Citrix Virtual Apps and Desktops on Lenovo ThinkAgile HX V4 Systems with Intel Xeon 6 Processors

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Version 1.0

Lenovo ThinkAgile HX V4 Hyperconverged infrastructure solution for Citrix VDI

Citrix Virtual Apps and Desktops on Nutanix AHV software

Includes VDI benchmark results and Bill of Material

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Citrix Virtual Apps and Desktops on Lenovo ThinkAgile HX V4 Servers Powered by Intel Xeon 6 Processors

Deliver Scalable and Secure Virtual Desktops

Industries as diverse as healthcare, finance, government, retail, and education have the common requirement to support and secure a mobile workforce. Organizations often have a dispersed workforce using many PCs, laptops, and mobile devices distributed to field offices and remote locations. Virtual Desktop Infrastructure (VDI) is a powerful solution to meet the need for flexibility and global availability of compute resources, while managing data security and compliance on mobile devices.

Lenovo VDI Solutions for Citrix Virtual Apps and Desktops help your organization to achieve a secure, scalable, and efficient VDI solution that enhances employee productivity, reduces operational costs, and supports digital transformation initiatives. The solution streamlines deployment, updates, and policy enforcement through centralized control, reducing IT overhead and accelerating provisioning times. Citrix Virtual Apps and Desktops delivers an immersive, feature-rich user experience for end users, allowing them to work anytime, anywhere, on any device. It supports a consistently rich end user experience for office workers, mobile workers and even 3D developers across devices, locations, media and connections.

Lenovo ThinkAgile HX V4 systems with 6th Gen Intel Xeon Processors

Lenovo ThinkAgile HX V4 systems are hyperconverged systems virtualized with Nutanix AOS and Citrix Virtual Apps and Desktops VDI solution can seamlessly leverage and scale for different user profiles. Lenovo ThinkAgile HX V4 Systems are factory-integrated, pre-validated ready-to-go integrated systems and fully tested.

ThinkAgile HX630 V4 1U

ThinkAgile HX650 V4 2U

Lenovo ThinkAgile HX V4 Systems are powered by Intel Xeon 6 processors provide excellent performance, bandwidth, and speed. The HX630 V4 1U and HX650 V4 2U supports two Intel Xeon 6700-series or 6500-series processors with Performance-cores (P-cores) up to 86 cores and 8TB memory with 256GB 3D RDIMMs

Lenovo XClarity One is unified management platform for servers, storage and edge and it is hosted on hybrid cloud and offers accelerated deployment, scalability, and speed while eliminating complex infrastructure setup and management overhead. It also offers life cycle management, secure management hub, AI powered smarter support.

Citrix Virtual Apps and Desktops

Citrix Virtual Apps and Desktops is comprehensive platform enables secure delivery of virtual desktops and applications to users and supports deployment on on-premise and hybrid cloud. Citrix Virtual Apps and Desktops provides unparalleled user experience to access Windows/Linux application and desktops It enables rapidly deploy full-featured, personalized virtual desktops and apps in seconds, retain user customization and persona from session to session, and leverage an agile provisioning approach to quickly roll out updates at the next login.
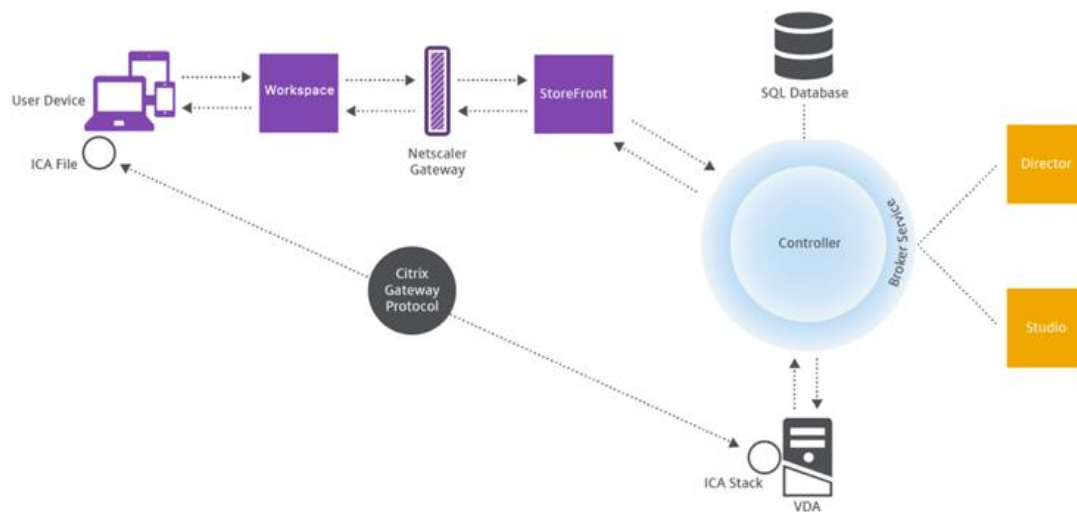
Figure 1 Citrix Virtual Apps and Desktops Logical Components

Delivery Controller ddistributes applications and desktops, authenticate and manage user access, broker connections between users and their desktops and applications, optimize and load balance user connections.

