StorMagic

DATA SHEET

STORMAGIC SvSAN
A VIRTUAL SAN MADE SIMPLE

StorMagic SvSAN

StorMagic SvSAN is a software-defined storage solution designed to run on two or more servers. It is uniquely architected with the combination of a light footprint, availability out-of-the-box, uncompromising performance and centralized management and deployment across a remote and branch office environment.

SvSAN eliminates the need for a physical SAN which are costly, complex and present a single point of failure. With high availability out-of-the-box, business critical applications and IT services suffer no downtime and the removal of a SAN along with the low cost of commodity servers and storage lowers IT acquisition and operating cost. Thousands of large organizations and SMEs across 72 countries have already chosen SvSAN to modernize their IT infrastructure.

SvSAN supports the industry leading hypervisors, VMware vSphere and Microsoft Hyper-V. It is installed as a Virtual Storage Appliance (VSA)
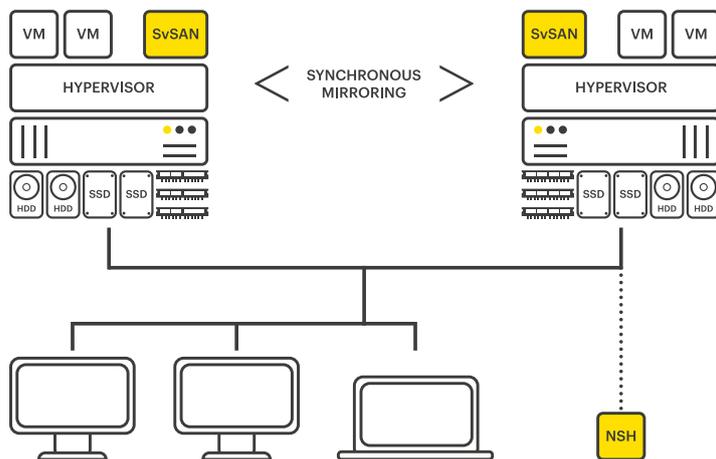
requiring minimal server resources to provide the shared storage necessary to enable the advanced hypervisor features such as High-Availability/Failover Cluster, vMotion/Live Migration and VMware® Distributed Resource Scheduler (DRS)/Dynamic Optimization.

SvSAN can be deployed as a simple 2-node cluster, with the flexibility to meet changing capacity and performance needs. This is achieved by adding additional capacity to existing servers or by growing the SvSAN cluster, without impacting service availability. A typical 2-node SvSAN configuration is shown in fig. 1.

SvSAN features overview

Synchronous mirroring/high availability

SvSAN synchronous mirroring ensures data is written to two SvSAN VSA nodes to protect against hardware failures and to ensure service uptime. Write operations only complete once acknowledged on both SvSAN VSAs. SvSAN clustering delivers the availability required by critical applications through monitoring

Fig. 1: A typical two-node SvSAN configuration

the health of the SvSAN infrastructure and failing over the service to other available resources in the event of a hardware failure.

Stretched/metro cluster support

SvSAN stretched clusters provide additional levels of resiliency eliminating the data center from being the single point of failure. VSAs can be geographically separated enabling copies of data to be stored in two separate locations.

Volume migration

The SvSAN volume migration feature transparently and non-disruptively migrates volumes from one storage location to another. Both simple and mirrored targets can be migrated between storage pools on the same SvSAN VSA node or to another SvSAN VSA node entirely. Users can ensure that storage targets are optimally distributed and load-balanced over all the available SvSAN resources.

VSA restore (VMware only)

SvSAN VSA Restore simplifies and automates the recovery process of a SvSAN VSA node following a server failure or replacement, speeding up the recovery process and reducing the time to return storage to its optimal state.

- All SvSAN VSA configuration changes are automatically tracked and stored on another SvSAN VSA in the same cluster
- Mirror targets are automatically rebuilt and resynchronized, enabling highly available shared storage to be quickly returned to optimal service
- Simple targets can be automatically recreated, ready for data recovery from backup

VMware vSphere storage APIs – array integration (VAAI) support (VMware only)

Accelerating VMware I/O operations by offloading them to SvSAN.

- Supports the Write Same and Atomic Test & Set (ATS) primitives

Atomic Test & Set (ATS)

An enhanced locking mechanism designed to replace the use of SCSI reservations on VMFS volumes that provides granular locking of disk sectors rather than the whole disk, reducing disk contention issues and allows VMFS volumes to scale to much larger sizes.

