

Lenovo ThinkAgile HX1330, HX1331, HX2330, HX2331, HX3330 and HX3331 1U Appliances & Certified Nodes (Intel Xeon SP Gen 3)

Product Guide (withdrawn product)

The Lenovo ThinkAgile HX 1U Appliances & Certified Nodes are 2-socket 1U systems that feature the 3rd Generation Intel Xeon Scalable processors and are designed for deploying industry-leading hyperconvergence software from Nutanix on Lenovo enterprise platforms. Nutanix brings the benefits of web-scale technologies to enterprise applications through enterprise storage, data protection, infrastructure resilience, management and analytics, and security.

The 1U systems are available either as an Appliance (HXnnn0) or Certified Node (HXnnn1):

- HX1330 and HX1331 for entry systems
- HX2330 and HX2331 for remote office and branch office
- HX3330 and HX3331 for VDI, server virtualization, and private cloud

HX Appliances deliver fully validated and integrated Lenovo hardware and firmware, certified and preloaded with licensed Nutanix software. They also include ThinkAgile Premier support with one single point of contact for support of the hardware and software.

HX Certified Nodes deliver fully validated Lenovo hardware and firmware, certified and can be preloaded with Nutanix software. Certified Nodes do not include licenses to Nutanix software and enhanced software support.



Figure 1. Lenovo ThinkAgile HX 1U Appliances & Certified Nodes with 2.5-inch drive bays

Did you know?

The ThinkAgile HX 1U Appliances & Certified Nodes are built on the Lenovo ThinkSystem SR630 V2 server that features enterprise-class reliability, management, and security.

The HX1330, HX2330 and HX3330 Appliances offer ThinkAgile Premier Single Point of Support for quick 24/7 problem reporting and resolution.

Key features

Combining performance and flexibility, the HX 1U systems are a great choice for enterprises of all sizes. The systems offer a broad selection of processors, memory and drives, and offers high performance features that industries such as finance, healthcare and telco need. Outstanding reliability, availability, and serviceability (RAS) and high-efficiency design can improve your business environment and can help save operational costs.

Appliance features

The HX Series Appliances (HX1330, HX2330 and HX3330) offer the following key features:

- Factory-integrated, pre-configured ready-to-go appliances built on proven and reliable Lenovo ThinkSystem servers that provide compute power for a variety of workloads and applications and powered by industry's most feature-rich hyperconverged infrastructure software from Nutanix.
- Provide quick and convenient path to implement a hyperconverged solution powered by Nutanix with "one stop shop" and a single point of contact provided by Lenovo for purchasing, deploying, and supporting the solution.
- Meet various workload demands with cost-efficient hybrid or performance-optimized all-flash storage (including all-NVMe) configurations.
- Deliver fully validated and integrated hardware and firmware that is certified with Nutanix software.
- Include Lenovo ThinkAgile Premier Single Point of Support for quick 24/7 problem reporting and resolution.
- Offer Lenovo deployment services to get customers up and running quickly.

Certified Node features

The HX Certified Nodes (HX1331, HX2331 and HX3331) offer the following key features:

- Built on proven and reliable Lenovo ThinkSystem servers that provide compute power for a variety of workloads and applications.
- Deliver fully validated and integrated hardware and firmware that is certified with Nutanix software.
- Preloaded with Nutanix software and ready for out-of-box deployment (Note: software licenses are not included).
- Provide flexibility in using the existing Nutanix term-based software licenses and active support contracts or purchasing new software licenses and support contracts from Nutanix.
- Offer optional Lenovo Professional Services to get customers up and running quickly

The Nutanix software running on the HX 1U systems delivers the following key features:

- A natively integrated solution for data protection and continuous availability at VM granularity that gives administrators an affordable range of options to meet the recovery point objectives (RPO) and recovery time objectives (RTO) for different applications.
- A fault resistant platform, with no single point of failure and no bottlenecks with shared-nothing architecture, where all data, metadata and services are distributed to all nodes within the cluster, that is built to detect, isolate and recover from failures anywhere in the system.
- An intuitive user-centric management experience to simplify every aspect of the IT infrastructure lifecycle and provide a single pane of glass to monitor and control Nutanix clusters, with simplified workflows and rich automation for common administrative tasks.
- Powerful security features, such as two-factor authentication and data-at-rest encryption, with a security development lifecycle that is integrated into product development to help customers meet the most stringent security requirements.

Hardware features

The ThinkAgile HX 1U Appliances & Certified Nodes systems are based on the SR630 V2 and have the following hardware features:

Scalability and performance

The HX 1U systems offer numerous features to boost performance, improve scalability and reduce costs:

- Supports one or two third-generation Intel Xeon Processor Scalable processors
 - Up to 40 cores and 80 threads
 - Core speeds of up to 3.6 GHz
 - TDP ratings of up to 270W
- Support for up to 32 TruDDR4 memory DIMMs operating at up to 3200 MHz means you have the fastest available memory subsystem.
- Supports configurations of 2 DIMMs per channel to operate at the 3200 MHz rated speed of the memory DIMMs.
- Using 128GB 3DS RDIMMs, the server supports up to 4TB of system memory.
- Supports up to three single-width GPUs, each up to 75W for substantial processing power in a 1U system.
- Supports up to 12x 2.5-inch hot-swap drive bays, by using combinations of front-accessible (up to 10 bays) and rear-accessible (2 bays).
- Supports four 3.5-inch drive bays for lower-cost high-capacity HDD storage.
- Supports up to 12x NVMe drives without oversubscription of PCIe lanes (1:1 connectivity) and without the need for additional NVMe adapters. The use of NVMe drives maximizes drive I/O performance, in terms of throughput and latency.
- Supports 12x SAS or SATA drives using 12Gb SAS/SATA HBAs.
- Supports up to two externally accessible 7mm hot-swap drives with RAID functionality for operating system boot functions.
- Supports M.2 drives for convenient operating system boot functions. Available M.2 adapters support either one M.2 drive or two M.2 drives in a RAID 1 configuration for performance and reliability.
- The server has a dedicated industry-standard OCP 3.0 small form factor (SFF) slot, with a PCIe 4.0 x16 interface, supporting a variety of Ethernet network adapters. A simple-swap mechanism with a thumbscrew and pull-tab enables tool-less installation and removal of the adapter. The adapter supports shared BMC network sideband connectivity to enable out-of-band systems management.
- The server offers PCI Express 4.0 I/O expansion capabilities that doubles the theoretical maximum bandwidth of PCIe 3.0 (16GT/s in each direction for PCIe 4.0, compared to 8 GT/s with PCIe 3.0). A PCIe 4.0 x16 slot provides 64 GB/s bandwidth, enough to support a 200GbE network connection.
- The server offers up to three PCIe 4.0 slots, all with rear access, plus a slot dedicated to the OCP adapter.

Availability and serviceability

The HX 1U systems provide many features to simplify serviceability and increase system uptime:

- The server offers Single Device Data Correction (SDDC, also known as Chipkill), Adaptive Double-Device Data Correction (ADDDC, also known as Redundant Bit Steering or RBS), and memory mirroring for redundancy in the event of a non-correctable memory failure.
- The server offers hot-swap drives for greater system uptime.
- Available M.2 RAID boot adapters support RAID-1 which can enable two SATA or two NVMe M.2 drives to be configured as a redundant pair.
- The server has up to two hot-swap redundant power supplies and up to eight hot-swap redundant

fans to provide availability for business-critical applications.

- The light path diagnostics feature uses LEDs to lead the technician to failed (or failing) components, which simplifies servicing, speeds up problem resolution, and helps improve system availability.
- Solid-state drives (SSDs) offer more reliability and performance than traditional mechanical HDDs for greater uptime.
- Proactive Platform Alerts (including PFA and SMART alerts): Processors, voltage regulators, memory, internal storage (SAS/SATA HDDs and SSDs, NVMe SSDs, M.2 storage), fans, power supplies, server ambient and subcomponent temperatures. Alerts can be surfaced through the XClarity Controller to managers such as Lenovo XClarity Administrator and VMware vCenter. These proactive alerts let you take appropriate actions in advance of possible failure, thereby increasing server uptime and application availability.
- The built-in XClarity Controller continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failures to minimize downtime.
- Built-in diagnostics in UEFI, using Lenovo XClarity Provisioning Manager, speed up troubleshooting tasks to reduce service time.
- Lenovo XClarity Provisioning Manager supports diagnostics and can save service data to a USB key drive or remote CIFS share folder for troubleshooting and reduce service time.
- Auto restart in the event of a momentary loss of AC power (based on power policy setting in the XClarity Controller service processor)
- Offers a diagnostics port on the front of the server to allow you to attach an external diagnostics handset for enhanced systems management capabilities.
- Support for the XClarity Administrator Mobile app running on a supported smartphone or tablet and connected to the server through the service-enabled USB port, enables additional local systems management functions.
- Three-year customer-replaceable unit and onsite limited warranty (varies by geography), 9 x 5 next business day. Optional service upgrades are available.

Manageability and security

Systems management features simplify local and remote management of the HX 1U systems:

- The server includes an XClarity Controller (XCC) to monitor server availability. Optional upgrade to XCC Advanced to provide remote control (keyboard video mouse) functions. Optional upgrade to XCC Enterprise enables the additional support for the mounting of remote media files (ISO and IMG image files), boot capture, and power capping.
- Lenovo XClarity Administrator offers comprehensive hardware management tools that help to increase uptime, reduce costs and improve productivity through advanced server management capabilities.
- UEFI-based Lenovo XClarity Provisioning Manager, accessible from F1 during boot, provides system inventory information, graphical UEFI Setup, platform update function, RAID Setup wizard, operating system installation function, and diagnostic functions.
- Support for Lenovo XClarity Energy Manager which captures real-time power and temperature data from the server and provides automated controls to lower energy costs.
- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- Support for industry standard management protocols, IPMI 2.0, SNMP 3.0, Redfish REST API, serial console via IPMI
- An integrated hardware Trusted Platform Module (TPM) supporting TPM 2.0 enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Administrator and power-on passwords help protect from unauthorized access to the server.

- Supports Secure Boot to ensure only a digitally signed operating system can be used. Supported with HDDs and SSDs, as well as 7mm and M.2 drives.
- Industry-standard Advanced Encryption Standard (AES) NI support for faster, stronger encryption.
- Intel Execute Disable Bit functionality can prevent certain classes of malicious buffer overflow attacks when combined with a supported operating system.
- Intel Trusted Execution Technology provides enhanced security through hardware-based resistance to malicious software attacks, allowing an application to run in its own isolated space, protected from all other software running on a system.
- Additional physical security features are an available chassis intrusion switch and available lockable front bezel.

Energy efficiency

The HX 1U systems offer the following energy-efficiency features to save energy, reduce operational costs, and increase energy availability:

- Energy-efficient system board components help lower operational costs.
- High-efficiency power supplies with 80 PLUS Platinum and Titanium certifications
- Solid-state drives (SSDs) consume as much as 80% less power than traditional spinning 2.5-inch HDDs.
- The server uses hexagonal ventilation holes, which can be grouped more densely than round holes, providing more efficient airflow through the system and thus keeping your system cooler.
- Optional Lenovo XClarity Energy Manager provides advanced data center power notification, analysis, and policy-based management to help achieve lower heat output and reduced cooling needs.

Components and connectors

The ThinkAgile HX 1U Appliances & Certified Nodes are based on the ThinkSystem SR630 V2 server.

The following figure shows the front of the HX 1U systems with 2.5-inch drives.

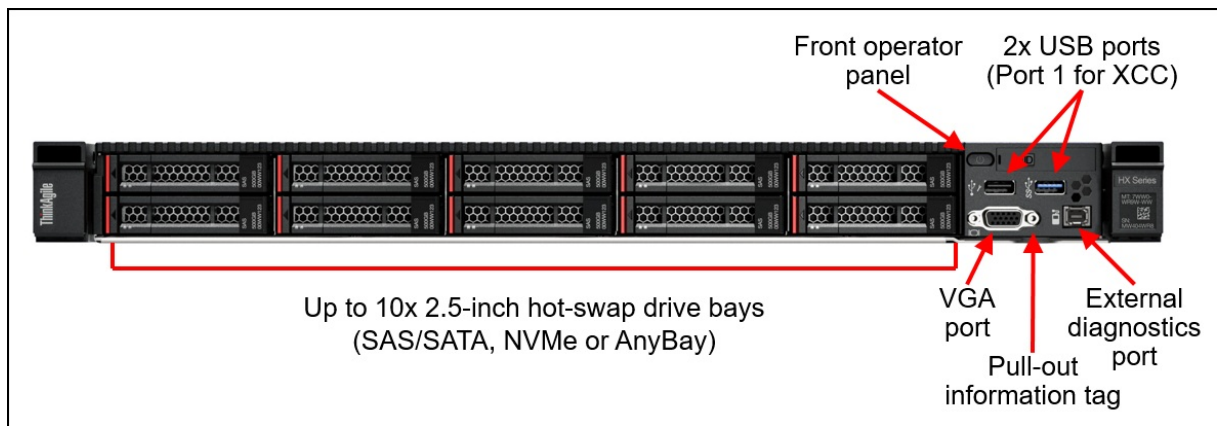


Figure 2. Front view of the HX 1U systems with 2.5-inch drives

The following figure shows the front of the HX 1U systems with 3.5-inch drives.

