Simplifying Modern Virtualization with Azure Local using Hyper-V/S2D on ThinkAgile MX V4 Series
Solution Brief

Virtualization remains the backbone of enterprise IT, but customer expectations have changed. IT teams want infrastructure that is easy to deploy, simple to operate, and aligned with cloud operating models. Traditional hypervisor stacks often introduce unnecessary complexity, siloed management tools, and rising licensing costs.

The Lenovo ThinkAgile MX650 V4 and MX630 V4 solutions with Microsoft Azure Local addresses these challenges by combining Lenovo's enterprise-class hardware with Microsoft's cloud-connected or disconnected virtualization approach, leveraging Azure Portal. By integrating Azure Local into Lenovo's world-class, scalable hardware, customers get a seamless 'turnkey' experience that bridges the gap between on-premises control and cloud agility. Using Azure Local, Hyper-V & S2D are not treated as standalone components, but is automatically installed, configured, and managed as part of the Azure-integrated platform, delivering a modern, cloud-consistent operational experience from edge-to-cloud.

Figure 1. Lenovo ThinkAgile MX650 V4

Business Challenges

Organizations face several common challenges in their virtualization and hybrid cloud strategies:

- **Rising virtualization costs and vendor lock-in**

  Driving the need for alternatives aligned with existing Microsoft investments

- **Operational complexity**

  With separate tools for hypervisor, hardware, and lifecycle management

- **Slow deployment and time-to-value**

  Caused by manual OS and hypervisor installation and configuration

- **Fragmented hybrid cloud strategies**

  On-premises systems are disconnected from cloud governance and monitoring

- **Inconsistent governance and security across environments**

  On-premises virtualization platforms operate outside of cloud security, policy, and compliance frameworks

- **Edge and distributed deployments**

  They require simplicity, resiliency, and centralized control

Solution Overview

The Lenovo ThinkAgile MX V4 Series delivers a modern virtualization platform designed for today's hybrid IT realities. Built on Azure Arc–enabled Azure Local, the solution automatically installs and enables Microsoft Hyper-V as part of the platform, eliminating the need for separate hypervisor deployment or complex manual configuration. This approach transforms virtualization from a standalone infrastructure layer into a cloud-consistent service aligned with the Azure operating model from day one.

Lenovo ThinkAgile MX650 V4 and MX630 V4 solutions with Microsoft Azure Local deliver what organizations need today. A **cloud-consistent**, **cost-efficient**, and **operationally simple** virtualization platform that aligns on-premises infrastructure with the Azure operating model from day one.

At the foundation is the Lenovo ThinkAgile MX650 V4 and MX630 V4 platform, a Microsoft Azure Local Premier Solution, jointly engineered to eliminate the complexity of the hybrid cloud. Each ThinkAgile MX650 V4 and MX630 V4 solution combines enterprise-class compute, storage, networking, and resiliency with factory-integrated configurations and lifecycle automation. Customers receive a production-ready building block that reduces deployment risk, accelerates time-to-value, and delivers consistent performance for virtualization, hybrid cloud, and edge workloads.

Operationally, the solution provides a unified management experience across hardware, virtualization, and hybrid cloud services. Virtual machines and clusters are managed locally through Azure Portal, hardware lifecycle and health are handled by Lenovo XClarity integrations in Azure Portal, and Azure Arc extends governance, monitoring, and policy enforcement into Azure portal. The result is a scalable, repeatable accelerated experience that lowers cost and complexity while enabling fast, consistent hybrid deployments on MX650 V4 and MX630 V4.

Follow this link to the Lenovo Data Center Solution Configurator (DCSC) to build ThinkAgile MX V4 solutions:

[Configure ThinkAgile MX V4 in DCSC](#)

Hyper-V on Azure Local

Microsoft Hyper-V delivers a proven, enterprise-grade virtualization platform that is built directly into Azure Local, enabling organizations to virtualize critical workloads without the added cost, complexity, or vendor lock-in of third-party hypervisors. When deployed as part of the Lenovo ThinkAgile MX650 V4 and MX630 V4 solutions, Hyper-V becomes a cloud-consistent service rather than a standalone component, it is automatically enabled, fully supported, and tightly integrated with Azure Arc for consistent hybrid operations. This combination provides customers with a cost-efficient, secure, and scalable virtualization foundation that aligns with existing Microsoft investments while delivering the reliability and performance expected for production workloads.

- **Lower Total Cost of Ownership**

  Hyper-V is included as part of Azure Local, eliminating separate hypervisor licensing and reducing long-term virtualization costs.

- **Enterprise-Grade Availability and Resiliency**

  Built-in capabilities like Live Migration, Windows Failover Clustering, and Hyper-V Replica support high availability and business continuity without additional software.

- **Security by Design**

  Features including Secure Boot, Shielded VMs, and virtualization-based security protect workloads using hardware-rooted trust and native Windows security controls.

