CI/CD), Micro-services and Service Mesh, Hybrid Cloud and Multi-cloud management, and Anthos Config Management.

Tags: Cloud, Software Defined Infrastruture (SDI), Technology solutions, ThinkAgile, VMware

Published: 2023-10-11
Length: 54 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVCLD205

35. **VEEAM Solutions Sales Training**
2023-09-27 | 20 minutes | Employees and Partners

In this course you will learn about Hyper-availability for the Always-On Enterprise.

By the end of this training, you should be able to:

Identify and explain the core products and solutions offered by Veeam.
Explain the key benefits and value propositions of integrating Veeam solutions with Lenovo products.

Tags: Sales

Published: 2023-09-27
Length: 20 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DSTOO100

36. **VTT The Benefits of Scale Out Clustering with DM/DG - September 2023**
2023-09-12 | 60 minutes | Employees Only

In this course, you will know more about:
- What is scale out?
- Hardware benefits
- Administrative benefits
- Scale out Features

Tags: Data Management, ThinkSystem

Published: 2023-09-12
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVDAT204

37. **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.

Tags: Cloud, Software Defined Infrastruture (SDI), Technical Sales, VMware

Published: 2023-09-12
Length: 35 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVCLD204

38. **VTT Cloud Architecture - DevOps Cloud Story August 2023**
2023-08-17 | 60 minutes | Employees Only

Understanding how architecture is deployed to support DevOps environment in the cloud. Tanzu/Containers vs VM's. When it best to use each? Modern Application deployment in containers. In the beginning, public cloud IaaS was delivered exclusively via virtual machines. But today, new virtualization methods are taking hold, including containers and serverless computing. As cloud computing principles become more embedded in application development and infrastructure operations, containers and serverless will become increasingly attractive deployment vehicles for code. From requirements to installation.

Tags: Cloud, Infrastructure as a Service (IaaS), ThinkAgile, VMware

Published: 2023-08-17
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVCLD203

39. **VTT The new ThinkSystem DG storage product - August 2023**
2023-08-16 | 60 minutes | Employees Only

Introduce and explore the new ThinkSystem DG storage product based on the NetApp DM. This product features QLC SSDs focused on improved sustainability standards and workload consolidation.

Tags: Data Management, Storage, ThinkSystem

Published: 2023-08-16
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVDAT203

40. **ThinkAgile Accelerating Cloud Agility: Understanding ThinkAgile VX**
2023-07-28 | 50 minutes | Employees and Partners

Brian Faleiro, Lenovo Technical Product Manager, discusses ThinkAgile VX use cases, where the solution can be positioned. He reviews recent technical improvements and discusses deployment and lifecycle management, ‘why ThinkAgile VX’, what are the requirements that customers are looking for and how we are solving those requirements.

Tags: ThinkAgile

Published: 2023-07-28
Length: 50 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVXT201

41. **ThinkAgile VX Series - Technical Presentation**
2023-07-12 | 60 minutes | Employees and Partners

Join us in this comprehensive course on ThinkAgile VX Series, where you will gain a deep understanding of its technical overview and components. Dive into the world of Data Processing Units (DPUs) and explore their technical aspects, including their role and benefits. Unlock the potential of ThinkAgile VX Series through a detailed exploration of its versatile use cases, ranging from Hybrid Cloud deployment to VDI, Kubernetes, and AI/ML applications. Moreover, you will learn about effective deployment strategies and lifecycle management processes.

By the end of this training, you should be able to:
•Understand the technical overview of ThinkAgile VX Series
•Gain knowledge about DPU (Data Processing Unit) and its technical aspects
•Explore various use cases of ThinkAgile VX Series, including Hybrid Cloud deployment, VDI (Virtual Desktop Infrastructure), Kubernetes, and AI/ML (Artificial Intelligence/Machine Learning)
•Describe deployment strategies and lifecycle management processes for ThinkAgile VX Series

Tags: Cloud, ThinkAgile

Published: 2023-07-12
Length: 60 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVXSV104

42. **VTT Cloud Architecture - Why Cloud? July 2023**
2023-07-12 | 90 minutes | Employees Only

Theresa Thompson and Luke Huckaba from VMware discuss the VMware and Lenovo Partnership for cloud solutions addresses common IT constraints, such as slow time to value, limited resources and incompatible systems. Cloud is an enabler of digital business. How do we reduce the operational burden of running and maintaining hardware and software for cloud and prepare our customers for workload migrations and which are suitable for a cloud environment. How to align cloud Initiative outcomes with business goals.

Tags: Cloud, Software Defined Infrastruture (SDI), ThinkAgile, VMware

Published: 2023-07-12
Length: 90 minutes

Start the training:
Employee link: Grow@Lenovo

Course code: DVCLD202

43. **Cloud and HCI or Somewhere in Between**
2023-07-11 | 40 minutes | Employees and Partners

Provides a brief overview of Lenovo Portfolio for HCI and Cloud including ThinkAgile HX, VX, MX Certified Nodes and Appliances, Azure, and Engineered Cloud Solutions. Review Scenarios and complete questions "choose your own adventure" to identify and qualify an opportunity as HCI or Cloud and which portfolio solution would be the best option.