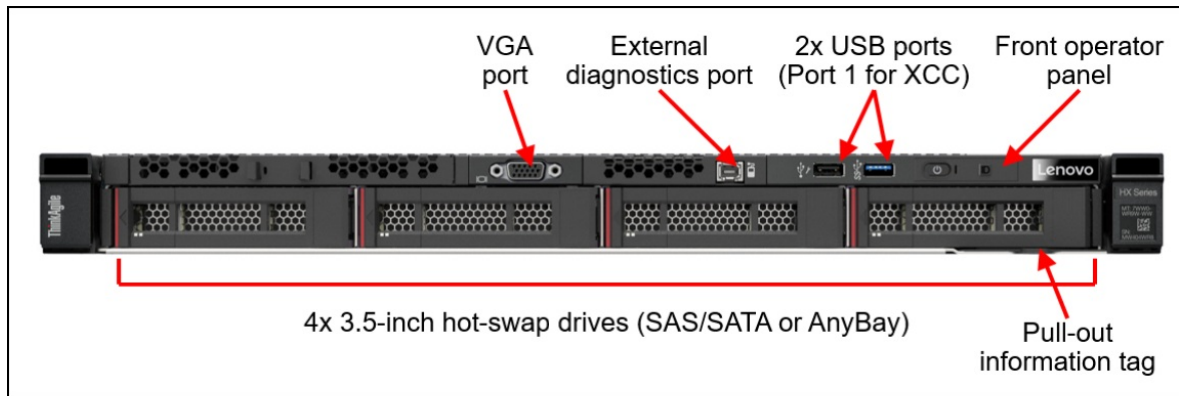


Figure 3. Front view of the HX 1U systems with 3.5-inch drives

The following figure shows the components visible from the rear of the server. As shown, there are three different configurations available, including one with two 2.5-inch hot-swap rear-mounted drive bays.

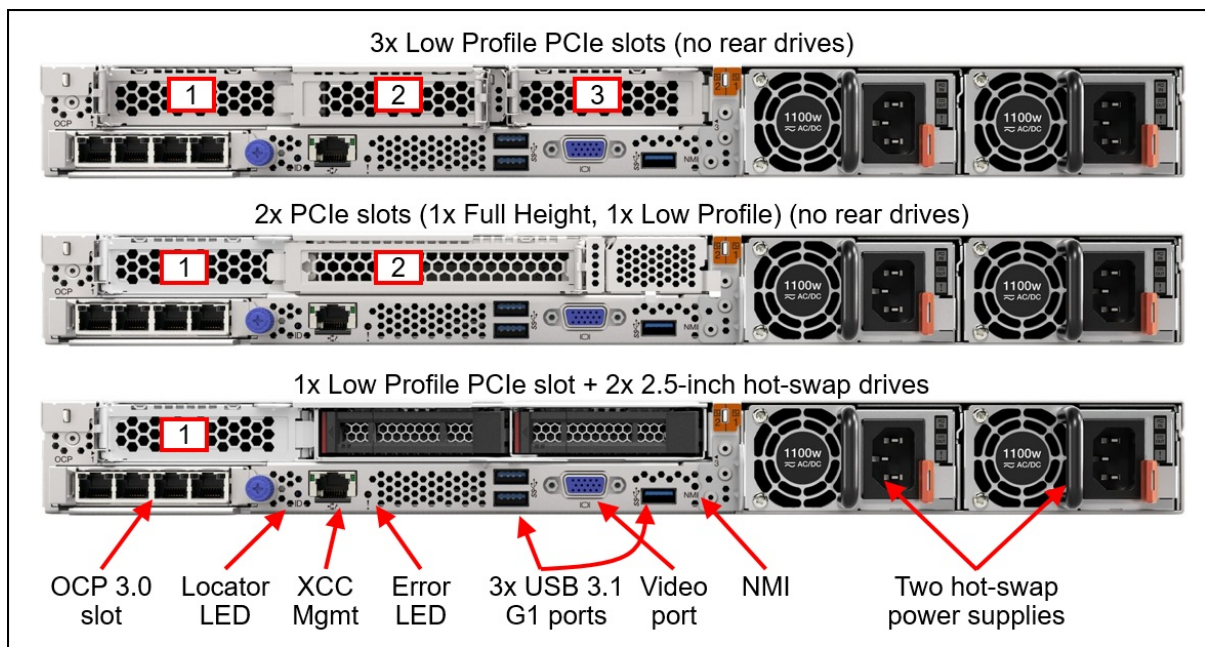


Figure 4. Rear views of the HX 1U systems

The following figure shows the locations of key components inside the systems.

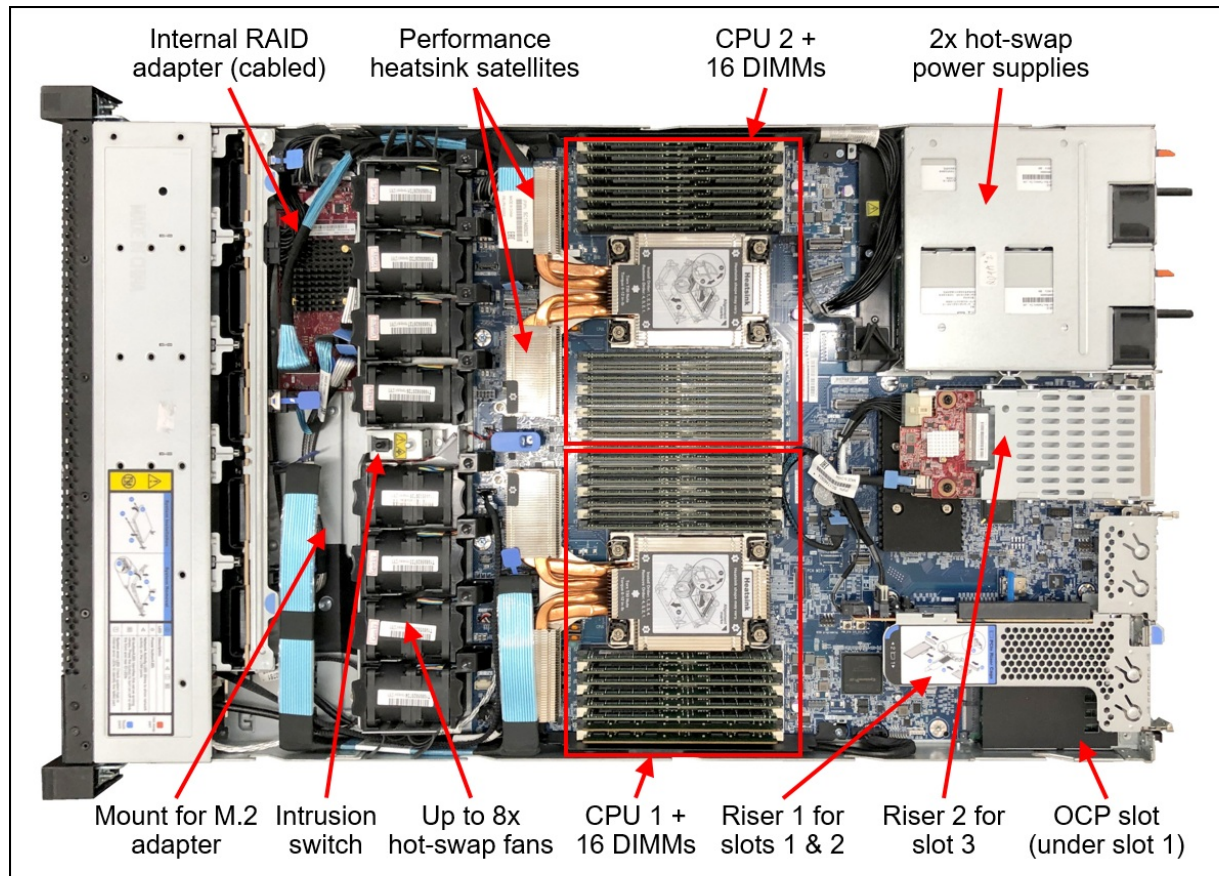


Figure 5. Internal view of the HX 1U systems

Standard specifications

The ThinkAgile HX 1U Appliances & Certified Nodes are based on the ThinkSystem SR630 V2 server.

The following table provides an overview comparison between the HX systems.

Table 1. Comparison of features

	HX1330 HX1331	HX2330 HX2331	HX3330 HX3331
HX offering type	Appliance Certified Node	Appliance Certified Node	Appliance Certified Node
Target workloads	Entry systems	ROBO/Edge	VDI, server virtualization, private cloud
Base MTM	A: 7Z85CTO1WW CN: 7D52CTO1WW	A: 7Z85CTO2WW CN: 7D52CTO2WW	A: 7Z85CTO3WW CN: 7D52CTO3WW
Form Factor	1U	1U	1U
Base platform	SR630 V2	SR630 V2	SR630 V2
CPU	1x Intel Xeon SP Gen 3	2x Intel Xeon SP Gen 3	2x Intel Xeon SP Gen 3
Memory	32x DDR4 3200 MHz (4TB maximum)	32x DDR4 3200 MHz (4TB maximum)	32x DDR4 3200 MHz (4TB maximum)
Drive Bays	4x 3.5" SAS/SATA front + 2x 2.5" SAS/SATA rear	4x 3.5" SAS/SATA front + 2x 2.5" SAS/SATA rear	10x 2.5" SAS/SATA or NVMe front + 2x 2.5" SAS/SATA or NVMe rear
Drive Configuration	All Flash Hybrid	All Flash Hybrid	All Flash Hybrid
HBA	430-8i HBA	430-8i HBA	430-16i HBA
Boot drives	2x M.2 SATA 2x 7mm SATA	2x M.2 SATA 2x 7mm SATA	2x M.2 SATA 2x 7mm SATA
OCP networking	1x OCP 3.0 adapter 10Gb, 25Gb	1x OCP 3.0 adapter 10Gb, 25Gb	1x OCP 3.0 adapter 10Gb, 25Gb
PCIe networking	1x PCIe adapter 10Gb, 25Gb	2x PCIe adapters 10Gb, 25Gb	2x PCIe adapters 10Gb, 25Gb
GPUs	Up to 1x single-wide GPU	Up to 2x single-wide GPUs	Up to 2x single-wide GPUs
Hypervisor	Nutanix AHV, VMware ESXi	Nutanix AHV, VMware ESXi	Nutanix AHV, VMware ESXi

The following table lists the standard specifications.

Table 2. Standard specifications

Components	Specification
Machine types	7Z85 - 1U Appliance 7D52 - 1U Certified Node
Form factor	1U rack.
Processor	One or two third-generation Intel Xeon Scalable processor (formerly codenamed "Ice Lake"). Supports processors up to 40 cores, core speeds of up to 3.6 GHz, and TDP ratings of up to 270W.
Chipset	Intel C621A "Lewisburg" chipset, part of the platform codenamed "Whitley"

Components	Specification
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 TruDDR4 RDIMMs and 3DS RDIMMs are supported. DIMMs operate at up to 3200 MHz at 2 DPC.
Persistent memory	Not supported
Memory maximum	Up to 4TB by using 32x 128GB 3DS RDIMMs
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Platinum or Gold processors), and memory mirroring.
Drive bays	<ul style="list-style-type: none"> ● HX1330 Appliance and HX1331 Certified Node: <ul style="list-style-type: none"> ○ Front drive bays: 4x 3.5-inch SAS/SATA ○ Rear drive bays: 2x 2.5-inch SAS/SATA (optional) ● HX2330 Appliance and HX2331 Certified Node <ul style="list-style-type: none"> ○ Front drive bays: 4x 3.5-inch SAS/SATA ○ Rear drive bays: 2x 2.5-inch SAS/SATA (optional) ● HX3330 Appliance and HX3331 Certified Node <ul style="list-style-type: none"> ○ Front drive bays: 10x 2.5-inch SAS/SATA or 10x 2.5-inch NVMe ○ Rear drive bays: 2x 2.5-inch SAS/SATA or 2x 2.5-inch NVMe (optional) ● 7mm hot-swap drives at the rear of the server for OS boot support ● Internal M.2 module supporting up to two M.2 drives, for OS boot support <p>Note: EDSFF drive bays are currently not supported.</p>
Storage controller	<ul style="list-style-type: none"> ● Onboard NVMe ports (RAID not supported) ● 12 Gb SAS/SATA non-RAID: <ul style="list-style-type: none"> ○ 430-8i HBA ○ 430-16i HBA
Network interfaces	Dedicated OCP 3.0 SFF slot with PCIe 4.0 x16 host interface. Supports 10GbE and 25GbE network connectivity. One port can optionally be shared with the XClarity Controller (XCC) management processor for Wake-on-LAN and NC-SI support.
PCI Expansion slots	<p>Up to 3x PCIe 4.0 slots, all with rear access, plus a slot dedicated to the OCP adapter. Slot availability is based on riser selection and rear drive bay selection. Slot 3 requires two processors.</p> <p>Three combinations for rear-access slots and rear drive bays:</p> <ul style="list-style-type: none"> ● 3x PCIe 4.0 x16 low-profile slots ● 1x PCIe 4.0 x16 full-height half-length slot + 1x PCIe 4.0 x16 low-profile slot ● 1x PCIe 4.0 x16 low-profile slot + 2x 2.5-inch rear drive bays
GPU support	Supports up to 2x single-wide GPUs
Ports	<p>Front: 1x USB 3.1 G1 (5 Gb/s) port, 1x USB 2.0 port (also for XCC local management), External diagnostics port, optional VGA port.</p> <p>Rear: 3x USB 3.1 G1 (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 slot 3).</p> <p>Internal: 1x USB 3.1 G1 connector for operating system or license key purposes</p>
Cooling	Up to 8x N+1 redundant hot swap 40 mm fans, configuration dependent. One fan integrated in each power supply.