Write Same

One of the most common virtual disk operations and is used to zero portions of the disk for:

- Cloning operations for "eagerzeroedthick" virtual disks
- Allocating new file blocks for thin provisioned virtual disks
- Initializing previous unwritten file blocks for "zerothick" virtual disks

Centralized monitoring and management

Monitor & manage SvSAN VSAs remotely from a single location. Multiple management options including WebGUI to perform individual VSA point management.

- PowerShell CLI for automated scripted VSA deployments, configuration, and management
- SvSAN plug-in provides seamless Integration with the VMware vCenter Web Client enabling alerts to be forwarded and captured on a single pane of glass
- Email Alert Notification using SMTP
- SNMP Integration with support for v2 & v3

Remote shared quorum

The Neutral Storage Host (NSH), acts as a quorum or tiebreaker and assists cluster leadership elections to eliminate "split-brain" scenarios.

A single NSH can be shared between multiple remote sites and employs a lightweight

communication protocol, making efficient use of the available network connectivity allowing it to tolerate low bandwidth, high latency WAN links. A number of supported NSH configurations are available including, local quorum, remote shared quorum or no quorum to suit different customer requirements.

I/O performance statistics

I/O performance statistics provide granular, historical I/O transaction, throughput and latency statistics for each volume, simplifying the troubleshooting of I/O performance issues, or identify I/O trends or patterns.

- Simple, intuitive graphical presentation
- Per iSCSI target statistics
- Displays minimum, maximum, and average values for daily, monthly, yearly time periods
- Data can be exported to CSV for further analysis

Multiple VSA deployment and upgrade

SvSAN has added improvements to the VSA deployment and upgrades. including the ability to deploy multiple VSAs through a single wizard, reducing the time to deploy SvSAN.

In addition to initial deployment, enhancements have been made to the StorMagic dashboard enabling multiple VSAs to be upgraded at the same time. Firmware is selected from a repository and installed onto multiple VSAs. This can be installed immediately or staged where the firmware is uploaded to the VSA in preparation for a later upgrade, for example, out-of-hours.

SvSAN handles the dependencies and performs a health check ensuring that there is no impact to environments during upgrades.

PowerShell script generation

When deploying SvSAN via the GUI it is now possible to automatically generate a custom PowerShell script. These scripts can then be used for mass deployments for large environments removing the need for user interaction.

Predictive Storage Caching

SvSAN includes several I/O acceleration features using both SSD and memory, collectively known as Predictive Storage Caching. These leverage intelligent patent-pending algorithms and include write back SSD caching, predictive read ahead caching and data pinning. These can be used independently or together depending on the application requirements.

Write back caching utilizes SSDs to improve the performance of all write operations by lowering latencies and increasing the effective IOPS, resulting in faster response times, especially for random write workloads. All write I/O's are directed to the SSD allowing completion to be immediately acknowledged back to the server, at a later time the data is written from SSD to the hard disk.

Predictive read ahead caching is primarily beneficial to sequential read workloads with the aim to populate a small amount of memory with data prior to being requested. This approach improves storage performance by reducing the number of I/O requests going to disk and serving data from low latency memory.

Data pinning allows data to permanently reside in memory, ensuring that data is always available in the highest performing, lowest latency cache tier. This is particularly suitable for operations that are frequently repeated, for example booting virtual machines or end of month processing, as it allows the memory cache to be "pre-warmed" ahead of time.

The intelligent caching algorithms ensure the efficient use of all available cache resources. This is achieved by identifying only the frequently read data or 'hot' data, and promoting it to the highest

"StorMagic SvSAN is exactly what we needed to deliver the uptime and simplicity of management - while keeping to a very tight budget."

Julian Vella, Senior Engineer - IT Systems, Mediterranean Bank

performing, lowest latency storage tier (memory or SSD). Infrequently read or 'cold' data remains on the lowest cost, high capacity storage (hard disk). This process stores meta-data about access frequency in any available memory location that is not being used for read-ahead or data pinning.

SvSAN system requirements

SvSAN has the following minimum hardware requirements:

CPU	1 x virtual CPU core • 2GHz or higher reserved
Memory	1GB RAM[1]
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 is supported • Jumbo frames supported

[1]Additional RAM required when caching is enabled

SvSAN works with any x86 server that exists on the VMware vSphere ESXi or Microsoft Hyper V Hardware Compatibility List (HCL). SvSAN will work with any supported internal server disk storage or JBOD array.

