Reimagining Enterprise Virtualization: Simplified, Cost-Effective Lenovo Hyper-V Ready Nodes

Solution Brief

Virtualization platforms are a critical layer of enterprise infrastructure, but rising licensing costs, operational complexity, and evolving workload requirements are driving organizations to reevaluate existing hypervisor deployments. IT teams require solutions that deliver high availability, security, and scalability while maintaining predictable cost and simplified management.

The Lenovo Hyper-V Ready Node is a factory-validated virtualization solution that combines Microsoft Hyper-V in Windows Server 2025 Datacenter with Lenovo ThinkSystem servers. Preconfigured and optimized for consistent performance, this solution enables rapid deployment of an enterprise-class virtualization platform with unified management and reduced operational risk.

Business Challenge

Organizations face mounting pressure to modernize infrastructure while controlling costs and operational overhead. The following table lists the common virtualization challenges.

Table 1. Virtualization Challenges

Escalating Licensing Costs Per-CPU licensing, subscription-only models, and support fees significantly increase total cost of ownership and limit long-term scalability.	**Operational Complexity** Multiple management tools for hypervisors, hardware, backup, and cloud services increase administrative burden and risk
Vendor Lock-in Proprietary ecosystems restrict flexibility and slow adoption of hybrid cloud and modern workloads.	**Security & Availability** Enterprise-grade resiliency and security often require additional products or specialized expertise.

Organizations need a **virtualization platform** that delivers enterprise capabilities without excessive cost, complexity, or lock-in.

Solution Overview: Lenovo Hyper-V Ready Node

Lenovo Hyper-V Ready Node combines Microsoft Hyper-V—an enterprise-class hypervisor included with Windows Server—with Lenovo ThinkSystem servers to deliver a fully integrated virtualization platform.

Microsoft Hyper-V Advantages

Hyper-V is built directly into Windows Server 2025 Datacenter, eliminating additional hypervisor licensing costs while providing the core capabilities IT teams rely on:

- **High availability and mobility** — Live Migration, Storage Migration, Windows Failover Clustering, and Hyper-V Replica enable seamless workload mobility, automated failover, and built-in disaster recovery
- **Security by design** — Shielded VMs, Secure Boot, and virtualization-based security (VBS) leverage hardware-rooted trust to protect critical workloads without third-party add-ons.
- **Modern scalability and performance** — Support for very large virtual machines (up to 2,048 vCPUs and 240 TB RAM), GPU partitioning for AI and VDI workloads, and workgroup clustering for simple two-node or edge deployment.

Lenovo ThinkSystem Foundation

Lenovo ThinkSystem servers provide the resilient hardware foundation for Hyper-V

- **SR630 V4** — Balanced performance and density for core data center deployments
- **SR650 V4** — Maximum performance, memory, and storage capacity for mission-critical workloads
- **SR635 V3** — Cost-optimized, efficient platform ideal for edge and distributed environments

Powered by Intel® Xeon® 6 or AMD EPYC™ processors, DDR5 memory, and PCIe Gen 5, ThinkSystem servers deliver high performance with enterprise-class reliability, availability, and serviceability (RAS). Lenovo XClarity management enables proactive monitoring, firmware management, and lifecycle automation.

Simplified Deployment and Management

Lenovo Hyper-V Ready Nodes are factory-validated and preconfigured with Windows Server 2025 Datacenter. Automated PowerShell workflows deploy and optimize Hyper-V and integrate Windows Admin Center, enabling faster time to value and consistent best-practice configurations.

Unified Management with Windows Admin Center

Windows Admin Center serves as the single, browser-based management interface for:

- Hyper-V hosts and clusters
- Virtual machine lifecycle management
- Performance monitoring and live migration
- Storage and network configuration

With the Lenovo XClarity Integrator plug-in embedded in WAC, administrators also gain hardware-level visibility, along with health status, firmware updates, and remote access, all from the same console. This unified experience reduces tool sprawl, streamlines workflows, and lowers operational complexity. WAC further simplifies cluster creation through guided workflows and enables seamless integration with Azure services and third-party backup solutions, supporting hybrid cloud and disaster recovery scenarios.