Components	Specification
Power supply	Up to two hot-swap redundant AC power supplies, 80 PLUS Platinum or 80 PLUS Titanium certification. 500 W, 750 W, 1100 W and 1800 W AC options, supporting 220 V AC. 500 W, 750 W and 1100 W options also support 110V input supply. In China only, all power supply options support 240 V DC.
Video	G200 graphics with 16 MB memory with 2D hardware accelerator, integrated into the XClarity 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 2.5-inch front drive bays can optionally support an Integrated Diagnostics Panel. XClarity Controller (XCC) embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced and Enterprise to enable remote control functions.
Security features	Chassis intrusion switch, Power-on password, administrator's password, Trusted Platform Module (TPM), supporting TPM 2.0. In China only, optional Nationz TPM 2.0. Optional lockable front security bezel.
Software	<ul style="list-style-type: none"> • Appliances: Nutanix Acropolis: Starter, Pro, and Ultimate editions. Nutanix Prism, Nutanix Calm (optional), Nutanix Flow (optional). • Certified Nodes: Nutanix Acropolis Starter, Pro and Ultimate editions (licenses purchased separately from Nutanix or a Nutanix reseller).
Hypervisor	Nutanix AHV or VMware ESXi.
Hardware warranty	<ul style="list-style-type: none"> • Appliances: Three-, four-, or five-year customer-replaceable unit and onsite limited hardware warranty with ThinkAgile Premier Support and selectable service levels: 9x5 next business day (NBD) parts delivered, 9x5 NBD onsite response, 24x7 coverage with 2-hour or 4-hour onsite response, or 6-hour or 24-hour committed repair (select areas). Also available are YourDrive YourData, Premier Support, and Enterprise Software Support. • Certified Nodes: Three, four, or five-year customer-replaceable unit and onsite limited warranty with selectable service levels: 9x5 coverage with next business day (NBD) parts delivered (base warranty), 9x5 coverage with NBD onsite response (Foundation Service), 24x7 coverage with 4-hour onsite response or 24-hour committed repair (select areas) (Essential Service), or 24x7 coverage with 2-hour onsite response or 6-hour committed repair (select areas) (Advanced Service). Also available are 1-year and 2-year post-warranty extensions, YourDrive YourData, and Enterprise Software Support.
Software maintenance	Three-, four-, or five-year software support and subscription (matches the duration of the selected warranty period).
Dimensions	Width: 440 mm (17.3 in.), height: 43 mm (1.7 in.), depth: 773 mm (30.4 in.).
Weight	Maximum: 26.3 kg (58 lb)

Models

Factory-integrated models of the integrated systems and certified nodes are configured by using the Lenovo Data Center Solution Configurator (DCSC), <http://dcsc.lenovo.com>

During the configuration process, you are selecting one of the base Configure-to-Order (CTO) models first, and then you are adding components (processors, memory, drives, and network adapters) to the selected model according to the output from the Nutanix Sizer tool, <http://services.nutanix.com/>

To ensure that the controlled GPUs and accelerators are only sold in the supported markets, the following configure-to-order base machine-type models (CTO MTMs) are selectable in DCSC:

- **Standard Open models** are available in all markets worldwide. Controlled GPUs cannot be configured using these models. These are CTO1WW models.
- **GPU Controlled models** are used to order any of the controlled GPUs and accelerators. Controlled models are not available in affected markets. If you start from a controlled model, your configuration must include a controlled GPUs.

Note:

- For all models listed in the GPU **Controlled models** column, one of the controlled GPUs *must* be selected in the DCSC configurator. DCSC will display an error if you configuration does not include one of the controlled GPUs.
- You are required to engage a Lenovo representative in the project that includes the ThinkAgile HX Series Appliance/Integrated Systems. ThinkAgile HX Certified Nodes do not have this requirement.

The following table lists the base CTO models.

Table 3. CTO base models

Server model	Standard Open models	GPU Controlled models
	These CTO models are available in all markets. Configurations based on these MTMs cannot include controlled GPUs.	These CTO models are not available in affected markets. Configurations based on these MTMs must include controlled GPUs.
ThinkAgile HX1330 Appliance	7Z85CTO1WW	7Z85CTOAWW
ThinkAgile HX1331 Certified Node	7D52CTO1WW	7D52CTOAWW
ThinkAgile HX2330 Appliance	7Z85CTO2WW	7Z85CTOBWW
ThinkAgile HX2331 Certified Node	7D52CTO2WW	7D52CTOBWW
ThinkAgile HX3330 Appliance	7Z85CTO3WW	7Z85CTOCWW
ThinkAgile HX3331 Certified Node	7D52CTO3WW	7D52CTOCWW

Comparison with the ThinkSystem SR630 V2

The ThinkAgile HX 1U Appliances & Certified Nodes are based on the ThinkSystem SR630 V2 server, however there are key differences:

- No persistent memory support
- No onboard SATA controller support
- No RAID adapter support
- No VROC RAID support
- No EDSFF drive support
- No SED drive support
- No Fibre Channel support
- No InfiniBand support

For details about the ThinkSystem SR630 V2, see the SR630 V2 product guide:

<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server>

To verify what specific hardware components are supported with the HX 1U systems, see the DCSC configurator:

<https://dcsc.lenovo.com>

Processors

The HX 1U systems support the following processors.

For details about these options, see the SR630 V2 product guide:

<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#processors>

Support for additional processors: The table below lists the processors supported across all configurations. Additional processors may also be supported. Please contact your Lenovo representative regarding the support of additional options through our Special Bid ordering process.

Configuration rules regarding Hybrid configurations (configurations with HDDs as capacity drives and SSDs as cache drives):

- For the HX1330 and HX1331, hybrid storage configurations are not supported with processors with 26 cores or more
- For the HX2330 and HX2331, hybrid storage configurations are not supported with processors with 16 cores or more

Configurations rules regarding processor quantities:

- HX1330 and HX1331 support only 1 processor; Configurations of 2 processors are not supported
- HX2330, HX2331, HX3330 and HX3331 require 2 processors; Configurations of 1 processor are not supported

Table 4. Processors

Feature	Description	Maximum supported					
		HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
BB2N	Intel Xeon Silver 4309Y 8C 105W 2.8GHz Processor	1	1	2	2	2	2
BB3C	Intel Xeon Silver 4310 12C 120W 2.1GHz Processor	1	1	2	2	2	2
BB34	Intel Xeon Silver 4310T 10C 105W 2.3GHz Processor	1	1	2	2	2	2
BB2Z	Intel Xeon Silver 4314 16C 135W 2.4GHz Processor	1	1	2	2	2	2
BB39	Intel Xeon Silver 4316 20C 150W 2.3GHz Processor	1	1	2	2	2	2
BB3M	Intel Xeon Gold 5315Y 8C 140W 3.2GHz Processor	1	1	2	2	2	2
BB30	Intel Xeon Gold 5317 12C 150W 3.0GHz Processor	1	1	2	2	2	2
BB3E	Intel Xeon Gold 5318N 24C 150W 2.1GHz Processor	1	1	2	2	2	2
BB2M	Intel Xeon Gold 5318S 24C 165W 2.1GHz Processor	1	1	2	2	2	2
BB35	Intel Xeon Gold 5318Y 24C 165W 2.1GHz Processor	1	1	2	2	2	2
BB2R	Intel Xeon Gold 5320 26C 185W 2.2GHz Processor	1	1	2	2	2	2
BB2Y	Intel Xeon Gold 5320T 20C 150W 2.3GHz Processor	1	1	2	2	2	2
BB2K	Intel Xeon Gold 6312U 24C 185W 2.4GHz Processor	1	1	No	No	No	No
BB38	Intel Xeon Gold 6314U 32C 205W 2.3GHz Processor	1	1	No	No	No	No
BB4E	Intel Xeon Gold 6326 16C 185W 2.9GHz Processor	1	1	2	2	2	2
BB3H	Intel Xeon Gold 6330 28C 205W 2.0GHz Processor	1	1	2	2	2	2
BB3N	Intel Xeon Gold 6330N 28C 165W 2.2GHz Processor	1	1	2	2	2	2
BB3D	Intel Xeon Gold 6334 8C 165W 3.6GHz Processor	1	1	2	2	2	2

Feature	Description	Maximum supported					
		HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
BB3S	Intel Xeon Gold 6336Y 24C 185W 2.4GHz Processor	1	1	2	2	2	2
BB3P	Intel Xeon Gold 6338 32C 205W 2.0GHz Processor	1	1	2	2	2	2
BB31	Intel Xeon Gold 6338N 32C 185W 2.2GHz Processor	1	1	2	2	2	2
BB33	Intel Xeon Gold 6338T 24C 165W 2.1GHz Processor	1	1	2	2	2	2
BB3B	Intel Xeon Gold 6342 24C 230W 2.8GHz Processor	1	1	2	2	2	2
BB2W	Intel Xeon Gold 6346 16C 205W 3.1GHz Processor	1	1	2	2	2	2
BB2L	Intel Xeon Gold 6348 28C 235W 2.6GHz Processor	1	1	2	2	2	2
BB2U	Intel Xeon Gold 6354 18C 205W 3.0GHz Processor	1	1	2	2	2	2
BB3J	Intel Xeon Platinum 8351N 36C 225W 2.4GHz Processor	1	1	No	No	No	No
BB3Q	Intel Xeon Platinum 8352S 32C 205W 2.2GHz Processor	1	1	2	2	2	2
BB2S	Intel Xeon Platinum 8352V 36C 195W 2.1GHz Processor	1	1	2	2	2	2
BB2V	Intel Xeon Platinum 8352Y 32C 205W 2.2GHz Processor	1	1	2	2	2	2
BB3R	Intel Xeon Platinum 8358 32C 250W 2.6GHz Processor	1	1	2	2	2	2
BB3A	Intel Xeon Platinum 8358P 32C 240W 2.6GHz Processor	1	1	2	2	2	2
BB2P	Intel Xeon Platinum 8360Y 36C 250W 2.4GHz Processor	1	1	2	2	2	2
BB37	Intel Xeon Platinum 8368 38C 270W 2.4GHz Processor	1	1	2	2	No	No
BB3G	Intel Xeon Platinum 8380 40C 270W 2.3GHz Processor	1	1	2	2	No	No

Memory

The HX 1U systems support the following memory options.

For details about these options, see the SR630 V2 product guide:

<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#memory-options>

Table 5. Memory

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
RDIMMs								
4X77A08632	B963	ThinkSystem 16GB TruDDR4 3200 MHz (2Rx8 1.2V) RDIMM	16	16	32	32	32	32
4X77A08633	B964	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM	16	16	32	32	32	32
4X77A08634	B965	ThinkSystem 32GB TruDDR4 3200 MHz (2Rx8 1.2V) RDIMM	16	16	32	32	32	32
4X77A08635	B966	ThinkSystem 64GB TruDDR4 3200 MHz (2Rx4 1.2V) RDIMM	16	16	32	32	32	32
3DS RDIMMs								
4X77A08636	BA62	ThinkSystem 128GB TruDDR4 3200 MHz (4Rx4 1.2V) 3DS RDIMM	16	16	32	32	32	32

Internal storage

Internal storage configurations of the HX 1U systems are as follows. All drives are hot-swap and are accessible from the front or rear of the system:

- HX1330 and HX1331:
 - Front drive bays: 4x 3.5-inch SAS/SATA
 - Rear drive bays: 2x 2.5-inch SAS/SATA
- HX2330 and HX2331
 - Front drive bays: 4x 3.5-inch SAS/SATA
 - Rear drive bays: 2x 2.5-inch SAS/SATA
- HX3330 and HX3331
 - Front drive bays: 10x 2.5-inch AnyBay or 10x 2.5-inch NVMe
 - Rear drive bays: 2x 2.5-inch SAS/SATA or 2x 2.5-inch NVMe

The systems also support the following boot drive alternatives:

- 7mm hot-swap SATA drives installed at the rear of the server. Mutually exclusive with the rear drives listed above.
- M.2 drives in an M.2 adapter that is internal to the server

Note: EDSFF drives are not supported in HX 1U systems.