Virtual Delivery Agent (VDA) manage the connection between the virtual desktop and the user device and communicates session information to controller and collects session information.

StoreFront authenticates users and manages stores of desktops and applications that user's access and keeps track of users' application subscriptions

Citrix Workspace app provides users with quick, secure, self-service access to documents, applications, and desktops

Studio and Web Studio are management console which enables managing Citrix Virtual Apps and Desktops deployment and environment setup, creating workloads to host applications and desktops, and assigning applications and desktops to users.

Benchmark Results

The LoginEnterprise VDI benchmark was performed for the knowledge worker profile on a four node Lenovo ThinkAgile HX650 V4 with 6th Gen Intel Xeon processors. The benchmark stresses the system to 100% CPU utilization and provides VSIMax based on the login time and application response time criteria.

Login Enterprise Results with Office 365

The testing was performed with below configuration and settings.

- Login Enterprise 5.14.7
- Nutanix AHV 10.3.0.1
- Citrix Virtual Apps and Desktops 7 2311
- Windows 10, Microsoft Office 365, Microsoft Edge
- Virtual Desktop - 2 VCPU + 4 GB Memory + 100 GB disk
- 4 x Lenovo ThinkAgile HX650 V4, 2 x Intel(R) Xeon(R) 6767P 2.4GHz 64C, 16 x ThinkSystem 64GB TruDDR5 6400MHz (2Rx4) RDIMM, 8 x ThinkSystem 2.5" U.3 7500 PRO 1.92TB Read Intensive NVMe PCIe 4.0 x4 HS SSD
- CVM Configuration: 12 VCPU + 64 GB Memory

The table 2 below shows number of knowledge worker profile can be hosted on ThinkAgile HX650 V4 system with Intel Xeon 6767P 64C 2.4 GHz processor and it can support ~200 users per server during normal load scenarios with 75% CPU utilization. The test was run with 250 virtual desktops per host, but the system CPU was utilized at ~90% but was not saturated to reach VSIMax.

Table 2: VSIMax for knowledge worker with Microsoft Office 365

Login Interval	Hardware	VSIMax @ 75% CPU
5 user per minute per server	ThinkAgile HX650 V4 2x Intel Xeon 6767P 64C 2.4 GHz	~210

