StorMagic

Lenovo

SOLUTION BRIEF

StorMagic SvSAN WITH LENOVO THINKSYSTEM

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INTRODUCTION

An efficient, low cost storage solution that has the flexibility to scale with demand is something all organizations should be striving to achieve. No-one should be paying more than they need to for their storage infrastructure and its ongoing operation and maintenance, regardless of their performance requirements. It is with this in mind that StorMagic and Lenovo have partnered to provide a range of solutions for the cost-conscious storage architect that don't compromise on performance and enable hyperconvergence. This data sheet details these solutions which leverage Lenovo's ThinkSystem range of rack servers alongside StorMagic SvSAN.

HIGH PERFORMANCE WITHOUT THE HIGH COSTS

The partnership between StorMagic and Lenovo covers all of Lenovo's ThinkSystem rack servers, however this data sheet deals with the three most commonly deployed models. The joint solution combines Lenovo's renowned server performance and reliability with StorMagic SvSAN's storage high availability and simplicity. The two deliver a full solution which provides low-cost, lightweight storage and is therefore ideally suited for edge computing and remote site locations, or SME data center deployments.

FUTURE-DEFINED SERVER HARDWARE

ThinkSystem servers are purpose-built to deliver performance, security and agility in an open environment that won't limit options in future. With developments in IoT and artificial

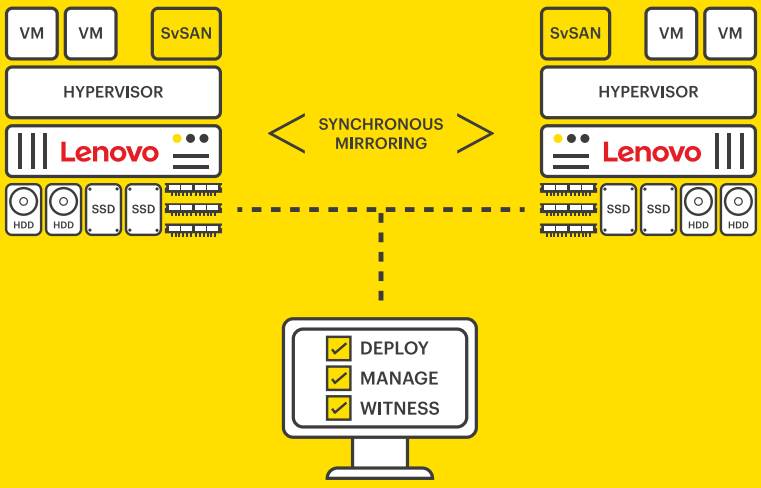

Fig. 1: A typical two-node SvSAN configuration

intelligence likely to increase the strain on IT infrastructure outside of the data center, organizations need hardware that can easily meet new challenges. Lenovo rack servers offer the unmatched value, flexibility and industry-leading efficiency to meet mission-critical demands with legendary quality and reliability.

Explore Lenovo's ThinkSystem range in more detail on the **Lenovo website**.

SIMPLIFYING STORAGE AT THE EDGE

SvSAN is the virtual SAN that makes the complex world of virtualized storage simple. Perfect for edge computing environments, the technology is based on software-defined storage that eliminates the need for physical SANs. SvSAN is designed to be very simple to install and manage whether deployed as part of a hyperconverged solution or as a storage-only target for any Lenovo server. SvSAN has very low system hardware requirements, centralized management/deployment and an **incredibly lightweight witness** that tolerates low bandwidth, high latency links and is completely separate from the server cluster. The witness allows for the creation of genuine 2-node highly available clusters, or 3-node clusters that can withstand an offline server due to either failure or maintenance and still maintain high availability.