Configuration rules

Configuration rules are as follows:

- For the HX3330 and HX3331, the minimum flash quantity on an individual system is 3.84TB for SATA and 3.2TB for SAS or NVMe. When mixing NVMe and SATA, use 3.84TB as minimum.
- For hybrid configurations, the system supports from 4 to 10 capacity drives (HDDs) depending on the quantity of the cache drives (SSDs):
 - 2 cache drives: From 4 to 10 capacity drives in increments of 2 drives
 - 4 cache drives: 8 capacity drives
- For All Flash configurations, the system supports from 2 to 12 capacity drives (SAS or SATA SSDs) depending on the quantity of the cache drives (NVMe PCIe SSDs):
 - No cache drives: From 2 to 12 capacity drives in increments of 2 drives
 - 2 cache drives: From 4 to 10 capacity drives in increments of 2 drives
 - 4 cache drives: 8 capacity drives
- For Hybrid configurations, SATA and SAS SSDs are supported for cache, however NVMe drives are not supported for cache.
- Hybrid configurations with more than 80 TB of storage capacity require:
 - Processors with 12 or more cores
 - SSD cache capacity of 7.68 TB or more
- All SSDs in the system must be of the same model and capacity. All HDDs in the system must be of the same type and capacity.
- The 7mm or M.2 drives are used for software preload. Two SATA drives are required for selection, and they must be of the same part number.

Backplanes

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

For details about these options, including configuration rules, see the SR630 V2 product guide:

<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#internal-storage>

Table 6. Drive backplanes

Feature	Description	Maximum supported					
		HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
Front 2.5-inch drive backplanes							
BB3T	ThinkSystem 1U 10x2.5" AnyBay Backplane	No	No	No	No	1	1
BCQQ	ThinkSystem 1U 2.5" 10 NVMe Backplane	No	No	No	No	1	1
Front 3.5-inch drive backplanes							
B8L3	ThinkSystem 1U/2U 4x3.5" SAS/SATA Backplane	1	1	1	1	No	No
Rear - 2.5-inch drive backplanes							
B8MY	ThinkSystem 1U 2x2.5" SAS/SATA Rear Backplane	1	1	1	1	1	1
BDY6	ThinkSystem 1U 2x2.5" NVMe Rear Backplane	No	No	No	No	1	1

Boot drive enablement

For OS boot functions, the systems also support either two 7mm hot-swap drive bays installed at the rear of the server (mutually exclusive with the 2.5-inch hot-swap rear drive bays), or two M.2 drives installed on an adapter internal to the server. The following table lists the supported controllers/enablement kits for boot drives.

For details about these options, including configuration rules, see the SR630 V2 product guide:
<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#internal-storage>

Table 7. Boot drive enablement

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
4Y37A09739	B5XH	ThinkSystem M.2 SATA 2-Bay RAID Enablement Kit	1	1	1	1	1	1
4XH7A60977	BA1R	ThinkSystem 1U 7mm Drive Kit w/ SATA RAID	1	1	1	1	1	1

Controllers for internal storage

The HX 1U systems support the following internal storage controllers.

For details about these options, see the SR630 V2 product guide:
<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#controllers-for-internal-storage>

Table 8. Controllers for internal storage

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
SAS/SATA HBA - PCIe 3.0								
7Y37A01088	AUNL	ThinkSystem 430-8i SAS/SATA 12Gb HBA	1	1	1	1	No	No
7Y37A01089	AUNM	ThinkSystem 430-16i SAS/SATA 12Gb HBA	No	No	No	No	1	1
SAS/SATA HBA - PCIe 4.0								
4Y37A78601	BM51	ThinkSystem 440-8i SAS/SATA PCIe Gen4 12Gb HBA	1	1	1	1	No	No
4Y37A78602	BM50	ThinkSystem 440-16i SAS/SATA PCIe Gen4 12Gb HBA	No	No	No	No	1	1

Internal drive options

The following table lists the supported drive options for the HX 1U systems.

Table 9. Internal drive options

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
2.5-inch hot-swap 12 Gb SAS HDDs								
7XB7A00069	B0YS	ThinkSystem 2.5" 2.4TB 10K SAS 12Gb Hot Swap 512e HDD	No	No	No	No	10	10
2.5-inch hot-swap 6 Gb SATA HDDs								
7XB7A00036	AUUE	ThinkSystem 2.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	No	No	No	No	10	10
7XB7A00037	AUJJ	ThinkSystem 2.5" 2TB 7.2K SATA 6Gb Hot Swap 512e HDD	No	No	No	No	10	10
2.5-inch hot-swap 24 Gb SAS SSDs								
4XB7A80320	BNWF	ThinkSystem 2.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	2	2	2	2	12	12
4XB7A80321	BP3E	ThinkSystem 2.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	2	2	2	2	12	12
4XB7A80342	BNW6	ThinkSystem 2.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	2	2	2	2	12	12
2.5-inch hot-swap 12 Gb SAS SSDs								
4XB7A17062	B8HU	ThinkSystem 2.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	2	2	2	2	12	12
2.5-inch hot-swap 6 Gb SATA SSDs								
4XB7A17126	BA4T	ThinkSystem 2.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	2	2	2	2	12	12
4XB7A17127	BA4U	ThinkSystem 2.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	2	2	2	2	12	12
4XB7A17128	BK7L	ThinkSystem 2.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	2	2	2	2	12	12
4XB7A72440	BM89	ThinkSystem 2.5" PM893 1.92TB Read Intensive SATA 6Gb HS SSD	2	2	2	2	12	12
4XB7A72441	BM88	ThinkSystem 2.5" PM893 3.84TB Read Intensive SATA 6Gb HS SSD	2	2	2	2	12	12
4XB7A17103	BA7J	ThinkSystem 2.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	2	2	2	2	12	12
4XB7A17104	BK77	ThinkSystem 2.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	2	2	2	2	12	12
2.5-inch hot-swap PCIe 4.0 NVMe SSDs								
4XB7A17154	BCFS	ThinkSystem 2.5" U.2 P5600 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A13967	BNEJ	ThinkSystem 2.5" U.3 7450 MAX 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
4XB7A13970	BNEY	ThinkSystem 2.5" U.3 7450 MAX 3.2TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A13971	BNEL	ThinkSystem 2.5" U.3 7450 MAX 6.4TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A79647	BNF2	ThinkSystem 2.5" U.3 7450 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A79648	BNF5	ThinkSystem 2.5" U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A79649	BNF4	ThinkSystem 2.5" U.3 7450 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A83097	BQAV	ThinkSystem 2.5" U.3 7450 PRO 15.36TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A17145	BCFT	ThinkSystem 2.5" U.2 P5500 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A17146	BCFW	ThinkSystem 2.5" U.2 P5500 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
4XB7A17147	BCFU	ThinkSystem 2.5" U.2 P5500 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	No	No	No	No	12	12
7mm 2.5-inch hot-swap 6 Gb SATA SSDs								
4XB7A17106	BK79	ThinkSystem 7mm S4520 240GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2
4XB7A17107	BK7A	ThinkSystem 7mm S4520 480GB Read Intensive SATA 6Gb HS SSD	2	2	2	2	2	2
4XB7A38181	B8JQ	ThinkSystem 7mm 5300 240GB Entry SATA 6Gb SSD	2	2	2	2	2	2
3.5-inch hot-swap 12 Gb SAS HDDs								
7XB7A00043	AUU6	ThinkSystem 3.5" 4TB 7.2K SAS 12Gb Hot Swap 512n HDD	4	4	4	4	No	No
7XB7A00044	AUU7	ThinkSystem 3.5" 6TB 7.2K SAS 12Gb Hot Swap 512e HDD	4	4	4	4	No	No
7XB7A00045	B0YR	ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD	4	4	4	4	No	No
7XB7A00046	AUUG	ThinkSystem 3.5" 10TB 7.2K SAS 12Gb Hot Swap 512e HDD	4	4	4	4	No	No
7XB7A00067	B117	ThinkSystem 3.5" 12TB 7.2K SAS 12Gb Hot Swap 512e HDD	4	4	4	4	No	No
4XB7A80353	BPKU	ThinkSystem 3.5" 20TB 7.2K SAS 12Gb Hot Swap 512e HDD	4	4	4	4	No	No
3.5-inch hot-swap 6 Gb SATA HDDs								
7XB7A00051	AUU8	ThinkSystem 3.5" 4TB 7.2K SATA 6Gb Hot Swap 512n HDD	4	4	4	4	No	No
7XB7A00052	AUUA	ThinkSystem 3.5" 6TB 7.2K SATA 6Gb Hot Swap 512e HDD	4	4	4	4	No	No

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
7XB7A00053	AUU9	ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	4	4	4	4	No	No
7XB7A00054	AUUB	ThinkSystem 3.5" 10TB 7.2K SATA 6Gb Hot Swap 512e HDD	4	4	4	4	No	No
7XB7A00068	B118	ThinkSystem 3.5" 12TB 7.2K SATA 6Gb Hot Swap 512e HDD	4	4	4	4	No	No
4XB7A13914	B7F0	ThinkSystem 3.5" 16TB 7.2K SATA 6Gb Hot Swap 512e HDD	4	4	4	4	No	No
3.5-inch hot-swap 24 Gb SAS SSDs								
4XB7A80326	BNWH	ThinkSystem 3.5" PM1653 3.84TB Read Intensive SAS 24Gb HS SSD	4	4	4	4	No	No
4XB7A80327	BP3F	ThinkSystem 3.5" PM1653 7.68TB Read Intensive SAS 24Gb HS SSD	4	4	4	4	No	No
4XB7A80346	BNWB	ThinkSystem 3.5" PM1655 3.2TB Mixed Use SAS 24Gb HS SSD	4	4	4	4	No	No
3.5-inch hot-swap 12 Gb SAS SSDs								
4XB7A17066	B8HT	ThinkSystem 3.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	4	4	4	4	No	No
3.5-inch hot-swap 6 Gb SATA SSDs								
4XB7A17138	BA4X	ThinkSystem 3.5" S4620 960GB Mixed Use SATA 6Gb HS SSD	4	4	4	4	No	No
4XB7A17139	BA4Y	ThinkSystem 3.5" S4620 1.92TB Mixed Use SATA 6Gb HS SSD	4	4	4	4	No	No
4XB7A17140	BK7P	ThinkSystem 3.5" S4620 3.84TB Mixed Use SATA 6Gb HS SSD	4	4	4	4	No	No
4XB7A17121	BA7N	ThinkSystem 3.5" S4520 1.92TB Read Intensive SATA 6Gb HS SSD	4	4	4	4	No	No
4XB7A17122	BK7F	ThinkSystem 3.5" S4520 3.84TB Read Intensive SATA 6Gb HS SSD	4	4	4	4	No	No
M.2 SATA drives								
4XB7A82286	BQ1Z	ThinkSystem M.2 5400 PRO 240GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2
4XB7A82287	BQ1Y	ThinkSystem M.2 5400 PRO 480GB Read Intensive SATA 6Gb NHS SSD	2	2	2	2	2	2

Network adapters

The HX 1U systems support the following networking options.

For details about the implementation of these networking options, see the SR630 V2 product guide:

<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#i-o-expansion>

<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#network-adapters>

Mixing vendors is not supported : HX configurations only support network adapters from one vendor. For example, if you select a Broadcom OCP adapter, you cannot select a Mellanox PCIe network adapter.