Figure 2 shows the response time is well below 2 seconds for many of Office 365 applications and the application latency increases after CPU reaching 90% utilization. Figure 3 shows login response time is below 10 seconds and consistent throughout the test.
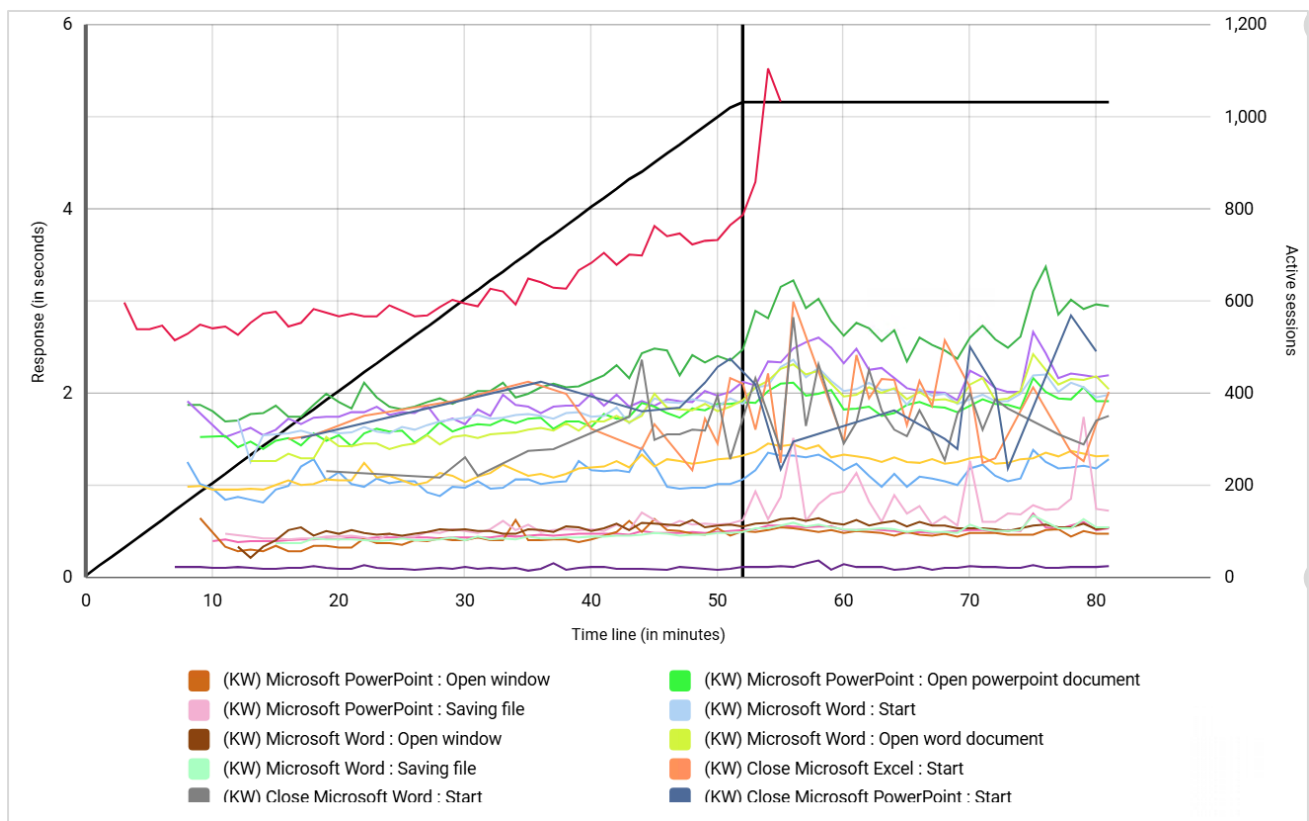
Figure 2: Citrix VAD - Office 365 applications response time – Intel Xeon 6 Processors
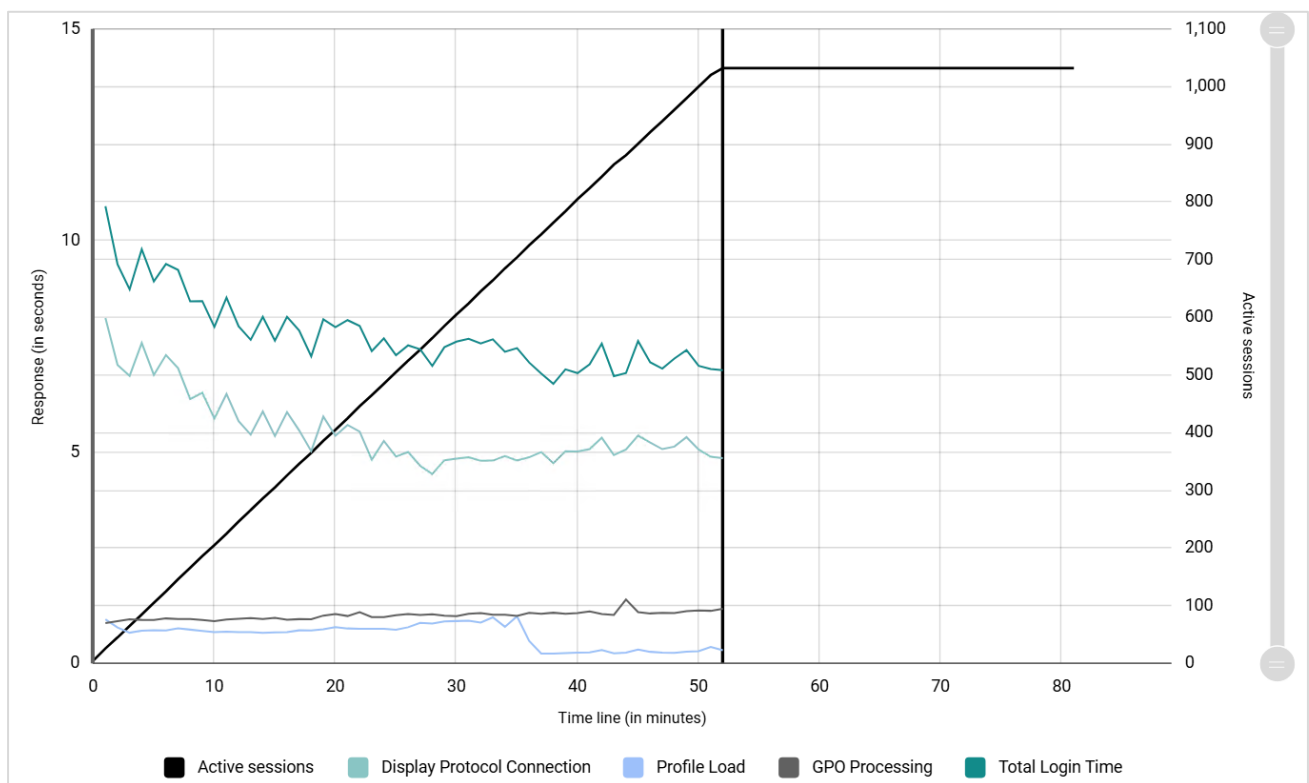