The following table illustrates SvSAN's minimum hardware requirements:

CPU	1 x virtual CPU core[1] • 2 GHz or higher reserved
Memory	1GB RAM[2]
Disk	2 x virtual storage devices used by VSA • 1 x 512Mb Boot Device • 1 x 20Gb Journal Disk
Network	1 x 1Gb Ethernet • Multiple interfaces required for resiliency • 10Gb Ethernet supported • Jumbo frames supported

[1] When using SvSAN's data encryption feature to encrypt data, 2+ virtual CPUs are recommended
[2] Additional RAM may be required when caching is enabled

SvSAN is licensed based on the usable VSA (Virtual Storage Appliance) capacity. License tiers are set at 2TB, 6TB, 12TB, 24TB, 48TB and

> *"SvSAN makes the complex world of virtualized storage simple."*

Unlimited TB. SvSAN licenses are perpetual – after a single payment they can be used forever. The only ongoing costs are for support renewal payments.

All of the features necessary for highly available shared storage are included in an SvSAN license. There are also two performance and security-enhancing add-ons available, which are SvSAN's caching and data encryption features. All of SvSAN's features, including caching and encryption, can be explored in more detail on the **StorMagic website**.

SvSAN's data encryption feature enables organizations to encrypt the data being mirrored by SvSAN. This allows vulnerable edge sites and the data they hold to be protected. It is FIPS 140-2 compliant, eliminates the need for expensive OS or hypervisor-level solutions, and is compatible with any KMS that uses KMIP, including StorMagic's own key manager, **SvKMS**.

SvSAN Features
Synchronous mirroring / high availability
Stretch / metro clusters
Volume migration
VSA restore (VMware only)
VMware vSphere Storage API (VAAI) support
Centralized management and monitoring
Multiple VSA GUI deployment and upgrade
I/O performance statistics
Witness
PowerShell script generation
Additional add-on features available:
Predictive read ahead caching (SSD and memory)
Write back caching (SSD)
Data pinning
Data encryption

Further details about SvSAN's features, capabilities and requirements can be found in the **product data sheet** and **technical overview white paper**.

COMMONLY-SEEN DEPLOYMENTS

The three server models on the last page are the most frequently deployed with SvSAN from the Lenovo ThinkSystem range. However, SvSAN is compatible with all Lenovo servers, giving the storage architect a huge range of possibilities.

MORE INFORMATION AND NEXT STEPS

There is a wealth of information available on the ThinkSystem server range on the **Lenovo website**, including individual data sheets for each server model. Likewise, StorMagic has a **library of documentation** on SvSAN, including installation guides, white papers and data sheets.

StorMagic SvSAN is available on Lenovo's worldwide price list, ensuring any Lenovo salesperson or reseller can create a server configuration with SvSAN included. Combining Lenovo servers with SvSAN software has never been easier. Furthermore, the Lenovo team within StorMagic are ready to provide information and assistance on the partnership and its possibilities. Simply email **sales@stormagic.com** to reach out.

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	ThinkSystem SR250	ThinkSystem SR530	ThinkSystem SR650
			