- **Hybrid Cloud Consistency**

  Managed through Azure Portal, integrated with Azure Arc, Hyper-V enables centralized governance, monitoring, and policy enforcement across on-premises, edge, and cloud environments

- **Operational Simplicity**

  Native integration with Windows Admin Center and Lenovo XClarity simplifies day-to-day management, lifecycle operations, and troubleshooting.

- **Future-Ready Scalability**

  Support for large virtual machines, modern hardware platforms, and hybrid cloud services ensures the platform can evolve with changing workload and business requirements.

ThinkAgile Compute Foundation

Lenovo ThinkAgile MX650 V4 and MX630 V4 form a high-performance, flexible compute foundation.

The Lenovo ThinkAgile MX650 V4 and MX630 V4 are purpose-built solutions for Azure Local and hybrid cloud environments, offering flexible form factors to address a broad range of deployment needs. Based on the latest ThinkSystem SR650 V4 and SR630 V4 platforms and co-engineered by Lenovo and Microsoft, these systems deliver a production-ready foundation that removes deployment risk and ensures consistent performance for virtualization and cloud-consistent workloads.

Figure 2. Lenovo ThinkAgile MX630 V4

At the compute layer, ThinkAgile MX650 V4 and MX630 V4 support modern Intel® Xeon® 6 processors and high-bandwidth DDR5 memory, providing the performance density and memory capacity required for consolidation-heavy virtualized environments. Flexible storage configurations, including all-NVMe options, and high-bandwidth I/O enable low-latency, high-throughput performance optimized for software-defined and hyperconverged architectures across both platforms.

Designed for always-on operations, the ThinkAgile MX platform integrates enterprise-class resiliency with simplified lifecycle management. Lenovo and Microsoft deliver continuously tested & validated firmware and software packages, while Lenovo XClarity integrations in Windows Admin Center and Azure Portal provide unified visibility across hardware, virtualization, and hybrid cloud services. Together, ThinkAgile MX650 V4 and MX630 V4 form a scalable, repeatable hardware portfolio that supports fast deployment, predictable operations, and long-term growth on Azure Local.

Simplified Deployment and Operations

ThinkAgile MX Series solutions remove the uncertainty and complexity from virtualization deployment and day-to-day operations. The Lenovo ThinkAgile MX650 V4 and the MX630 V4 solutions are architected and

pre-validated, leveraging tested hardware profiles, reference architectures, and prescriptive configuration guidance to ensure predictable, repeatable outcomes. By automating the enablement of Azure Local with Hyper-V, organizations eliminate manual hypervisor installation and accelerate time to value.

Operational efficiency is further enhanced through tight integration of Lenovo XClarity with Windows Admin Center and Azure Portal. Hardware health monitoring, firmware lifecycle management, and proactive support are unified with virtual machine and cluster management, while Azure Portal, powered by Azure Arc, extends governance, monitoring, and policy enforcement into the portal. This unified, full-stack management model streamlines workflows and allows IT teams to shift focus from infrastructure maintenance to higher-value modernization and hybrid cloud initiatives.

Key Solution Benefits

Key benefits of the solution include the following:

- **Enterprise-Grade Hyper-V Virtualization**

    Run production virtual machines & Kubernetes based workloads on a proven Microsoft hypervisor automatically enabled through Azure Local.

- **Reduced Deployment Risk**

    Built using Lenovo-validated reference architectures and configurations to minimize design uncertainty, integration issues, and configuration errors.

- **High Availability and Resiliency**

    Built-in clustering, live migration, and failover capabilities deliver always-on operations for business-critical workloads.

- **Flexible Scalability**

    Validated designs support single-node edge deployments and multi-node clusters that scale as business requirements grow.

- **Hybrid Cloud Ready**

    Native Azure Arc integration enables consistent management and governance across on-premises, edge, and Azure environments.

Use Cases

These solutions address a wide range of enterprise deployment scenarios:

- **VMware Alternative**

    Replace costly and complex hypervisor environments with a Microsoft-aligned virtualization platform that is included as part of Azure Local

- **Hybrid Cloud Enablement**

    Run virtual machines on-premises while managing, monitoring, and governing them through Azure Portal

- **Edge and Distributed Sites**

    Deploy resilient two-node or multi-node clusters with centralized visibility and minimal operational overhead

- **Modern Application Infrastructure**

    Support virtual machines, containers, and future cloud-native workloads on a single Arc-enabled platform

- **Business-Critical Workloads**

    Host databases, line-of-business applications, and infrastructure services with enterprise performance and availability

Conclusion

The Lenovo ThinkAgile MX630 V4 & MX650 V4 solution delivers a modern, enterprise-grade virtualization platform purpose-built for today's hybrid IT realities. By integrating Azure Local into Lenovo's world-class, scalable hardware, customers get a seamless 'turnkey' experience that bridges the gap between on-premises control and cloud agility. The solution reduces cost and complexity while accelerating time to value, without sacrificing performance, resiliency, or operational control.

