Azure Virtual Desktop on ThinkAgile MX
Solution Brief

Remote hybrid workplace solution

The pace of technology change is accelerating everywhere, especially in the workplace. In recent years companies have come to realize that a flexible secure workplace is here to stay. Azure Virtual Desktop is a hybrid cloud based VDI solution that can be used to deploy and scale Windows desktops and apps on Azure Stack HCI in minutes to enable secure, remote work.

Companies of all sizes are pushing to set up VDI with remote connectivity, security, and management capabilities so that employees can remain productive and access necessary apps from wherever they are. Moving to the cloud offers many benefits to enterprises, including scalability, cost efficiencies, and near-limitless data capacity. However, many industries are required to keep their data on premises due to data-sovereignty needs and regulatory requirements.

Azure Virtual Desktop (AVD) brings all cloud benefits on premises by using familiar tools and applications based on Windows with a fully managed, cloud hosted VDI management plane. Azure Stack HCI with Azure Virtual Desktop on Lenovo Systems helps companies overcome their remote work challenges in a powerful and efficient manner.

Lenovo Solutions for Microsoft Azure Stack HCI and AVD on ThinkAgile MX650 V3 are optimized for both scale and performance and are **Accelerated by Intel** offerings. This technical brief features Microsoft Azure Staci HCI and AVD running on a high-performance Lenovo dual socket 2U rack mount enterprise server. The server is configured with 4th Generation Intel® Xeon® Scalable processors, TruDDR5 4800MHz memory and P5620 NVMe drives among a variety of storage options, including support for the PCIe 5.0 standard devices for I/O. These 4th Gen Intel Xeon processors offer anywhere from 16 to 60 cores and 16x 4800 MHz DDR5 DIMMs per socket.

The MX650 V3 server is a storage dense offering, with up to 40x 2.5" drive bays in the front, middle and rear of the server and 5 different slot configurations at the rear of the server. Onboard NVMe PCIe ports allow direct connections to 16 NVMe SSDs, which frees up PCIe slots and lowers NVMe solution acquisition costs.

Highlights:

- Reduce time to value with pretested and sized hardware configurations
- Simplified evaluation, fast and easy deployment and workload optimized performance
- VDI sized solution with optimal compute, memory, storage and networking components
- Reduce TCO through better performance, rapid deployment and advanced hardware
- Optimize performance with pretested ThinkAgile MX650 V3 hardware configurations

Business VDI solutions with faster time-to-value

Lenovo MX650 V3 systems are methodically tested and tuned to save you months of configuration, setup, testing, and tuning. With these new servers, you get the following advantages:

- Realize better performance for popular workloads running on 4th generation Intel Xeon Scalable processors than on similar servers equipped with previous generation processors
- Improve performance and scale of VDI solutions with higher core counts, memory bandwidth and PCIe Gen 5 devices
- Improve density and support more and larger virtual desktops per host

Microsoft Azure Virtual Desktop

With Azure Virtual Desktop for Azure Stack HCI, IT administrators can create a full Windows 10, Windows 11, or Windows Server desktop virtualization environment that can be used on any device.

With AVD, IT administrators can view all components on the same management plane, and it is simple to create and use Azure Virtual Desktop sessions on an Azure Stack HCI cluster. With the support of Azure Virtual Desktop for Azure Stack HCI, Windows 10 and Windows 11 multisession capabilities are available for on-premise environments. IT staff can support multiple users on a single virtual machine (VM). This greatly reduces the number of VMs and the system-resource overhead costs while still providing the same resources to all users. Azure Virtual Desktop also simplifies management and user support. Because Azure Virtual Desktop is a managed service, organizations don't need to deploy a VDI themselves or have the burden of upgrading infrastructure. This is a huge advantage compared to other VDI solutions.

The following is a high-level summary of what is needed to run Azure Virtual Desktop on Azure Stack HCI:

- An Azure Stack HCI cluster with a minimum of 2 nodes. It's recommended to have at least 16 cores with 256GB memory per node, but this is largely determined by your workload requirements.
- For starters, 1TB of storage capacity in your Azure Stack HCI storage pool used to store virtual machines. However, this will also be determined by your workload requirements.
- A system running Windows Admin Center. This should be registered with Azure, and in the same domain as the Azure Stack HCI cluster.
- External internet connectivity for both the Azure Stack HCI nodes, and the Azure Virtual Desktop components.
- An Azure subscription for Azure Virtual Desktop Session Host Pool with the appropriate permissions.
- Network Validation for AVD Links, reference - https://docs.microsoft.com/en-us/azure/virtual-desktop/safe-url-list
- Configure UEFI (Bios) settings to set Operating mode to Maximum performance.

The high-level AVD deployment steps include the following:

- Deploy and configure Windows Admin Center (WAC)
- Create an Azure Stack HCI cluster
- Setup a new host pool in Azure Portal
- Define your host pool as a Validation Host Pool
- Deploy a new virtual machine on the Azure Stack HCI infrastructure and join it to a domain
- Enable Azure ARC on the Virtual Machine
- Add the virtual machine to the AVD host pool and register to Azure Virtual Desktop Service

Lenovo ThinkAgile MX650 V3 offerings are ideal for modernizing your data center because of their low cost and high-performance capabilities. They are industry standard x86 servers providing cost effective computing and fast high-density local storage.

Lenovo ThinkAgile MX650 V3 servers offer the necessary performance for bare metal or virtualized workloads. High performance can be achieved using Azure Stack HCI and Storage Spaces Direct technology which are built into Windows Server HCI OS. Several technologies like NVMe storage and Remote Direct Memory Access (RDMA) networking are natively supported in Windows Server to enable the highest levels of performance.

