# A Comparison of How StorMagic SvSAN and VMware vSAN Deliver on Enterprise Edge Computing and Storage Requirements

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## PRODUCTS

### StorMagic SvSAN

URL ▶ https://stormagic.com/svsan/

StorMagic, Ltd.

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Eastgate Road
Bristol GS5 6XX

**US LOCATION**
255 Primera Blvd, Suite 160
Lake Mary, FL 32746
(800) 517-5282

### VMware vSAN

URL ▶ https://www.vmware.com/products/vsan.html

VMware, Inc.
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Palo Alto, CA 94304
(650) 427-5000

## Bundling Enterprise Features in a Small Package

Organizations crave information and insights from their data faster than ever. They also want to obtain these insights as economically and practically as possible. The challenge becomes processing this data where they collect it, wherever in the world that data may exist.

Historically, they would gather, transmit, and then store and process their data centrally. However, large enterprises with edge locations, small data centers and small and mid-sized businesses (SMBs) each generate increasing amounts of data that they must quickly and cost-effectively process. To remedy this situation, they turn to edge computing solutions that possess enterprise features to perform these tasks.

Maturing technologies equip them to generate, store, process, and transmit data in ways not easily achieved before. Available at attractive price points, these technologies include: 5G cellular; the Internet of Things (IoT); more powerful processors; denser, faster storage media; and, resiliency at the edge.

StorMagic and VMware have each come to market with hyperconverged storage solutions designed to meet these new enterprise requirements of these locations. Their solutions each virtualize internal server disk drives and deliver high levels of availability and performance. Despite these similarities, distinct differences exist between their products.

## Differentiator #1: Hardware Configuration

By historical benchmarks, and thanks to continued technology advancements, both products deliver enterprise hardware functionality in a small footprint. They each support large amounts of highly performing and dense storage capacity, highly performing CPUs, and lots of memory.

To properly evaluate these two products from a hardware perspective, one must look beyond their baseline specifications. One should additionally examine the flexibility that each product gives organizations to deploy it in their respective locations.

Of the two, VMware vSAN has more stringent hardware requirements. The VMware Validated Design for Remote and Branch Office (ROBO) stipulates higher, minimum hardware specifications than the StorMagic SvSAN.[1]

VMware vSAN requires hardware from VMware's approved, certified vendor list. vSAN also necessitates that organizations use identical hardware and software configurations on each server in the cluster. Each server in the cluster must minimally contain 200GB of flash (SSD) for caching and 4TB of disk for capacity.

StorMagic SvSAN gives companies more flexibility than VMware vSAN to use multiple hardware types and configurations. It operates on hardware with lower, minimum specifications with no flash requirements. SvSAN can also support any vendor's server hardware in its cluster. Each server's hardware configuration may differ as long as each server in the cluster meets SvSAN's minimum hardware specifications. (See Figure 1.)

### Key Questions to Ask:

- How much processing power and storage capacity do your locations require?
- What networking capabilities and power are available at these locations?
- Does your company want or need flexibility in hardware when deploying a solution in these locations?
- How high of a baseline do you want to set for hardware used in these locations?

**FIGURE 1**

### Minimum Hardware Requirements
#### Comparison Summary

| | StorMagic SvSAN 6.2 | VMware vSAN 6.7 Update 3 |
|---|---|---|
| **Server Nodes** | 2 | 2 |
| **PER SERVER HW SPECS** | | |
| **CPU** | 1 vCPU[2] | 1 Dual Core CPU or 2 CPUs |
| **Memory** | 1GB[3] | 32GB[4] |
| **Networking** | 1 x 1GbE | 1x1GbE—Hybrid disk configs<br>1x10GbE— All Flash configs[5] |
| **Storage** | 1 x 512Mb Boot Device[6]<br>1 x 20Gb Journal Disk[6] | One SSD (Min 200GB) RQD<br>4TB Capacity RQD[4] |

1. https://docs.vmware.com/en/VMware-Validated-Design/4.3/com.vmware.vvd.sddc-robo-plan.doc/GUID-8A20C816-0E1A-40FD-9EC9-0D3AAABF4094.html
2. 2+ vCPUs if encrypting data
3. More memory may be required if caching is enabled.
4. https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-4B738A10-4506-4D70-8339-28D8C8331A15.html
5. https://docs.vmware.com/en/VMware-vSphere/6.7/vsan-673-planning-deployment-guide.pdf
6. Device may be HDD or SSD

- Do you anticipate your hardware needs changing over time at your different sites?