Pre-validated designs, automated deployment, and unified management simplify day-to-day operations and reduce risk across the infrastructure lifecycle. Integrated management through Azure Portal and Windows Admin Center, integrated with Lenovo XClarity provides full-stack visibility across hardware, virtualization, and hybrid cloud services, allowing IT teams to move beyond infrastructure maintenance and focus on higher-value modernization initiatives.

As organizations seek practical alternatives to complex and costly legacy hypervisors, Lenovo offers a clear path forward with the ThinkAgile MX650 V4 and MX630 V4 solutions that enable customers to standardize virtualization, scale with confidence from the core to the edge, and seamlessly extend into hybrid cloud, delivering predictable operations today and a future-ready foundation for continued innovation.

Bill of Materials

The following tables list the components of the solution.

Table 1. Bill of Materials for the MX630 V4

Part Number	Product Description	Quantities
7DFGCTO1WW	ThinkAgile MX630 V4	1
BSAE	All Flash Storage Configuration	1
CFE6	Azure Local - Premier Preload (Bring Your Own License)	1
CD12	Integrated L1/L2 Azure Local Software Support	1
B0W2	5 Years	1
BRWP	ThinkAgile MX Remote Deployment	1
B3XT	XClarity Pro 5 Year	1
C5QV	Intel Xeon 6517P 16C 190W 3.2GHz Processor	2
C0U2	ThinkSystem 16GB TruDDR5 6400MHz (1Rx8) RDIMM	16
C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	4
C21X	ThinkSystem 1U V4 10x2.5" NVMe Gen5 Backplane	1
C0JJ	ThinkSystem M.2 RAID B540p-2HS SATA/NVMe Adapter	1
CBT0	ThinkSystem M.2 VA 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2
BCD4	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter	2
BPKQ	TPM 2.0 with Secure Boot	1
7S1SCTODWW	Microsoft AS HCI MX Premier	1
SDXW	Azure Stack HCI MX Premier	1
7S0XCTO8WW	XClarity Controller Prem-FOD	1
SCY0	Lenovo XClarity XCC3 premier - FOD	1

Part Number	Product Description	Quantities
5WS7C08394	5Yr Premier 24x7 4Hr Resp MX630 V4	1
5PS7C08406	5Yr KYD Add-On MX630 V4	1
5MS7B09466	ThinkAgile MX Remote Deployment (up to 2 nodes)	1
5MS7C30581	5 Year Microsoft Azure Local L1 & L2 SW Support	1

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CD12	Integrated L1/L2 Azure Local Software Support	1
B0W2	5 Years	1
BRWP	ThinkAgile MX Remote Deployment	1
B3XT	XClarity Pro 5 Year	1
C659	Intel Xeon 6527P 24C 255W 3.0GHz Processor	2
BYTJ	ThinkSystem 32GB TruDDR5 6400MHz (2Rx8) RDIMM	16
C2BT	ThinkSystem 2.5" U.3 7500 PRO 7.68TB Read Intensive NVMe PCIe 4.0 x4 HS SSD	10
C0JJ	ThinkSystem M.2 RAID B540p-2HS SATA/NVMe Adapter	1
CBT0	ThinkSystem M.2 VA 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	2
BCD4	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter	2
BPKQ	TPM 2.0 with Secure Boot	1
7S1SCTODWW	Microsoft AS HCI MX Premier	1
SDXW	Azure Stack HCI MX Premier	1
5WS7C08427	5Yr Premier 24x7 4Hr Resp MX650 V4	1
5PS7C08430	5Yr KYD Add-On MX650 V4	1
5MS7B09466	ThinkAgile MX Remote Deployment (up to 2 nodes)	1
5MS7C30581	5 Year Microsoft Azure Local L1 & L2 SW Support	1

For More Information

To learn more about this Lenovo solution contact your Lenovo Business Partner.

To learn more about ThinkAgile MX, see the following page:
https://www.lenovo.com/us/en/servers-storage/sdi/thinkagile-mx-series/

References:

Lenovo ThinkAgile MX650 V4 Solution using Microsoft Azure Local
https://lenovopress.lenovo.com/lp2351-lenovo-thinkagile-mx650-v4-solution-using-microsoft-azure-local

ThinkAgile MX Series for Microsoft Azure Local
https://lenovopress.lenovo.com/servers/thinkagile/mx-series#sort=relevance

Authors

Jessie Lacome is a Platform Solutions Product Manager at Lenovo with extensive experience in enterprise virtualization and modern infrastructure platforms. He brings a strong consulting and solutions architecture background, supporting customers across on-premises and hybrid environments. Jessie has previously held roles at Salesforce, Citrix, and Dell, where he focused on virtualization and infrastructure solutions.

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Related product families

Product families related to this document are the following:

- Microsoft Alliance
- ThinkAgile MX Series for Microsoft Azure Local

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