A typical AVD node configuration features the following main components:

- Servers: 2x or 4x Lenovo ThinkAgile MX650 V3
- Processor: 2x 4th Gen Intel Xeon Platinum 8480+ processor with 64 cores
- Memory: 1TB per node of TRUDDR5 4800 MT/s memory
- Storage: 8x Solidigm NVMe mixed use SSDs 1.6TB
- OS Storage: 2x 480GB M.2 SATA SSDs for the operating system (RAID 1)
- Software: Microsoft HCI OS

This high-performance VDI solution with Microsoft Azure Virtual Desktop features the latest Solidigm NVMe mixed use SSDs. These SSDs help build a low latency solution for mission critical VDI environments.

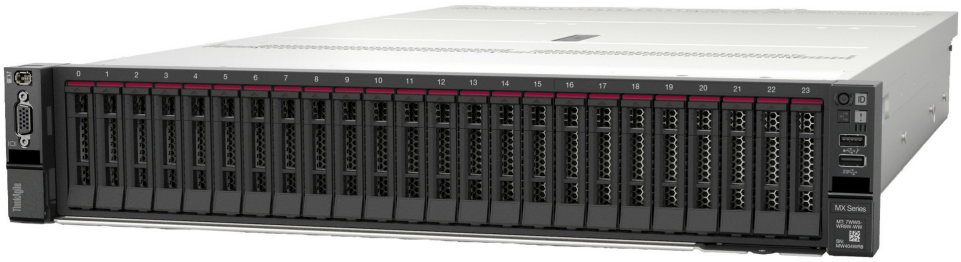

Figure 1. Lenovo ThinkAgile MX650 V3

Performance Testing

Details and results are coming soon

Bill of Materials

Table 1. Bill of Materials

Part number Feature code	Product Description	Qty
7D76CTO1WW	**Server: ThinkSystem SR650 V3 - 3yr Warranty**	1
BLKK	ThinkSystem V3 2U 24 x 2.5" Chassis	1
BNOM	Intel Xeon Platinum 8480+ 64C 350W 2.0GHz Processor	2
BNFC	ThinkSystem 128GB TruDDR5 4800 MT/s (4Rx4) 3DS RDIMM	32
B8NY	ThinkSystem RAID 940-8i 4GB Flash PCIe Gen4 12Gb Adapter	1
BNEG	ThinkSystem 2.5" U.2 P5620 1.6TB Mixed Use NVMe PCIe 4.0 x4 HS SSD	8
B8LU	ThinkSystem 2U 8 x 2.5" SAS/SATA Backplane	1
BH8D	ThinkSystem 2U/4U 8 x 2.5" NVMe Backplane	1
BM8X	ThinkSystem M.2 SATA/x4 NVMe 2-Bay Enablement Kit	1
AUUV	ThinkSystem M.2 128GB SATA 6Gbps Non-Hot Swap SSD	2
B93E	ThinkSystem Intel I350 1GbE RJ45 4-port OCP Ethernet Adapter	1
BLKM	ThinkSystem V3 2U x16/x16/E PCIe Gen4 Riser1 or 2	2
BMUF	ThinkSystem 1800W 230V Platinum Hot-Swap Gen2 Power Supply	2
BLL6	ThinkSystem 2U V3 Performance Fan Module	6
BRQ1	ThinkSystem SR650 V3,SATA CBL,SLx8-SLx4,M.2-M.2(MB),150mm	1
BSYM	ThinkSystem SR650 V3,PCIe4 Cable,Swift8x-SL8x,2in1,PCIe 6/5(MB) to BP1/BP2	1
BETS	ThinkSystem V3 2U SFF C0 (RAID) to Front 8x2.5" BP1	1
BPE3	ThinkSystem SR650 V3 MCIO8x to SL8x CBL, PCIe4, 8x2.5AnyBay, 200mm	2
BQ12	G4 x16/x16/E PCIe Riser BLKM for Riser 1 Placement	1
BQ19	G4 x16/x16/E PCIe Riser BLKM for Riser 2 Placement	1
7S0XCTO2WW	Lenovo XClarity XCC2 Platinum Upgrade	1
5641PX3	XClarity Pro, Per Endpoint w/3 Yr SW S&S	1
1340	Lenovo XClarity Pro, Per Managed Endpoint w/3 Yr SW S&S	1
QAA8	SR650 V3 3Y Standard	1

Accelerated by Intel

To deliver the best experience possible, Lenovo and Intel have optimized this solution to leverage Intel capabilities like processor accelerators not available in other systems. Accelerated by Intel means enhanced performance to help you achieve new innovations and insight that can give your company an edge.

Why Lenovo

Lenovo is a US$70 billion revenue Fortune Global 500 company serving customers in 180 markets around the world. Focused on a bold vision to deliver smarter technology for all, we are developing world-changing technologies that power (through devices and infrastructure) and empower (through solutions, services and software) millions of customers every day.

For More Information

To learn more about this Lenovo solution contact your Lenovo Business Partner or visit:
https://www.lenovo.com/vdi

References:

Lenovo ThinkAgile SR650 V3: https://lenovopress.lenovo.com/lp1601

References:
Lenovo ThinkSystem SR650 V3: https://lenovopress.lenovo.com/lp1601

Related product families

Product families related to this document are the following:

- Microsoft Alliance
- ThinkAgile MX Series for Microsoft Azure Stack HCI

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