Hypervisor support

SvSAN works with industry standard hypervisors and is supported on the following versions of VMware vSphere ESXi and Microsoft Windows Server/Hyper-V Server:

Hypervisor		StorMagic SvSAN				
		5.1	5.2	5.3	6.0	6.1
VMware	VMware vSphere 5.5 & updates	●	●	●	●	
	VMware vSphere 6.0 & updates		●	●	●	●
	VMware vSphere 6.5 & updates				●	●
Microsoft	Microsoft Windows Server 2012	●				
	Microsoft Hyper-V Server 2012	●				
	Microsoft Windows Server 2012 R2	●	●	●	●	●
	Microsoft Hyper-V Server 2012 R2	●	●	●	●	●
	Microsoft Windows Server 2016				●	●
	Microsoft Hyper-V Server 2016				●	●

VMware vCenter support

	StorMagic SvSAN				
VMware vCenter version	**5.1**	**5.2**	**5.3**	**6.0**	**6.1**
VMware vSphere 5.5 & updates	●	●	●	●	
VMware vSphere 6.0 & updates		●	●	●	●
VMware vSphere 6.5 & updates				●	●

NSH operating system requirements

The SvSAN NSH can be installed onto a physical server or virtual machine with the following operating systems:

- Microsoft Windows Server 2012 R2 (64-bit)
- Microsoft Hyper-V Server 2012 R2 (64-bit)
- Microsoft Windows Server 2016 (64-bit)
- Microsoft Hyper-V Server 2016 (64-bit)
- Raspbian Jessie (32-bit)[1]
- VMware vCenter Server Appliance (vCSA)[2]
- StorMagic SvSAN NSH Appliance

[1]On Raspberry Pi 1, 2 and 3
[2]VMware vSphere 5.5 and higher

NOTE: The NSH should be installed onto a server separate from the SvSAN VSA.

SvSAN licensing

StorMagic SvSAN is licensed based on usable VSA storage capacity.

SvSAN licenses are:

- Available for 2TB, 6TB, 12TB & Unlimited usable storage capacities.
- Available in either Standard or Advanced edition (see features table opposite).
- Perpetual - one single payment and the licenses are yours forever. Only renew your Maintenance & Support when required.
- Pricing is based on a 2 node license bundle, with one license key per server (single licenses also available)

For SvSAN license pricing please contact sales@stormagic.com

Evaluation licenses

A free, fully functional evaluation of SvSAN is available to download, enabling organizations to trial and experience the features and benefits of SvSAN, before purchasing.

For more information and to download an evaluation copy, visit:
stormagic.com/trial

During the trial period, evaluators will receive support and assistance with the first installation and a product demonstration.

Standard and Advanced

SvSAN is available in Standard or Advanced Edition. The features included in each are below:

SvSAN features	Standard	Advanced
Synchronous mirroring/high availability	●	●
Stretched/metro cluster support	●	●
Volume migration	●	●
VSA restore (VMware only)	●	●
VMware vSphere Storage API (VAAI) support	●	●
Centralized monitoring and management	●	●
Remote shared quorum	●	●
I/O performance statistics	●	●
Multiple VSA GUI deployment and upgrade	●	●
PowerShell script generation	●	●
Write back caching (SSD)		●
Predictive read ahead caching (SSD and memory)		●
Data pinning		●

SvSAN Maintenance & Support

SvSAN Maintenance & Support provides organizations with access to StorMagic support resources, including product updates, knowledgebase access, live-chat and email support with our technical support staff.

Two levels are available. A summary of each is shown in the table below:

	Gold Support	Platinum Support
Hours of operation	9 hours a day Monday – Friday	24 hours a day* 7 days a week
Length of service	1, 3 or 5 years	1, 3 or 5 years
Product updates	Yes	Yes
Product upgrades	Yes	Yes
Access method	Email Web chat	Email Web chat Telephone
Response method	Email Telephone	Email Telephone
Remote support / WebEx	Yes	Yes
Access to knowledge base	Yes	Yes
Access to documentation	Yes	Yes
Disaster recovery assistance	No	Yes
Performance tuning	No	Yes
Upgrade assistance	No	Yes
SAN solution configuration	Yes	Yes
Maximum number of support administrators per contract	2	4
Number of support requests	Unlimited	Unlimited
Target Response Times		
– Low	12 business hours	8 business hours
– Medium	8 business hours	4 business hours
– Critical	4 business hours	1 hour (24/7/365)
Business hours	Monday - Friday	Monday - Friday
Europe	8am - 8pm (GMT/BST)	8am - 8pm (GMT/BST)
North America	5am - 5pm (CST/CDT)	5am - 5pm (CST/CDT)

*Global, 24x7 support for critical issues
More information on SvSAN Maintenance & Support can be found at
support.stormagic.com

"In minutes we were able to present datastores to our environment. Working with the technical support was nothing short of awesome."

**George Knops, Network Administrator,
City of Milwaukee Water Works**

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