- Will all sites have identical servers? Can they all have identical servers?

- Would your organization benefit from the flexibility to build clusters from different hardware configurations?

## Differentiator #2: Hypervisor Support & Licensing

StorMagic and VMware take distinctly different positions with their hypervisor support and in their software licensing options. On the VMware vSAN side, vSAN only supports one hypervisor, VMware vSphere, with VMware offering five ways for organizations to license it. These include:

- Standard
- Advanced
- Enterprise
- Enterprise Plus
- ROBO[7]

Organizations may license Standard, Advanced, and Enterprise editions per-CPU, per-VDI, and per-VM. By starting with a Standard license, they may later upgrade to Advanced, Enterprise or Enterprise Plus editions of vSAN. Organizations should note that VMware only makes its Enterprise Plus edition available with per-CPU licensing.

vSAN ROBO only ships in 25 VM license packs. If an organization grows and needs to support more than 25 VMs, it only has two options. It must either buy another 25 VM vSAN ROBO license or buy one of VMware's four vSAN enterprise licenses. Organizations should keep in mind VMware provides no upgrade or conversion path from vSAN ROBO to its other vSAN offerings.[8]

StorMagic SvSAN handles hypervisor support and software licensing differently than VMware vSAN. First, organizations may deploy SvSAN in conjunction with any of three hypervisors: VMware vSphere, Linux KVM and Microsoft Hyper-V. This way organizations may deploy any hypervisor at their remote locations or change hypervisor strategies if needed.

Second, StorMagic offers a perpetual, capacity-based software license scheme. Licenses start at 2TB and go up to unlimited amounts of usable capacity. Further, organizations may simply upgrade them from one capacity tier to the next without downtime. This approach imposes no limits on the number of VMs that organizations wish to connect to their SvSAN deployment.

The SvSAN software license remains in effect in perpetuity—even without a support contract. Organizations with support contracts receive the added benefits of receiving free software updates and bug fixes and they can move the license from one hardware platform to another. In this way, they can change or refresh their hardware without incurring additional or new licensing charges. (See Figure 2.)

### Key Questions to Ask:
- What hypervisors will you need to support at your locations?
- Do you anticipate needing to support more hypervisors?
- Do you want the flexibility to change your hypervisor strategy?
- How many VMs will you need to support at each location? In total?
- How simple do you want or need your software licensing to be?

| | FIGURE 2 | |
|---|---|---|
| | **Hypervisor & Licensing** Comparison Summary | |
| | **StorMagic SvSAN** 6.2 | **VMware vSAN** 6.7 Update 3 |
| **Hypervisors** | Linux KVM Microsoft Hyper-V VMware vSphere | VMware vSphere |
| **Licensing** | Capacity-based | Per-CPU, Per-VDI, Per-VM, & Per 25-pack of VMs Options |
| **Software Cost** | Starts at $3,100/2TB for two servers | Starts at $2,495/CPU per server[9] |

## Differentiator #3: High Availability Configuration

Remote sites and small data centers increasingly require the same levels of high availability (HA) that large corporate data centers do. However, these smaller sites lack access to enterprise data center resources and budgets. To help smaller sites overcome these limitations and deliver HA, StorMagic and VMware both:

1. Deploy two clustered servers at each location.

2. Use a third server that functions as a Witness Host.

### The Witness Host

The purpose of the clustered servers is self-evident. However, the role the Witness Host plays requires a short explanation. Organizations create clustered server configurations for HA so that in the event one server fails, the other may continue processing. That approach works fine so long as a server truly fails.

The problem emerges when the two servers in a cluster cannot communicate with one another. This may occur if the network link between them fails. In this circumstance, each server thinks the other has failed and it needs to take over all processing. If both try to do so at the same time, they can result in corrupted data and outages.

A Witness Host resolves this issue. If the communication between the clustered servers fail, each one first checks with the Witness Host before it takes over all processing. The Witness Host then elects one of the two servers to assume all processing while the other stands by.

### The Witness Host Configurations

Here again, StorMagic and VMware offer different Witness Host configurations for their respective clusters. VMware vSAN assigns a separate, dedicated VM to function as a Witness Host for each remote site cluster. This Witness Host VM usually runs at another site (generally a central data center). It then communicates with the remote site over a 1.5Mbps WAN link and can support latencies of up to 200ms.

Like VMware vSAN, the StorMagic SvSAN also uses a VM running in another location to function as the Witness Host for the cluster. However, the similarities largely end there. Each SvSAN Witness Host can support up to 1,000 SvSAN clusters and it only needs 9Kbps of bandwidth per mirrored volume. It accommodates for the reduced bandwidth by supporting latencies of up to 3000 ms.