Figure 3: ThinkAgile HX650 V4 - Login response time – Intel Xeon 6 Processors

Citrix Virtual Apps and Desktops VDI on Lenovo ThinkAgile V4 Systems with Intel Xeon 6 Processors

End-to-End VDI Solution

From devices to desktops, Lenovo helps businesses access the data needed to make informed decisions. Lenovo offers a wide range of PCs, tablets, thin clients and smartphones for end user access. The portability, versatility and lightweight features of Lenovo thin clients allow for deployment across the organization, especially where space is at a premium.

Bill of Materials: ThinkAgile HX650 V4

Part number	Product Description	Qty
7DG4CTO1WW	Server : ThinkAgile HX650 V4	1
C6TQ	ThinkAgile HX650 V4 Base	1
/B0W3	XClarity Pro	1
B15S	Nutanix SW Stack on Nutanix AHV	1
BVKV	Nutanix Cloud Platform (NCP) Pro Software License with Mission Critical Support	1
C5QR	Intel Xeon 6520P 24C 210W 2.4GHz Processor	2
C3QR	ThinkSystem 2U V4 Performance Heatsink	2
BYTJ	ThinkSystem 32GB TruDDR5 6400MHz (2Rx8) RDIMM	16
B0SW	Nutanix Flash Node Config	1
C2BS	ThinkSystem 2.5" U.3 7500 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	4
C46P	ThinkSystem 2U V4 8x2.5" NVMe Backplane	2
C26V	ThinkSystem M.2 RAID B545i-2i SATA/NVMe Adapter	1
BKSR	ThinkSystem M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2
BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1
C0U3	ThinkSystem 2000W 230V Titanium CRPS Premium Hot-Swap Power Supply	2
6400	2.8m, 13A/100-250V, C13 to C14 Jumper Cord	2
C3RD	ThinkSystem 2U 6056 20K Performance Fan Module	6
C2DJ	ThinkSystem Advanced Toolless Slide Rail Kit V4	1
BQQ2	ThinkSystem 2U V3 EIA Latch Standard	1
5977	Select Storage devices - no configured RAID required	1
C3K9	XClarity Platinum Upgrade v3	1
C4S2	ThinkSystem SR650 V4 Processor board,BHS,DDR5,Santorini,2U	1
ATSB	Nutanix Solution Code MFG Instruction	1
C3RN	ThinkSystem 2U Main Air Duct	1
C7Y8	ThinkSystem SR650 V4 System I/O Board	1
C26Y	ThinkSystem V4 CPU HS Clip	2
BHSS	MI for PXE with RJ45 Network port	1
C3QW	ThinkSystem M.2 Signal & Power Cable ,ULP 82P-SLX4/2X10 SB, 400/400mm	1
C3R0	ThinkSystem Power Cable, 2x6+12 P-2x3+6 P, 250 mm	2
C71U	Think System,PCIe Gen5 Cable, MCIOx8-MCIOx8, 250 mm	2
C6TH	Think System,PCIe Gen5 Cable, MCIOx8-MCIOx8, 350 mm	6
5641PX3	XClarity Pro, Per Endpoint w/3 Yr SW S&S	1

References:

Lenovo ThinkAgile HX630 V4 Hyperconverged System

https://lenovopress.lenovo.com/lp2132-lenovo-thinkagile-hx630-v4-hyperconverged-system

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Citrix Virtual Apps and Desktops Design Guidance

https://community.citrix.com/tech-zone/by-product/citrix-virtual-apps-and-desktops

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