Table 10. OCP network adapters

Part number	Feature	Description	Maximum supported									
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331				
10 GbE												
4XC7A08240	B5T4	ThinkSystem Broadcom 57454 10GBASE-T 4-port OCP Ethernet Adapter	1	1	1	1	1	1				
25 GbE												
4XC7A08242	B5SV	ThinkSystem Broadcom 57454 10/25GbE SFP28 4-port OCP Ethernet Adapter	1	1	1	1	1	1				
4XC7A62582	BE4T	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1	1	1	1	1	1				
4XC7A08237	B5SZ	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port OCP Ethernet Adapter	1	1	1	1	1	1				

Table 11. PCIe network adapters

Part number	Feature	Description	Maximum supported									
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331				
10 GbE												
4XC7A08245	B5SU	ThinkSystem Broadcom 57454 10GBASE-T 4-port PCIe Ethernet Adapter	1	1	2	2	2	2				
7ZT7A00496	AUKP	ThinkSystem Broadcom 57416 10GBASE-T 2-Port PCIe Ethernet Adapter	1	1	2	2	2	2				
25 Gb Ethernet												
4XC7A08316	BD49	ThinkSystem Broadcom 57454 10/25GbE SFP28 4-port PCIe Ethernet Adapter V2	1	1	1	1	1	1				
4XC7A08249	B653	ThinkSystem Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-port PCIe Ethernet Adapter	No	No	2	2	2	2				
4XC7A62580	BE4U	ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	1	1	2	2	2	2				
4XC7A08238	B5T0	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-port PCIe Ethernet Adapter	1	1	2	2	2	2				
100 Gb Ethernet												
4XC7A08248	B8PP	ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter	1	1	2	2	2	2				

Note: ThinkSystem Mellanox ConnectX-4 is the only adapter enabled for RDMA, minimum required quantity is two.

GPU adapters

The HX 1U systems support the following GPU options.

For details about these options, see the SR630 V2 product guide:
<https://lenovopress.com/lp1391-thinksystem-sr630-v2-server#gpu-adapters>

Table 12. GPU adapters

Part number	Feature	Description	Maximum supported					
			HX1330	HX1331	HX2330	HX2331	HX3330	HX3331
CTO Only	BQZT	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	1	1	2	2	2	2
4X67A81547	BP05	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU	1	1	2	2	2	2

Software

The systems support the hypervisors listed in the following table. Hypervisors are installed on the 2x M.2 SSDs configured in a RAID-1 drive group.

Table 13. Hypervisors

Feature code	Description	Quantity
B15S	Nutanix SW Stack on Nutanix AHV	1
BG4Z	Nutanix SW Stack on VMware ESXi 6.7	1
BFT6	Nutanix SW Stack on VMware ESXi 7.0	1

Configuration notes:

- In ESXi-based environments, HX Series Appliances require VMware vCenter Server.
- The HX systems support the Nutanix Software Starter, Pro and Ultimate editions.
- The HX systems can be deployed as a cluster of 1, 2 or 3+ nodes. Cluster size varies by HX model selection.
- The HX systems support firmware updates from Nutanix Prism with the ThinkAgile HX Lifecycle Manager (UEFI, XCC, drives, network adapters, and SAS HBAs)

Nutanix licenses on certified nodes : The certified node ships with the Nutanix software preloaded, however Nutanix software licenses and software support are not included. Customers can use the existing Nutanix term-based software licenses and active support contracts, or they can purchase term-based software licenses and support contracts from Nutanix.

For the information on appliance firmware levels, hypervisor versions, and software versions that have been tested for interoperability, refer to the Lenovo ThinkAgile HX Series Best Recipes:

<http://datacentersupport.lenovo.com/us/en/solutions/ht505413>

The ThinkAgile HX Appliances support the following software components except Nutanix Portfolio 2.0 (PnP) Licensing Model which is only supported by ThinkAgile HX Certified Nodes:

- [Nutanix Acropolis](#)
- [Nutanix Prism](#)
- [Nutanix Calm](#)
- [Nutanix Flow](#)
- [Nutanix Portfolio 2.0 \(PnP\) Licensing Model](#)

Nutanix Acropolis

The integrated system can be configured with one of the Nutanix software editions that are listed in the following table. The Nutanix software is factory-preloaded and the appropriate license for the selected software edition can be downloaded from the Nutanix website to match the serial number of the integrated system.

Table 14. Nutanix software options (HX Integrated System only)

Feature code	Description	Quantity (per node)
B0VU	Nutanix Starter Edition	1
B0VV	Nutanix Pro Edition	1
B0VW	Nutanix Ultimate Edition	1

The editions have the following characteristics:

- The Starter edition offers the core set of Nutanix software functionality. This edition is ideal for small-scale deployments with a limited set of workloads.
- The Pro edition offers rich data services, along with resilience and management features. This edition is ideal for enterprises running multiple applications on a Nutanix cluster or with large-scale single workload deployments.
- The Ultimate edition offers the full suite of Nutanix software capabilities to tackle complex infrastructure challenges. This edition is ideal for multi-site deployments.

The following table compares key features of the Nutanix software editions. For more information, see the following web page:

<https://www.nutanix.com/products/software-options>

Table 15. Nutanix software editions feature comparison

Feature	Starter Edition	Pro Edition	Ultimate Edition
Enterprise Storage			
Cluster Size	12	No enforced limits on-prem. 16 nodes validated in AWS	No enforced limits on-prem. 16 nodes validated in AWS
Heterogeneous Clusters	Included	Included	Included
VM-centric Snapshots & Clones	Included	Included	Included
Data Tiering	Included	Included	Included
Online Cluster Grow/Shrink	Included	Included	Included
Data Path Redundancy	Included	Included	Included
Tunable Redundancy Factor	2	2 or 3	2 or 3

Feature	Starter Edition	Pro Edition	Ultimate Edition
Availability Domains	Node	Node, Block, Rack	Node, Block, Rack
Basic Compression (LZ4) - Inline and post process	Included	Included	Included
Deep Compression (LZ4HC) - Greater efficiency for cold data	No	Included	Included
Cache Deduplication	Included	Included	Included
Capacity Tier Deduplication	No	Included	Included
Erasur Coding (EC-X)	No	Included	Included
VM Centric Storage QoS	No	Included	Included
VM Flash Mode	No	No	Included
Consolidated Storage Services			
Volume Groups - for in-cluster VMs	Included	Included	Included
Volume Groups - external access	No	Included	Included
Nutanix Files	1 TiB Free Capacity	1 TiB Free Capacity	1 TiB Free Capacity
Nutanix Objects	2 TiB Free Capacity	2 TiB Free Capacity	2 TiB Free Capacity
Data Protection and Disaster Recovery			
Async Replication (RPO = 1 hr or greater)	Included	Included	Included
Application Consistent Snapshots	Included	Included	Included
Self Service Restore	No	Included	Included
Multiple Site DR (many to one, one to many, many to many)	No	Adv Replication add-on license	Included
Metro Availability	No	Adv Replication add-on license	Included
Sync Replication (RPO = 0)	No	Adv Replication add-on license	Included
NearSync Replication (RPO = 1-15 min)	No	Adv Replication add-on license	Included
Advanced Orchestration with Runbook Automation	No	Adv Replication add-on license	Included
Security			
Client Authentication	Included	Included	Included
Cluster Lockdown	No	Included	Included
Data-at-Rest Encryption (Software-based & SED)	No	Add-on license available	Included
Native KMS	No	Add-on license available	Included
Management & Analytics			
Prism Starter	Included	Included	Included
Insights	Included	Included	Included
LCM	Included	Included	Included
Foundation	Included	Included	Included

Feature	Starter Edition	Pro Edition	Ultimate Edition
Foundation Central	Included	Included	Included
Supported Hypervisors			
Nutanix AHV	Included	Included	Included
VMware ESXi	Included	Included	Included
Included Hypervisor and Container Runtime			
Nutanix AHV (All Hypervisor Features Included)	Included	Included	Included
Nutanix Karbon	Included	Included	Included

Configuration notes:

- When adding software licenses after the initial deployment, customers should request a quote for the selected license part numbers from Lenovo and provide additional details on the existing installation.
- The total file/object storage capacity in Tebibytes (TiB) can be calculated by multiplying the total file/object storage capacity in Terabytes (TB) by 0.909495.

Nutanix Prism

Nutanix Prism gives administrators an easy way to manage virtual environments running on Acropolis, and it simplifies and streamlines common workflows for hypervisor and virtual machine lifecycle management.

Nutanix Prism is a part of the Nutanix software preloaded on the integrated system, and it includes the following components:

- Prism Starter (included in Starter, Pro, and Ultimate Nutanix software editions): Provides ability to configure, manage, and monitor a Nutanix cluster and centralized management of multiple local and remote Nutanix clusters.
- Prism Pro (selectable software license; optional): Enables efficiency evaluation, capacity planning, expansion recommendations, custom dashboards, and advanced search capabilities.
- Prism Ultimate (selectable software license; optional): Multiple Site DR, Sync Replication (RPO = 0), Data-at-Rest Encryption, VM Flash Mode, Metro Availability, Native KMS

The Prism Pro or Prism Ultimate software license can be added during the initial purchase by selecting one of the software options listed in the following table. These feature codes are only for HX integrated systems, not for certified nodes.

Table 16. Prism Pro selection options (HX Integrated Systems only)

Feature code	Description	Quantity (per node)
B0W4	Prism Pro	1
B0W5	XClarity Pro and Prism Pro	1
BMUM	Prism Ultimate	1
BMUN	XClarity Pro and Prism Ultimate	1

Also, Prism Starter can be upgraded to Prism Pro or Prism Ultimate after the initial deployment by purchasing one of the software license options listed in the following table. These part numbers are only for HX Integrated Systems, not for certified nodes.

Table 17. Prism Pro software license options (HX Integrated Systems only)

Part number	Feature code	Description	Quantity (per node)
Prism Pro licenses			
7S0P000UWW	AW87	Nutanix Prism Pro with 1Yr Support	1
7S0P000VWW	AW88	Nutanix Prism Pro with 2Yr Support	1
7S0P000WWW	AW89	Nutanix Prism Pro with 3Yr Support	1
7S0P000XWW	AW8A	Nutanix Prism Pro with 4Yr Support	1
7S0P000YWW	AW8B	Nutanix Prism Pro with 5Yr Support	1
Prism Ultimate licenses			
7S0P002BWW	S6Q6	Nutanix Prism Ultimate per Node 1 Year	1
7S0P002CWW	S6Q7	Nutanix Prism Ultimate per Node 2 Year	1
7S0PCTO1WW	S6Q9	Nutanix Prism Ultimate per Node 4 Year	1
7S0PCTO1WW	S6Q8	Nutanix Prism Ultimate per Node 3 Year	1
7S0PCTO1WW	S6QA	Nutanix Prism Ultimate per Node 5 Year	1

Configuration note: When upgrading Prism Starter after the initial deployment, customers should request a quote for the selected Prism part numbers from Lenovo and provide additional details on the existing installation.

Nutanix Prism offers the following features:

- Single point of control
 - Accelerates enterprise-wide deployment
 - Manages capacity centrally
 - Adds nodes in minutes
 - Supports non-disruptive software upgrades with zero downtime
 - Integrates with REST APIs and PowerShell
 - Manages firmware updates with the ThinkAgile HX Lifecycle Manager (UEFI, XCC, drives, network adapters, and SAS HBAs)
- Monitoring and alerting
 - Tracks infrastructure utilization (storage, processor, memory)
 - Centrally monitors multiple clusters across multiple sites
 - Monitors per-VM performance and resource usage
 - Checks system health
 - Generates alerts and notifications
- Integrated data protection
 - Offers customizable RPO/RTO and retention policies
 - Supports configurable per-VM replication (1:1, 1:many and many:1)
 - Provides efficient VM recovery
 - Deploys affordable DR and backup to the cloud

- Diagnostics and troubleshooting
 - Provides time-based historical views of VM activity
 - Performs proactive alert analysis
 - Correlates alerts and events to quickly diagnose issues
 - Generates actionable alerts and reduces resolution times
 - Analyzes trending patterns for accurate capacity planning

Nutanix Calm

Nutanix Calm enables advanced application-level orchestration by providing a powerful, common management framework that can be leveraged by IT teams to rapidly create and deliver applications. The Calm software offers the following key features:

- Fully automates the provisioning, scaling, and deletion of traditional multi-tiered applications and distributed services.
- Simplifies the set-up and management of custom enterprise applications by incorporating all elements of each application, including relevant VMs, configurations, and related binaries, into an easy-to-use-blueprint.
- Publishes blueprints through the Nutanix Marketplace, giving end users the ability to request IT services that can then be instantly provisioned.
- Maintains control with role-based governance that limits user operations based on permissions and logs all activities for end-to-end traceability.

The Calm software is licensed on a per-VM basis in 25 VM packs. The Calm software licenses can be added during the initial purchase by selecting the software option listed in the following table. Calm licenses are only for HX integrated systems, not for certified nodes.

Table 18. Calm software selection options (HX Integrated Systems only)

Feature code	Description	Quantity (per 25 VMs)
B4E4	Calm 25 License Pack	1

Also, Calm licenses can be added after the initial deployment by purchasing one of the software license options listed in the following table.