The differences between these two solutions become more apparent at scale. Large enterprises that have hundreds or thousands of remote sites

7. https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/vsan/vmware-vsan-67-licensing-guide.pdf pg 4
8. Ibid, pg 6
9. https://www.networkworld.com/article/3243579/review-vmware-s-vsan-6-6.html

may need as few as one central StorMagic Witness Host. It may run on a single VM with lower minimum hardware requirements than VMware's vSAN witness. The StorMagic Witness Host can also communicate with remote sites using existing cellular or satellite links without saturating them.

The StorMagic SvSAN's 3000 ms latency also makes it more tolerant of disruptions in these networks. Its high latency tolerance and low bandwidth requirements make it well-suited to deploy HA configurations almost anywhere in the world. Further, StorMagic SvSAN supports stretch cluster configurations as a core product feature. Used this way, organizations may place two servers in different buildings or even different cities to better protect against disasters.

## Differentiator #4: Management

To effectively and successfully deploy HA in remote sites, no organization can overlook the management of this solution at scale. Their ability to centrally, easily, and cost-effectively manage it should influence how widely they deploy and adopt it.

Both VMware and StorMagic bring different strengths to the table. VMware includes vSAN as part of its broader data availability and management suite. Using vSAN, organizations can manage it in VMware vCenter and use it alongside VMware DRS, vRealize, and other VMware products. To do this, however, organizations will first need to invest in the appropriate hardware and infrastructure to make this a reality.

StorMagic SvSAN can also plug into VMware vCenter for single pane-of-glass management. Using the StorMagic vCenter plugin, organizations may simply and non-disruptively perform SvSAN upgrades. In this way they may administer upwards of thousands of remote sites per location or the entire estate through vCenter.

Further, StorMagic may run on other remote management suites that organizations may find more cost-effective and practical for their environments. Taking this approach, organizations may use almost any hardware to host SvSAN—which remote offices often require. They can also use existing or more cost-effective, low bandwidth networking connections to manage these remote sites.

### Key Questions to Ask:

- Who will be responsible for providing support at each location?
- How quickly can new equipment be onsite to replace failed equipment?
- Do you need the flexibility to use alternative hardware configurations?
- Does each location have personnel on-site to perform some IT tasks?
- Are the applications running in each location static or constantly changing?

**FIGURE 3**

## Witness Host HA Configuration
### Comparison Summary

| | StorMagic SvSAN 6.2 | VMware vSAN 6.7 Update 3 |
|---|---|---|
| Witness Host (WH) | 1 WH for every 1000 SvSAN Clusters | 1 WH per vSAN Cluster |
| CPU & Memory Min RQD | 1 vCPU 512MB Memory | 2 vCPUs 8GB Memory |
| Network BW per Site (Min RQD) | 9Kbps | 1.5Mbps |
| Sample Networks | 3G Cellular Satellite | T-1 WAN Link |
| Latency (Max) | 3000 ms | >11 Hosts - 100 ms <11 Hosts - 200 ms vSAN ROBO – 500 ms[10] |

## StorMagic SvSAN—A Practical, Sustainable Edge Computing Solution

Both StorMagic SvSAN and VMware vSAN provide organizations with viable options to deploy edge computing solutions in their remote offices. VMware vSAN brings to the table all the strengths of the broader VMware software portfolio. In using VMware vSAN, organizations can tap into all these resources.

That said, both large and small organizations that need to deliver HA to all their locations should consider StorMagic SvSAN. SvSAN only requires nominal amounts of hardware in both the central and remote sites to create an HA configuration. Organizations may select any hardware to host it and use any of the three leading hypervisors in conjunction with it.

Its low total cost of ownership (TCO) comes fully into view when one considers how little network bandwidth it consumes. It requires as little at 9Kbps of bandwidth that can operate over standard cellular and satellite links. Couple this with its low latencies and organizations may need to make no changes to existing remote office network links.

Any large enterprises with remote offices, small data centers or SMBs looking for a cost-effective, sustainable edge computing solution will find that StorMagic SvSAN fits the bill. StorMagic architected SvSAN to deliver the right balance of flexibility and simplicity to deliver HA in these locations. By deploying SvSAN, organizations can lay the foundation to glean the insights they need from these sites with nominal costs or hassle. ■

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10. https://docs.vmware.com/en/VMware-vSphere/6.7/vsan-673-planning-deployment-guide.pdf

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