Key Benefits

Key benefits of the integrated solution as follows:

- **Lower Total Cost of Ownership**
  Hyper-V included with Windows Server eliminates additional hypervisor licensing costs.
- **Operational Simplicity**
  Single-pane management for virtualization and hardware through WAC and Lenovo XClarity.
- **Enterprise-Grade Resiliency and Security**
  Built-in high availability, disaster recovery, and hardware-rooted security features.
- **Flexible Deployment Options**
  Scales from SMB and ROBO environments to large enterprise data centers and private clouds.
- **Future-Ready Platform**
  Optimized for AI inferencing, VDI, and hybrid cloud integration.

Use Cases:

- VMware Alternative or Migration Platform
- SMB and Enterprise Virtualization
- Private Cloud and IT Modernization Initiatives
- Edge and Remote Office Deployments
- AI Inferencing and GPU-Accelerated Workloads

Conclusion

Lenovo Hyper-V Ready Node delivers a modern, cost-effective virtualization solution that combines Microsoft Hyper-V with Lenovo ThinkSystem servers and unified management through Windows Admin Center and Lenovo XClarity. The result is a high-performance, secure, and easy-to-manage platform that meets enterprise requirements without the rising costs and complexity of traditional hypervisors.

For organizations seeking a practical, low-risk virtualization strategy, especially as licensing models evolve, the Lenovo Hyper-V Ready Node provides a clear path to simplified operations, predictable performance, and long-term value.

Bill of Materials (BOM)

The following table lists the bill of materials (BOM) for the Lenovo Hyper-V Ready Node ThinkSystem SR650 V4.

Table 2. Bill of materials (BOM) for the ThinkSystem SR650 V4 Hyper-V Ready Node

Machine Type/Model	Description	Qty
7DGDCTO1WW	Server: ThinkSystem SR650 V4 - 3yr Base Warranty	1
C3QK	ThinkSystem SR650 V4 24x2.5" Chassis	1
C5RD	Intel Xeon 6515P 16C 150W 2.3GHz Processor	2
C3QR	ThinkSystem 2U V4 Performance Heatsink	2
C0U2	ThinkSystem 16GB TruDDR5 6400MHz (1Rx8) RDIMM	8
BGM1	ThinkSystem RAID 940-8i 4GB Flash PCIe Gen4 12Gb Adapter for U.3	1
C0ZU	ThinkSystem 2.5" U.2 VA 3.84TB Read Intensive NVMe PCIe 5.0 x4 HS SSD †	8
C46P	ThinkSystem 2U V4 8x2.5" NVMe 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
BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1
C0U5	ThinkSystem 1300W 230V/115V Platinum CRPS Hot-Swap Power Supply v2.4	2
B5T1	ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter	1
BN2T	ThinkSystem Broadcom 57414 10/25GbE SFP28 2-Port OCP Ethernet Adapter	1
BK1J	ThinkSystem Broadcom 57508 100GbE QSFP56 2-Port PCIe 4 Ethernet Adapter	1
C3RQ	ThinkSystem 2U 6038 24K Standard Fan Module	6
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

† Note: VA (Value Add) Drive based Storage Spaces Direct (S2D) configurations are not supported by Microsoft on this solution; ThinkAgile platforms are required for supported SDS deployments

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For More Information

For more information, visit these resources:

- To learn more about this Lenovo solution contact your Lenovo Business Partner or visit: https://www.lenovo.com/au/en/c/servers-storage/servers/racks/
- Implementing Hyper V on Microsoft Windows Server 2025: https://lenovopress.lenovo.com/lp2198-implementing-hyper-v-on-microsoft-windows-server-2025
- Lenovo ThinkSystem SR650 V4 https://www.lenovo.com/au/en/p/servers-storage/servers/racks/lenovo-thinksystem-sr650-v4/len21ts0042
- ThinkSystem SR650 V4 product guide https://lenovopress.lenovo.com/lp2127-thinksystem-sr650-v4-server

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Related product families

Product families related to this document are the following:

- ThinkSystem SR650 V4 Server

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