Course objectives:
•Where in the Sales Cycle we are
•What is Cloud
•What is Hyperconverged Infrastructure (HCI)
•Review Lenovo Offerings in Cloud and HCI
•Scenarios

Tags: Cloud

Published: 2023-07-11
Length: 40 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCLDS104r2

44. **Accelerate and Secure Your Infrastructure with Lenovo ThinkAgile VX Series and NVIDIA BlueField-2 DPU**
2023-05-26 | 10 minutes | Employees and Partners

Join us for an insightful course on DPU-based acceleration in Lenovo Think Agile VX. Discover the concept of Data Processing Units (DPUs) and their role in offloading data processing workloads, such as network traffic and security operations. Explore the benefits of leveraging DPUs, including higher transaction rates, lower latency, and core savings. Gain a comprehensive understanding of how DPUs optimize network performance, free up CPU resources, and enhance system efficiency. Delve into the security advantages of DPU-based acceleration, including isolation of network security operations and implementation of a zero trust approach. By the end of this course, you will have the knowledge to leverage DPUs effectively in Lenovo ThinkAgile VX for improved network performance, resource optimization, and enhanced security.

By the end of this training, you should be able to:
•Understand the concept of Data Processing Units (DPUs) and their role in offloading data processing workloads
•Recognize the benefits of leveraging DPUs in ThinkAgile VX
•Explore the security advantages of DPU-based acceleration

Tags: Cloud, Nvidia, Software Defined Infrastruture (SDI), ThinkAgile, VMware

Published: 2023-05-26
Length: 10 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVXSV103

45. **Improve Storage Performance with VMware vSAN ESA on Lenovo ThinkAgile VX Series**
2023-05-26 | 10 minutes | Employees and Partners

Explore VMware's vSAN 8 release and Lenovo's ThinkAgile VX series in this comprehensive course. Discover how the Express Storage Architecture (ESA) revolutionizes storage by eliminating caching tiers and leveraging storage pools. Learn about hardware requirements, VMware certifications, and Lenovo's Configurator for successful ESA implementation. Enhance your storage performance and optimize your infrastructure. Enroll now to unlock the potential of vSAN 8 and ESA on ThinkAgile VX.

By the end of this training, you should be able to:
•Understand the benefits of VMware's vSAN 8 release and Express Storage Architecture (ESA)
•Recognize the hardware requirements and prerequisites for implementing ESA
•Explore how Lenovo Think Agile VX series supports the implementation of ESA

Tags: Cloud, ThinkAgile, VMware

Published: 2023-05-26
Length: 10 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DVXSV101

46. **Day 0 Operations with ThinkAgile VX**
2023-05-25 | 10 minutes | Employees and Partners

Discover the power of the ThinkAgile VX Deployer in this comprehensive course. Learn to easily deploy and configure ThinkAgile VX Integrated Systems using step-by-step instructions and practical demonstrations. Explore key features, such as vCenter configuration, integration with Lenovo XClarity Integrator, and efficient software installations. Master the deployment process, streamline operations, and optimize your cluster environment.

By the end of this training, you should be able to:
•Understand the purpose and capabilities of the ThinkAgile VX Deployer
•Recognize the benefits of using the Lenovo XClarity Integrator
•Comprehend the steps involved in deploying a cluster with ThinkAgile VX Deployer

Tags: Cloud, Technical Sales, ThinkAgile, VMware, XClarity

Published: 2023-05-25
Length: 10 minutes

Start the training:
Employee link: Grow@Lenovo
Partner link: Lenovo 360 Learning Center

Course code: DCVD101

Related publications and links

For more information, see these resources:

- Lenovo ThinkAgile VX Series
  https://www.lenovo.com/us/en/data-center/software-defined-infrastructure/ThinkAgile-VX-Series/p/WMD00000340
- ThinkAgile VX - Best Recipes
  http://datacentersupport.lenovo.com/us/en/solutions/HT505302
- VMware documentation
  https://docs.vmware.com/
- ThinkSystem SR630 V4 product guide:
  https://lenovopress.lenovo.com/lp1971-thinksystem-sr630-v4-server
- ThinkSystem SR650a V4 product guide:
  https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server
- ThinkSystem SR650 V4 product guide:
  https://lenovopress.lenovo.com/lp2127-thinksystem-sr650-v4-server
- Lenovo ThinkSystem DG and DM Series product page
  https://www.lenovo.com/us/en/c/data-center/storage/unified-storage
- Lenovo Data Center Solution Configurator
  http://dcsc.lenovo.com
- ThinkSystem DG and DM Series documentation
  https://pubs.lenovo.com/?tags=thinksystem&tags=storage
- ThinkSystem DG Series datasheet
  https://lenovopress.lenovo.com/datasheet/ds0170-thinksystem-dg-series

Related product families

Product families related to this document are the following:

- 2-Socket Rack Servers
- Hyperconverged Infrastructure
- ThinkAgile VX Series for VMware

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