Table 19. Calm software license options (HX Integrated Systems only)

Part number	Feature code	Description	Quantity (per 25 VMs)
7S0P000ZWW	B3D7	Nutanix Calm Standard, Per 25 VMs w/1Yr Support	1
7S0P0010WW	B3D8	Nutanix Calm Standard, Per 25 VMs w/2Yr Support	1
7S0P0011WW	B3D9	Nutanix Calm Standard, Per 25 VMs w/3Yr Support	1
7S0P0012WW	B3DA	Nutanix Calm Standard, Per 25 VMs w/4Yr Support	1
7S0P0013WW	B3DB	Nutanix Calm Standard, Per 25 VMs w/5Yr Support	1

Configuration notes:

- Calm supports the AHV hypervisors.
- When adding the Calm software licenses after the initial deployment, customers should request a quote for the selected Calm part numbers from Lenovo and provide additional details on the existing installation.

Nutanix Flow

Nutanix Flow delivers advanced networking and security services, providing visibility into the virtual network, application-centric protection from network threats, and automation of common networking operations. The Flow software offers the following key features:

- Real-time visualization of communications between VMs helps implement appropriate network policies in a Nutanix environment.
- Micro-segmentation provides granular control and governance of all traffic into and out of a virtual machine with network policies attached to individual VMs and applications, rather than specific network segments.
- API-based notifications enable third party network devices to automate network configuration changes, such as VLAN provisioning or policy updates, in response to VM lifecycle events, such as adding a new VM.
- Service insertion and chaining enables virtualized network functions from third-party software (such as virtual firewalls and load balancers) to be deployed with VM traffic in a Nutanix environment.

The Flow software is licensed on a per-node basis. The Flow software license can be added during the initial purchase by selecting the software option listed in the following table, These part numbers are only for HX integrated systems, not for certified nodes.

Table 20. Flow software selection options (HX Integrated Systems only)

Feature code	Description	Quantity (per node)
B4E5	Flow Single Node License	1

Also, Flow licenses can be added after the initial deployment by purchasing one of the software license options listed in the following table.

Table 21. Flow software license options (HX Integrated Systems only)

Part number	Feature code	Description	Quantity (per node)
7S0P0014WW	B3DC	Nutanix Flow, Per Node w/1Yr Support	1
7S0P0015WW	B3DD	Nutanix Flow, Per Node w/2Yr Support	1
7S0P0016WW	B3DE	Nutanix Flow, Per Node w/3Yr Support	1
7S0P0017WW	B3DF	Nutanix Flow, Per Node w/4Yr Support	1
7S0P0018WW	B3DG	Nutanix Flow, Per Node w/5Yr Support	1

Configuration notes:

- Flow supports the AHV hypervisors only.
- When adding the Flow software licenses after the initial deployment, customers should request a quote for the selected Flow part numbers from Lenovo and provide additional details on the existing installation.

Nutanix Portfolio 2.0 (PnP) Licensing Model

Nutanix is introducing an enterprise-ready unified cloud platform with our HCI solution as the foundation. The new, simplified product portfolio includes: Nutanix Cloud Platform (NCP), Nutanix Cloud Infrastructure (NCI) and Nutanix Cloud Manager (NCM), NCI-Data with 3 license tiers for each software edition. There are additional packages, Nutanix Unified Storage, Nutanix Database Service (NDB), and Nutanix Desktop Services (NDS), Virtual Desktop Infrastructure (VDI) & Nutanix Frame that are available.

The Nutanix software is available for all base CTO models.

The editions have the following characteristics:

Table 22. Software Editions

License Tier	Nutanix Cloud Platform (NCP)	Nutanix Cloud Infrastructure (NCI)	Nutanix Cloud Manager (NCM)	NCI-Data
Ultimate	<ul style="list-style-type: none"> • NCI Ultimate • NCM Ultimate 	<ul style="list-style-type: none"> • Advanced DR: Sync, Near-Sync, • Runbook Security: Micro-segmentation, Encryption • Cloud Native: Kubernetes Services 	<ul style="list-style-type: none"> • Application Automation • Security General 	<ul style="list-style-type: none"> • No Mseg • No Karbon
Pro	<ul style="list-style-type: none"> • NCI Ultimate • NCM Pro 	<ul style="list-style-type: none"> • Multisite Async DR • Overlay Networking 	<ul style="list-style-type: none"> • Self Service Cost Governance 	<ul style="list-style-type: none"> • No Flow Networking
Starter	<ul style="list-style-type: none"> • NCI Pro • NCM Pro 	<ul style="list-style-type: none"> • AOS Storage + Compression + Dedup 	<ul style="list-style-type: none"> • AI Operations 	<ul style="list-style-type: none"> • No AHV Support

Nutanix Cloud Platform (NCP)

Nutanix Cloud Platform is the complete software edition package that includes both Nutanix Cloud Infrastructure (NCI) and Nutanix Cloud Manager (NCM). It is available in several editions to meet your infrastructure needs with the right set of capabilities.

Nutanix Cloud Infrastructure (NCI)

Nutanix Cloud Infrastructure (NCI) is a complete software stack to unify your hybrid cloud infrastructure including compute, storage and network, hypervisors and containers, in public or enterprise clouds; all with built-in resilience, self-healing, disaster recovery capabilities, and security. It includes enterprise data services and consolidated storage, data protection and disaster recovery, native virtualization and container management, networking and security.

For details on software editions see <https://www.nutanix.com/products/cloud-platform/software-options#nci>

Nutanix Cloud Manager (NCM)

Nutanix Cloud Manager (NCM) offers our customers simplicity and ease of use to build and grow their cloud deployments faster and realize rapid ROI, by providing intelligent operations, self service and orchestration, visibility and governance of spend, security and teams, all through a unified Multi-cloud management solution.

For details on software editions see <https://www.nutanix.com/products/cloud-platform/software-options#ncm>

Nutanix Unified Storage

Nutanix Unified Storage provides software-defined, scale-out storage solutions for enterprise NAS and object workloads for unstructured data, block storage for structured data, and backup storage. Nutanix Unified Storage replaces traditional independent storage services and brings NAS, object, and block workloads into a consolidated unified storage platform with all its benefits, including a unified control plane.

Nutanix Data Lens delivers cloud-based data governance for unstructured data stored in the Nutanix Unified Storage platform, including data lifecycle management, data security, ransomware protection, and audit compliance.

Nutanix Unified Storage and Data Lens are purchased and licensed on a per TiB usable basis.

For details on software editions see <https://www.nutanix.com/products/cloud-platform/software-options#nus>

Nutanix Database Service

Nutanix Database Service (NDB) is a Hybrid Multicloud DBaaS that enables small, nimble teams of DBAs to easily manage large fleets of databases using a single console and API, while enabling developers to self-service their database requests. NDB is purchased and licensed on a per core basis and is available either as a standalone or as an add-on to NCI. In the standalone version, NDB includes NCI Ultimate functionality in addition to database-specific capabilities and is licensed on a per-core basis.

For details on software editions see <https://www.nutanix.com/products/cloud-platform/software-options#database>

Nutanix Virtual Desktop Infrastructure (VDI) & Nutanix Frame

The Nutanix VDI per user model offers hybrid cloud infrastructure capabilities appropriate for on-prem virtual desktop infrastructure (VDI) and Desktop as a Service (DaaS) use cases with pricing based on a Maximum Concurrent User basis (maximum number of provisioned end-user VMs). VDI per user is an alternative to the core-based NCI licensing option and is designed to provide simple, transparent licensing for all VDI users, regardless of the underlying hardware, hypervisor, or cloud.

- Agnostic: Works with any EUC management platform including Citrix Virtual Apps & Desktops and VMware Horizon
- Term license: 1-year through 5-year options
 - Term license must run on a dedicated software licensed VDI cluster with no core-based licensing. Mixing of non-VDI workloads is not supported.
- Unified Storage: Built-in and also available as a per TiB base add-on
- No additional license cost for DR site
- Portable across on-premises and public cloud, public cloud use requires Ultimate edition
- Available in Starter, Pro, and Ultimate editions
- Cloud Native and Database Service Add-ons not available with NCI VDI. Advanced Replication and Security Add-on features require NCI Ultimate edition

For details on software editions see <https://www.nutanix.com/products/cloud-platform/software-options#vdi>

License Options

ThinkAgile HX can be configured with one of the latest Nutanix software editions that are listed in the following table.

Table 23. Nutanix license options

Feature code	Description	Quantity Required
BVKU	Nutanix Cloud Platform Starter Edition	1 per node
BVKW	Nutanix Cloud Platform Pro Edition	1 per node
BVKY	Nutanix Cloud Platform Ultimate Edition	1 per node
BSPJ	Nutanix Cloud Infrastructure Starter Edition	1 per node
BSPG	Nutanix Cloud Infrastructure Pro Edition	1 per node
BSPL	Nutanix Cloud Infrastructure Ultimate Edition	1 per node
BSQ0	Nutanix Cloud Manager Starter Edition	1 per node
BSPY	Nutanix Cloud Manager Pro Edition	1 per node
BSQ2	Nutanix Cloud Manager Ultimate Edition	1 per node
BSPQ	NCI-Data Starter Edition	1 per node
BSPN	NCI-Data Pro Edition	1 per node
BSPS	NCI-Data Ultimate Edition	1 per node
BSQH	Nutanix Database Service (NDB) Platform	1 per node
BSQ7	End User Computing (EUC) Starter	1 for every 200 concurrent users
BSQ5	End User Computing (EUC) Pro	1 for every 200 concurrent users
BSQ9	End User Computing (EUC) Ultimate	1 for every 200 concurrent users
BSQD	Nutanix Unified Storage (NUS) Starter	1 per Tib
BSQB	Nutanix Unified Storage (NUS) Pro	1 per Tib

Warranty and Support

The ThinkAgile HX Series appliances can be configured with a three-, four, or five-year hardware warranty with 24x7 ThinkAgile Premier Single Point of Support (Lenovo appliance hardware and Nutanix software) 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 problem determination and resolution for hardware-related issues and escalate to Nutanix, on behalf of the customer, for software-related problem determination. Nutanix will contact the customer and will own the software-related problem resolution until closure.

For more information refer to the Lenovo Support Plan - ThinkAgile HX Appliance and Lenovo Converged HX Series

<https://datacentersupport.lenovo.com/us/en/solutions/ht505404>

The ThinkAgile HX Certified Nodes can be configured with three-, four, or five-year hardware warranty and various levels of service coverage with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

The base warranty provides 9x5 Next Business Day response with parts delivered. Lenovo's additional support services provide a sophisticated, unified support structure for a customer's data center, with an experience consistently ranked number one in customer satisfaction worldwide.

For more information refer to the Lenovo Support Plan - ThinkAgile HX Certified Nodes

<https://support.lenovo.com/us/en/solutions/HT510301>

Hardware warranty

The ThinkAgile HX 1U Appliances & Certified Nodes have a 3-year warranty:

- 7Z85 - 1U Appliance - 3 year warranty
- 7D52 - 1U Certified Node - 3 year warranty

The standard warranty terms are customer-replaceable unit (CRU) and onsite (for field-replaceable units FRUs only) with standard call center support during normal business hours and 9x5 Next Business Day Parts Delivered.

Lenovo's additional support services provide a sophisticated, unified support structure for your data center, with an experience consistently ranked number one in customer satisfaction worldwide. Available offerings include:

- **Premier Support**

Premier Support provides a Lenovo-owned customer experience and delivers direct access to technicians skilled in hardware, software, and advanced troubleshooting, in addition to the following:

- Direct technician-to-technician access through a dedicated phone line
- 24x7x365 remote support
- Single point of contact service
- End to end case management
- Third-party collaborative software support
- Online case tools and live chat support
- On-demand remote system analysis

- **Warranty Upgrade (Preconfigured Support)**

Services are available to meet the on-site response time targets that match the criticality of your systems.

- 3, 4, or 5 years of service coverage
- 1-year or 2-year post-warranty extensions
- **Foundation Service:** 9x5 service coverage with next business day onsite response. YourDrive YourData is an optional extra (see below).
- **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select markets). Bundled with YourDrive YourData.
- **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select markets). Bundled with YourDrive YourData.

- **Managed Services**

Lenovo Managed Services provides continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of your data center using state-of-the-art tools, systems, and practices by a team of highly skilled and experienced Lenovo services professionals.

Quarterly reviews check error logs, verify firmware & OS device driver levels, and software as needed. We'll also maintain records of latest patches, critical updates, and firmware levels, to ensure you systems are providing business value through optimized performance.

- **Technical Account Management (TAM)**

A Lenovo Technical Account Manager helps you optimize the operation of your data center based on a deep understanding of your business. You gain direct access to your Lenovo TAM, who serves as your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. In addition, your TAM will help proactively make service recommendations and manage your service relationship with Lenovo to make certain your needs are met.