Overview	The Lenovo ThinkSystem SR250 is a single-processor rack server that integrates power, reliability, flexibility, and security in a compact 1U form factor suited for the small-to-medium business. The SR250 boasts a high price-performance ratio with a combination of high-processing capability and dependability with next-generation Intel® Xeon® E-2100 processors and support for an array of storage configurations.	Lenovo ThinkSystem SR530 is an ideal 2-socket 1U rack server for small businesses up to large enterprises that need industry-leading reliability, management, and security, as well as cost-optimized performance and flexibility for future growth.	For medium to large enterprises, and managed and cloud service providers, Lenovo ThinkSystem SR650 is the optimum 2U, two-socket server—the most widely used server type worldwide.
Example deployment	Remote healthcare clinics with small hardware requirements but a need for highly available patient care applications and secure storage for patient data.	Manufacturing plant for which plant operations, machine data collection, and IoT devices require high availability and real-time processing.	Retail customer with many in-store applications such as point of sale, inventory tracking , customer analytics, and video surveillance.
Form factor/ height	1U rack, Height: 43mm, Width: 434.6mm, Depth: 497.8mm (19.6")	1U Rack	2U Rack Server
Processor (max)/cache (max)	1-socket Intel® Xeon® E-2100 processors, up to 6 cores at 95W	Up to 2x Intel® Xeon® Platinum processors, up to 125W	Up to 2x Intel® Xeon® Platinum processors, up to 205W
Memory	Up to 64GB of 2666MHz TruDDR4 ECC UDIMMs (4 slots)	Up to 768GB in 12x slots, using 64GB DIMMs 2666MHz TruDDR4	Up to 3TB* in 24x slots, using 128GB* DIMMs; 2666MHz TruDDR4 *1.5TB at GA; 128GB DIMMs available in the near future. Available prior to GA via special bid.
Expansion slots	1 x 16-lane or 2x 8-lane PCIe 3.0 slots 4-lane PCIe Gen3, x8 internal RAID slot	Up to 3x PCIe 3.0, via multiple riser options (either all-PCIe, or PCIe and ML2)	Up to 7x PCIe 3.0 via multiple riser options including 1x dedicated PCIe slot for RAID adapter
Drive bays	4x 3.5" simple- or hot-swap SATA drives 4x 2.5" simple-swap SATA/SAS drives 10x 2.5" hot-swap SATA/ SAS/ SSD drives 8x 2.5" hot swap SATA/SAS/SSD drives + 2 x 2.5" NVMe drive	Up to 8 bays. SFF: 8x HS SAS/SATA; or LFF: 4x HS SAS/SATA; or 4x simple-swap (SS) SATA; PLUS up to 2x mirrored M.2 boot (opt. RAID 1	Up to 24 HS bays (incl. 4 or 8 AnyBay): plus up to 2x mirrored M.2 boot (opt. RAID 1)
HBA/RAID support	Software RAID supports simple swap and hot swap Multiple RAID configurations (common with ThinkSystem)	Software RAID std. (up to 8 ports); opt. hardware RAID (up to 8 ports) with flash cache; up to 8-port HBAs	Hardware RAID (up to 24 ports) with flash cache;up to 16-port HBAs
Security and availability features		TPM 1.2/2.0; PFA; HS/redundant drives and PSUs; operating temp up to 45°C (with limitations); front-access diagnostics via dedicated USB port	TPM 1.2/2.0; PFA; HS/redundant drives, fans, and PSUs; 45°C continuous operation; light path diagnostic LEDs; front-access diagnostics via dedicated USB port
Network interface	2x 1GbE ports embedded, 1x 1GbE dedicated management	2x 1GbE ports + 1x dedicated 1GbE management port (std); optional modular LOM supports 2x 1GbE Base-T or 2x 10GbE with Base-T or SFP+	2/4-port 1GbE LOM; 2/4-port 10GbE LOM (Base-T or SFP+); 1x dedicated 1GbE mngmt port
Power	Fixed power supply unit 300W Gold, dual redundant AC (450W, Platinum)	2x hot-swap/redundant (Energy Star 2.1): 550W/750W 80 PLUS Platinum; or 750W 80 PLUS Titanium	2x hot swap/redundant: 550W/750W/1100W/1600W 80 PLUS Platinum; or 750W 80 PLUS Titanium
Systems management	Lenovo XClarity, Administrator with mobile option, optional National Z TPM 2.0	XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management	XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management
Operating systems supported	Microsoft, Red Hat, SUSE, and VMware ESXi	Microsoft Windows Server, SLES, RHEL, VMware vSphere. Visit lenovopress.com/ osig for details.	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere. Visit lenovopress. com/osig for details.
Limited warranty	1-year or 3-year warranty	1- and 3-year customer replaceable unit and onsite service, next business day 9x5, opt. service upgrades	1- and 3-year customer replaceable unit and onsite service, next business day 9x5, opt. service upgrades