- **Enterprise Server Software Support**

Enterprise Software Support is an additional support service providing customers with software support on Microsoft, Red Hat, SUSE, and VMware applications and systems. Around the clock availability for critical problems plus unlimited calls and incidents helps customers address challenges fast, without incremental costs. Support staff can answer troubleshooting and diagnostic questions, address product comparability and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

- **YourDrive YourData**

Lenovo's YourDrive YourData is a multi-drive retention offering that ensures your data is always under your control, regardless of the number of drives that are installed in your Lenovo server. In the unlikely event of a drive failure, you retain possession of your drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The YourDrive YourData service can be purchased in convenient bundles and is optional with Foundation Service. It is bundled with Essential Service and Advanced Service.

- **Health Check**

Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that your systems and business are always running at their best. Health Check supports Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-Authorized Reseller.

Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

If warranty terms and conditions include onsite labor for repair or replacement of parts, Lenovo will dispatch a service technician to the customer site to perform the replacement. Onsite labor under base warranty is limited to labor for replacement of parts that have been determined to be field-replaceable units (FRUs). Parts that are determined to be customer-replaceable units (CRUs) do not include onsite labor under base warranty.

If warranty terms include parts-only base warranty, Lenovo is responsible for delivering only replacement parts that are under base warranty (including FRUs) that will be sent to a requested location for self-service. Parts-only service does not include a service technician being dispatched onsite. Parts must be changed at customer's own cost and labor and defective parts must be returned following the instructions supplied with the spare parts.

Lenovo Service offerings are region-specific. Not all preconfigured support and upgrade options are available in every region. For information about Lenovo service upgrade offerings that are available in your region, refer to the following resources:

- Service part numbers in Lenovo Data Center Solution Configurator (DCSC):
<http://dcsc.lenovo.com/#/services>
- Lenovo Services Availability Locator
<http://lenovolocator.com/>

For service definitions, region-specific details, and service limitations, please refer to the following documents:

- Lenovo Statement of Limited Warranty for Infrastructure Solutions Group (ISG) Servers and System Storage
<http://pcsupport.lenovo.com/us/en/solutions/ht503310>
- Lenovo Data Center Services Agreement
<http://support.lenovo.com/us/en/solutions/ht116628>

Deployment services

The following optional Lenovo Professional Services are available to get customers up and running quickly.

- Basic Hardware Installation Services
 - Unpacking and inspecting the systems
 - Installing options and mounting the systems in a rack cabinet
 - Connecting the systems to electrical power and network
 - Checking and updating firmware to the latest levels
 - Verifying operations
 - Disposal of the packaging materials (within the customer site)
- Nutanix deployment services - Base (per node)
 - Conducting remote preparation and planning
 - Verifying firmware versions and performing firmware updates, if needed
 - Installing and configuring hypervisor and Nutanix controller VM
 - Creating Nutanix cluster
 - Configuring storage
 - Configuring administrative features
- Nutanix deployment services - Advanced (per cluster)
 - Configuring and integrating a virtualized environment
 - Nutanix containers and Acropolis (AHV) cluster
 - VMware vCenter Server and vSphere cluster (for VMware installations)
 - Transferring knowledge
- Nutanix deployment services - Advanced with XClarity (per cluster)
 - Nutanix deployment services - Advanced
 - Installing Lenovo XClarity
 - Configuring Lenovo XClarity network settings and performing discovery and inventory
 - Installing system updates

The following table lists ThinkAgile Health Check & Deployment offerings are available for ThinkAgile HX customers. These offerings are performed by Lenovo Professional Services.

- **Onsite Deployment:** Install, configure, and validate solution on-site, and conduct knowledge transfer.
- **Remote Deployment:** Install, configure, and validate solution remotely, and conduct knowledge transfer.
- **Remote Health Check:** Report & remediation of hardware and cluster health issues, including firmware and software updates.

Note: For custom Hardware Installation and Deployment Services, please contact the Lenovo Professional Services team for sizing and pricing.

Table 24. Deployment offerings

Part number	Description
Onsite deployment services	
5MS7B00043	ThinkAgile HX Onsite Deployment (up to 3 nodes)
5MS7B00044	ThinkAgile HX Onsite Deployment (additional node)
Remote deployment services	
5MS7B00045	ThinkAgile HX Remote Deployment (up to 3 nodes)
5MS7B00046	ThinkAgile HX Remote Deployment (additional node)
5MS7A27430	ThinkAgile HX SAP HANA Deployment - Custom
Remote Health Check	
5MS7B00065	ThinkAgile HX 1X Remote Health Check (up to 3 node cluster)
5MS7B00066	ThinkAgile HX 1X Remote Health Check (additional node)
5MS7B00067	ThinkAgile HX 1X Remote Health Check & Update (up to 3 node cluster)
5MS7B00068	ThinkAgile HX 1X Remote Health Check & Update (additional node)

For more information, refer to the Data Center Implementation Services web page:

<https://www.lenovo.com/us/en/data-center/services/implementation-services/>

Lenovo Financial Services

Lenovo Financial Services reinforces Lenovo's commitment to deliver pioneering products and services that are recognized for their quality, excellence, and trustworthiness. Lenovo Financial Services offers financing solutions and services that complement your technology solution anywhere in the world.

We are dedicated to delivering a positive finance experience for customers like you who want to maximize your purchase power by obtaining the technology you need today, protect against technology obsolescence, and preserve your capital for other uses.

We work with businesses, non-profit organizations, governments and educational institutions to finance their entire technology solution. We focus on making it easy to do business with us. Our highly experienced team of finance professionals operates in a work culture that emphasizes the importance of providing outstanding customer service. Our systems, processes and flexible policies support our goal of providing customers with a positive experience.

We finance your entire solution. Unlike others, we allow you to bundle everything you need from hardware and software to service contracts, installation costs, training fees, and sales tax. If you decide weeks or months later to add to your solution, we can consolidate everything into a single invoice.

Our Premier Client services provide large accounts with special handling services to ensure these complex transactions are serviced properly. As a premier client, you have a dedicated finance specialist who manages your account through its life, from first invoice through asset return or purchase. This specialist develops an in-depth understanding of your invoice and payment requirements. For you, this dedication provides a high-quality, easy, and positive financing experience.

For your region-specific offers, please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:

<https://www.lenovo.com/us/en/landingpage/lenovo-financial-services/>

Seller training courses

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

1. ThinkAgile Roadshow for Account Managers
2024-06-21 | 60 minutes | Employees Only

As customers transition through technology refresh and modernize their IT, learn how to win and position ThinkAgile portfolio. Get an overview of current ThinkAgile momentum and strategy along with best practices in product positioning

Published: 2024-06-21
Length: 60 minutes
Employee link: [Grow@Lenovo](#)
Course code: DTAO101

2. 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

Published: 2024-06-04
Length: 60 minutes
Employee link: [Grow@Lenovo](#)
Course code: DSAPF101

3. Lenovo Data Center Product Portfolio
2024-05-29 | 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.

Published: 2024-05-29
Length: 20 minutes
Employee link: [Grow@Lenovo](#)
Partner link: [Lenovo Partner Learning](#)
Course code: SXXW1110r7

4. The Lenovo-Nutanix Partnership Update for .NEXT
2024-05-22 | 5 minutes | Employees and Partners

This Quick Hit focuses on raising your awareness about the expanded Lenovo and Nutanix partnership for Nutanix .NEXT. The Lenovo + Nutanix combination of hardware, software, and services promises your customers a simple path into AI, and a powerful solution that scales from edge to cloud.

Published: 2024-05-22
Length: 5 minutes
Employee link: [Grow@Lenovo](#)
Partner link: [Lenovo Partner Learning](#)
Course code: SXXW2537a

5. **VTT Cloud Architecture: NVIDIA Using Cloud for GPUs and AI**

2024-05-22 | 60 minutes | Employees Only

Join JD Dupont, NVIDIA Head of Americas Sales, Lenovo partnership and Veer Mehta, NVIDIA Solution Architect on an interactive discussion about cloud to edge, designing cloud Solutions with NVIDIA GPUs and minimizing private\hybrid cloud OPEX with GPUs. Discover how you can use what is done at big public cloud providers for your customers. We will also walk through use cases and see a demo you can use to help your customers.

Published: 2024-05-22

Length: 60 minutes

Employee link: Grow@Lenovo

Course code: DVCLD212

6. **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

Published: 2024-05-20

Length: 25 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDS103r3

7. **Partner Technical Webinar - Thinkagile HX Update**

2024-05-08 | 60 minutes | Employees and Partners

In this 60-minute replay, Adam Mandelbloom, Technical Product Manager - ISG SDI, educated us with an update on Thinkagile HX. He also touched on “What’s New” as well as gave HX strategic positioning.

Published: 2024-05-08

Length: 60 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: 042624

8. **VTT Cloud and Edge Architecture: Principal Consultant Overview**

2024-04-10 | 50 minutes | Employees Only

Join Ruth Miller, Lenovo Principal Consultant, SSG Services for a data-led discussions to examine in detail customer IT environments, highlighting pain points, performance issues, edge and hybrid cloud strategy and carbon reduction capability.

Examples of workshop deliverables and outcomes will be discussed to illustrate the value of early engagement and discovery.

Published: 2024-04-10

Length: 50 minutes

Employee link: Grow@Lenovo

Course code: DVCLD211

9. VTT Data Management How to sell storage - April 2024

2024-04-10 | 60 minutes | Employees Only

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?

Published: 2024-04-10

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVDAT209

10. Data management Overview

2024-03-14 | 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 management portfolio
3. Find out how data drives business value

Published: 2024-03-14

Length: 25 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DSTOO201

11. 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

Published: 2024-03-07

Length: 35 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDT2001r3

12. **Lenovo HX Business Conversations**
2024-03-06 | 20 minutes | Employees and Partners

This course covers business conversations for Lenovo HX Hyperconverged solutions.

Course objectives:

- Identify a potential Lenovo HX opportunity
- Conduct effective discovery to reveal the customer's data center needs
- Probe the customer
- Ensure the customer knows you understand their issue(s)

Published: 2024-03-06

Length: 20 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DCGHXB001

13. **Whats new with ThinkAgile HX AI-Ready solutions and enabling edge to cloud**
2024-02-15 | 70 minutes | Employees Only

Join Scott Ellis, Nutanix Solution Architect, Ritu Jain, Lenovo Product Manager and Adam Mandelbloom, Lenovo Technical Product Manager for a discussion on why many customers are looking for VMware alternatives these days, ThinkAgile HX is a compelling choice, learn how easy it is to migrate from VMWare to Nutanix and some of the benefits it can provide. Another hot topic these days is Artificial intelligence, and many times this takes place at the edge. Learn how Lenovo and Nutanix solve these challenges with compelling edge to cloud solutions.

Published: 2024-02-15

Length: 70 minutes

Employee link: [Grow@Lenovo](#)

Course code: DVCLD209

14. **Family Introduction: Converged and Hyperconverged**
2024-01-25 | 15 minutes | Employees and Partners

This course is designed to give Lenovo sales a foundation on the characteristics of the Converged and Hyperconverged family. As an introduction to each family, this course also includes positioning, when to use a family and product, and keywords a client may use when discussing a converged or hyperconverged product.

Objectives:

- Family characteristics
- Priority positioning
- Product usage
- Key words and phrases

Published: 2024-01-25

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXSW1101r2

15. **FY24Q3 Hybrid Cloud Update**

2023-12-11 | 15 minutes | Employees and Partners

This update is designed to help you discuss the features and customer benefits of Lenovo ThinkAgile systems that use the 5th Gen Intel® Xeon® processors. Lenovo has also introduced a new service, Lenovo TruScale Hybrid Cloud for Edge, which provides agile and reliable infrastructure as a service where you need it, when you need it. New Professional Services for AI with NVIDIA provides customers with expert guidance for designing and implementing tailored AI solutions. Reasons to call your customer and talk about refreshing their infrastructure are also included as a guideline.

Published: 2023-12-11

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW2523a

16. **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.

Published: 2023-09-27

Length: 20 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DSTOO100

17. **A Seller's Guide to Nutanix OEM 2.0**

2023-08-24 | 90 minutes | Employees Only

In this Sales Team webinar, Mike Tilt, Ritu Jain and Brandon Saxton will cover the new Nutanix 2.0 pricing and packaging options to guide sellers on what the different types of offers, sales process and how to sell Nutanix 2.0. You will get an overview of OEM 2.0, Sales Process, PNP Pricing and Zone Information, and additional resources on Upgrade & Renewal SKUs and process.

Course Objectives

- Defining Nutanix 2.0 Pricing and Packaging
- Describing OEM 2.0 Sales Process
- Identifying resources and support

Published: 2023-08-24

Length: 90 minutes

Employee link: [Grow@Lenovo](#)

Course code: DSXNS101

18. **Empowering Technical Sellers: Excelling In Transactional Workloads**

2023-08-18 | 60 minutes | Employees and Partners

This training abstract outlines a comprehensive program designed to equip technical sellers with the knowledge and expertise required to effectively promote and sell Lenovo and Nutanix solutions for transactional workloads. By focusing on the unique capabilities and advantages of Lenovo and Nutanix infrastructure in handling high-performance transactional applications, this training program empowers technical sellers to engage with customers, understand their specific workload requirements, and articulate the value proposition of Lenovo and Nutanix offerings in this domain. The training program encompasses the following key areas:

1. Transactional Workloads Overview:
2. Lenovo and Nutanix Solutions for Transactional Workloads:
3. Product Portfolio Deep Dive:
4. Addressing Customer Requirements:
5. Solution Positioning and Sales Techniques:
6. Competitor Analysis:

Through this training, technical sellers will acquire the expertise necessary to engage with customers, understand their transactional workload requirements, and effectively position Lenovo and Nutanix solutions as the ideal choice for high-performance, mission-critical applications. By understanding the intricacies of Lenovo and Nutanix offerings in the transactional workload space, technical sellers will be empowered to drive successful sales engagements, build strong customer relationships, and contribute to the growth and success of their organization.

Published: 2023-08-18

Length: 60 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DHXD201

19. **Empowering Technical Sellers: Accelerating Lenovo and Nutanix Cloud Native-Container Application Solutions**

2023-08-18 | 60 minutes | Employees and Partners

This training abstract outlines a comprehensive program specifically designed to equip technical sellers with the knowledge and expertise needed to effectively promote and sell Lenovo and Nutanix cloud native/container application solutions. By focusing on the integration of Lenovo and Nutanix technologies with modern application development practices, this training enables tech sellers to engage with customers, understand their requirements, and articulate the unique value proposition of Lenovo and Nutanix offerings in the cloud native and containerization landscape.

The training encompasses the following key areas:

1. Cloud Native and Containerization Fundamentals:
2. Lenovo and Nutanix Solutions Overview:
3. Product Portfolio Deep Dive:
4. Addressing Customer Needs:
5. Solution Positioning and Sales Techniques:
6. Competitor Analysis:
7. Technical Demonstration and Proof-of-Concept:

Throughout the training, tech sellers will gain the expertise necessary to engage with customers, understand their unique requirements, and effectively position Lenovo and Nutanix solutions as the go-to choice for cloud native and containerized application needs. By learning the intricacies of Lenovo and Nutanix offerings, technical sellers will be equipped to drive successful sales engagements, strengthen customer relationships, and contribute to the overall growth and success of the organization.

Published: 2023-08-18

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DHXC201

20. **ThinkAgile Accelerating Cloud Agility: HX Series Technical Presentation**

2023-07-28 | 40 minutes | Employees and Partners

Amalu Santhosh, Lenovo Technical Product Manager, reviews the ThinkAgile HX product portfolio. She will walk you through a technical deep dive into HX workloads and discuss technical details and performance of the latest ThinkAgile HX solutions.

Published: 2023-07-28

Length: 40 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DHXT201

21. **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

Published: 2023-07-11

Length: 40 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DCLDS104r2

22. **What's New with Nutanix 2.0? Portfolio and Licensing**
2023-06-08 | 15 minutes | Employees and Partners

Nutanix has updated and simplified their licensing for our joint customers. This course is created to give sales and partners representatives an overview for the recent Nutanix licensing changes and their current options.

Course Objectives:

After completing this course, you should be able to:

- Describe the new Nutanix licensing rollout
- List the new pricing and packaging options

Published: 2023-06-08

Length: 15 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DHXL001

23. **Partner Technical Webinar - HX vs VX vs MX Panelist Discussion**
2023-04-11 | 60 minutes | Employees and Partners

In this 60-minute replay, Joe Murphy moderated a panelist discussion on ThinkAgile SHI. Baker Hull, VMware represented VX; Mike Tilt, Lenovo Technical Sales Manager presented HX; Phil Searles, Lenovo Solution Architect represented MX; and Brandon Saxton Lenovo NA Product Manager for ThinkAgile made up the panelist. The focus was less on the differences but how to elevate the conversation to get to the best solution. No slides were presented.

Published: 2023-04-11

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 033123

24. **Partner Technical Webinar - ThinkAgile V3 Overview and SMB Express**

2023-02-13 | 60 minutes | Employees and Partners

In this 60-minute replay, Joe Murphy and Dave Brown, Lenovo Solution Architects reviewed the new ThinkAgile V3 solutions. In addition, Dave did a lengthy demo and explanation of the new SMB Express feature of DCSC.

Published: 2023-02-13

Length: 60 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 021023

25. **Family Portfolio: ThinkAgile HX**

2022-12-13 | 20 minutes | Employees and Partners

This course is designed to give Lenovo sales an introduction to Lenovo ThinkAgile HX appliances. This course also includes why a customer should choose Lenovo for their hyperconverged products.

Course objectives:

- Learn to identify products and features within the ThinkAgile HX family
- Describe Lenovo innovations that the ThinkAgile HX family uses
- Recognize when a specific product or products should be selected

Published: 2022-12-13

Length: 20 minutes

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXS2109r3

26. **ThinkAgile HX Seller Presentation**

2022-11-01 | 25 minutes | Employees Only

Join Ritu Jain, Worldwide Product Manager for ThinkAgile, as she shares how ThinkAgile HX unique values, routes to market, how to position HX, and competitive landscape.

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

- Describe the ThinkAgile HX advantages
- Discover the routes to market & models available to sell
- Explain the HX solution positioning

Published: 2022-11-01

Length: 25 minutes

Employee link: [Grow@Lenovo](#)

Course code: DHXSP101

27. ThinkAgile HX Customer Presentation

2022-10-31 | 25 minutes | Employees Only

Join Ritu Jain, Worldwide ThinkAgile Product Manager for ThinkAgile, as she shares trends shaping cloud deployment models, customer Hybrid cloud strategy and how ThinkAgile HX is helping customers in their journey.

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

- Describe the ThinkAgile HX Solution
- Discover the trends in the cloud industry
- Explain how HX is helping customers with evolving trends

Published: 2022-10-31

Length: 25 minutes

Employee link: Grow@Lenovo

Course code: DHXCP101

28. Data Infrastructure Management - DM Series Storage

2022-10-28 | 25 minutes | Employees Only

This course provides a technical overview of the ThinkSystem DM series products. Course DDMO101 – Lenovo ThinkSystem DM & DE Series Overview is recommended prior to this course.

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

- Recognize the components of the Lenovo Data Management portfolio
- Discuss the features of the Lenovo Data Management components
- Describe the features of the SnapCenter software components

Published: 2022-10-28

Length: 25 minutes

Employee link: Grow@Lenovo

Course code: DDM200

29. Lenovo ThinkAgile HX VDI Solution

2022-08-26 | 10 minutes | Employees Only

In this lightboard video, Eric Kern whiteboards Lenovo's ThinkAgile HX VDI Solution. Sellers will learn how it works and customer benefits. Updated August 26th, 2022.

Objectives for this course:

- Understand how the VDI solution leverages the ThinkAgile HX platform with Citrix.
- Describe what actions a system administrator can perform in the Citrix portal.
- Explain how to manage the system remotely from a cloud infrastructure with Citrix.

Published: 2022-08-26

Length: 10 minutes

Employee link: Grow@Lenovo

Course code: DSV129

30. **Lenovo's value-added Solutions Software and SDI -ThinkAgile HX - Best practices for Selling Software/ SDI Process**

2022-08-23 | 60 minutes | Employees Only

ThinkAgile HX is one of the most important parts of the ThinkAgile Lenovo Portfolio of SDI, Software Defined Infrastructure but it can be challenging to manage the deal registration and quoting for ThinkAgile HX. Listen in on Part 1 of this recent North America webinar where Mike Tilt, Sales Engineer Director, discusses the overview of ThinkAgile HX sales process and how to obtain Deal protection. He also discusses best practices for interactions with Nutanix sellers and shares personal experiences as a former SDI focused seller.

Published: 2022-08-23

Length: 60 minutes

Employee link: Grow@Lenovo

Course code: DCLDO121

31. **Lenovo's value-added Solutions Software and SDI -ThinkAgile HX - Best practices for Selling Software/ SDI Process**

2022-08-23 | 60 minutes | Employees Only

In this Part 2, a continuation of a recent North American Webinar, Mike Tilt, Sales Engineer Director, continues discussion of ThinkAgile HX sales process and dives into VLS. He also discusses best practices for interactions with Nutanix sellers and shares personal experiences as a former SDI focused seller.

Published: 2022-08-23

Length: 60 minutes

Employee link: Grow@Lenovo

Course code: DCLDO122

32. **Lenovo TruScale for Hosted Desktops with Nutanix**

2022-08-22 | 15 minutes | Employees and Partners

By exemplifying the case of a customer who wants to move to a remote desktop public cloud solution, this 15-minute course offers an overview of the Lenovo TruScale for Hosted Desktops with Nutanix solution, including benefits, architecture, and value proposition.

Published: 2022-08-22

Length: 15 minutes

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: DSOLO109

33. **Lenovo's value-added Solutions Software and SDI - ThinkAgile HX Licensing Update from Nutanix**

2022-08-22 | 60 minutes | Employees Only

In this continuous series of recorded webinar for ThinkAgile, Ed Stickney, Nutanix Worldwide OEM Sales Strategy and Enablement Leader, reviews with the North American region the recent changes made to the Nutanix simplified licensing model and how it benefits your customers. He also discusses how the new licensing maps to the current licensing and how you can migrate your customers to the new licensing. Ed also provides you valuable feedback from audience questions.

Published: 2022-08-22

Length: 60 minutes

Employee link: Grow@Lenovo

Course code: DCLDO120

34. **Partner Technical Webinar - sizing ThinkAgile HX & VX**

2022-08-01 | 60 minutes | Partners Only

In this 60-minute replay, we demonstrated how to size ThinkAgile VX and ThinkAgile HX. First Lenovo Solution Architect Joe Murphy reviewed the sizing methodology. Next, Lenovo Solution Architect Richard Smutzer demonstrated how to size ThinkAgile HX using Nutanix's sizing tool. Lenovo Solution Architect David Cianchetta closed the webinar by demonstrating ThinkAgile VX sizing using the VSAN sizer from VMware.

Published: 2022-08-01

Length: 60 minutes

Partner link: [Lenovo Partner Learning](#)

Course code: 072922

35. **Partner Technical Webinar - Nutanix and ThinkAgile HX**

2022-07-20 | 60 minutes | Partners Only

In this 60-minute replay, Brandon Saxton, Lenovo NA Product Manager, and Brendan McDermott, Senior Sales Engineer, reviewed the Nutanix Lenovo Partnership, the technology and the ThinkAgile HX offerings including both Integrated Systems and Certified Nodes. Based on some questions, a few slides were added at the end to compare ThinkAgile HX with the other ThinkAgile offerings.

Published: 2022-07-20

Length: 60 minutes

Partner link: [Lenovo Partner Learning](#)

Course code: 071522

Related publications and links

For more information, see these resources:

- [Lenovo ThinkAgile HX Series](https://www.lenovo.com/us/en/data-center/software-defined-infrastructure/ThinkAgile-HX-Series/p/WMD00000326)
<https://www.lenovo.com/us/en/data-center/software-defined-infrastructure/ThinkAgile-HX-Series/p/WMD00000326>
- [Interactive 3D Tour of ThinkAgile HX Series offerings:](https://lenovopress.com/lp0454-lenovo-thinkagile-hx-series-interactive-3d-tour)
<https://lenovopress.com/lp0454-lenovo-thinkagile-hx-series-interactive-3d-tour>
- [Lenovo Data Center Solution Configurator \(DCSC\):](http://dcsc.lenovo.com)
<http://dcsc.lenovo.com>
- [Lenovo ThinkAgile product publications \(user manuals\):](https://thinkagile.lenovofiles.com/help/index.jsp)
<https://thinkagile.lenovofiles.com/help/index.jsp>
- [Nutanix documentation](https://my.nutanix.com/)
<https://my.nutanix.com/>
- [Lenovo ThinkAgile HX Series Best Recipes](https://support.lenovo.com/us/en/solutions/HT515725)
<https://support.lenovo.com/us/en/solutions/HT515725>
- [Lenovo Data Center Support](http://datacentersupport.lenovo.com)
<http://datacentersupport.lenovo.com>

Related product families

Product families related to this document are the following:

- [2-Socket Rack Servers](#)
- [Hyperconverged Infrastructure](#)
- [ThinkAgile HX Series for Nutanix](#)

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

© Copyright Lenovo 2024. All rights reserved.

This document, LP1481, was created or updated on April 2, 2024.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP1481>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP1481>.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at <https://www.lenovo.com/us/en/legal/copytrade/>.

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo®

AnyBay®

ThinkAgile®

ThinkSystem®

XClarity®

The following terms are trademarks of other companies:

Intel®, Intel Optane®, and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Microsoft®, Hyper-V®, and PowerShell are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.