MIGRATION GUIDE

VMware vSAN

How to migrate non-disruptively from VMware vSAN to StorMagic SvSAN

EXECUTIVE SUMMARY

The purpose of this document is to provide basic guidance for resellers and partners who are migrating customers from a VMware ESXi/vSAN 2-node architecture to a VMware ESXi and StorMagic SvSAN 2-node architecture.

IN-PLACE MIGRATION

SvSAN can present non-mirrored storage that can convert to mirrored, to enable storage high availability, later.

This enables an in-place, non-disruptive migration, detailed in the following steps.

Migration workflow

Due to the restrictions of VMware vSAN the below workflow is necessary, including a reinstall of VMware ESXi.

1	Clear node 2 and migrate all guest VMs to node 1
2	Reboot node 2, reinstall ESXi and scrub vSAN partitions
3	Deploy SvSAN to node 2
4	Migrate all guest VMs from node 1 to node 2
5	Reboot node 1, reinstall ESXi and scrub vSAN partitions
6	Deploy SvSAN to node 1 and mirror the storage with node 2
7	Enable VMware High Availability and any other hypervisor features required

TARGET AUDIENCE

Resellers and Partners - Sales and Technical

SvSAN presents storage over block iSCSI that can be shared to the same hosts for hyperconverged storage, or to any other iSCSI initiator hosts on the network. This enables a non-disruptive migration path with the VM migration tools included in all hypervisors.

FURTHER HELP

If you require additional assistance in migrating from VMware vSAN to StorMagic SvSAN, please contact support@stormagic.com

StorMagic

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www.stormagic.com

CLEAR NODE 2 AND MIGRATE ALL GUEST VMs TO NODE 1 1

(see figures 1 to 4)

Place node 2 in Maintenance Mode to migrate VMs to another node in the cluster, or alternatively, manually live migrate VMs, then place node 2 in Maintenance Mode.

Remove host from inventory.

VMware vSphere 7.0

https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.resmgmt.doc/GUID-8F705E83-6788-42D4-93DF-63A2B892367F.html

VMware vSphere 8.0

https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-resource-management/GUID-8F705E83-6788-42D4-93DF-63A2B892367F.html



. []] Vsdi-test-01	VSdirtest-Oi		
sc-vsan-01.ts.storm	sc-vsan-01.ts.stormagic.com		
sc-vsan-02.ts.stornGuestVM-01	Actions - sc-vsan-02.ts.stormagic.com		
贷 GuestVM-02	Deploy OVF Template Deploy OVF Template New Resource Pool St New VApp		
	Maintenance Mode Connection Power	 Entel Maintenance Mode Exit Maintenance Mode 	





Figure 2 - Disabling vSAN in Maintenance Mode

Warning sc-vsan-02.ts.stormagic.com X			
There are one or more powered on virtual machines on hosts: sc- vsan-02.ts.stormagic.com. The operation will proceed once all virtual machines are powered off or migrated to another host.			
ок			
Figure 3 - Maintenance Mode VM warning			

■ vSAN-01			
∼ [Ĵ∰ vsan-test-01	[🔐 vsan-test-01		
sc-vsan-01.ts.stormagic.com			
🖶 sc-vsan-02.ts.stormagic.com (Maintenance	Mode)		
GuestVM-01	Actions - sc-vsan-02.ts.stormagic.com (Maintenance Mode)		
🗊 GuestVM-02	🔂 New Virtual Machine		
	🔂 Deploy OVF Template		
	C New Resource Pool		
	Ea New vApp		
	ត្រូវ Import VMs		
	Maintenance Mode		
	Connection •		
	Power +		
	Certificates F		
	Storage •		
	付 Add Networking		
	Host Profiles		
	Export System Logs		
	Reconfigure for vSphere HA		
	😪 Assign License		
	Settings		
	Move To		
	Tags & Custom Attributes		
	Remove from Inventory		
Recent Tasks Alarms	Add Permission		
T T T			

Figure 4 - Remove Host (node 2) from Inventory

2 REBOOT NODE 2, REINSTALL ESXi AND SCRUB vSAN PARTITIONS

(see figures 5 to 10)

VMware ESXi 7.0.x install

https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.esxi.upgrade.doc/GUID-A33C4CAB-18EE-4C8C-A55D-8AD7E8042BFA.html

VMware ESXi 8.0.x install

https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-esxi-upgrade/GUID-A33C4CAB-18EE-4C8C-A55D-8AD7E8042BFA.html

Installation Complete

ESXi 7.0.3 will operate in evaluation mode for 60 days. To use ESXi 7.0.3 after the evaluation period, you must

To administer your server, navigate to the server's hostname or IP address from your web browser or use the Direct Control User Interface.

ESXi 7.0.3 has been installed successfully.

register for a VMware product license.

Welcome to the VMware ESXi 7.0.3 Installation			
VMware ESXi 7.0.3 installs on most systems but only systems on VMware's Compatibility Guide are supported.			
Consult the VMware Compatibility Guide at: http://www.vmware.com/resources/compatibility			
Select the operation to perform.			
(Esc) Cancel (Enter) Continue			

Figure 5 - ESXi Installer







After ESXi has been successfully reinstalled on node 2 and the host is manageable via an IP address, log into the ESXi Host Client, not via vCenter, to clear the old partitions on any VMware vSAN cache and capacity disks.

Go to Storage, then Devices, select the disk, then select clear partition table.

P					
← → C ONot secure	https://sc-vsan-02.ts.stormagic.com/ui/#/hos	st/storage/devices/0200000	0006000c295b1932dba93dc19fea3fb4b10566972747561		
vm ESXi Host Client					
Navigator « Not Not Mont Montor Virtual Machines Virtual Machines Virtual Machines Mone Storage More Storage Ø Networking 2	Local VMware Disk (naa.6000c255b193. Local VMware Dis	2dba33dc19fea3fb4b10) ipacity C Refresh sk (naa.6000c295b1	Actions naa 6000/2956/1932dba93dc19fea3fb4b10 Edit partitions Clar partition table Clar the partition table of this disk 19fea3fb4b10 gpt 02000000000000295b1932dba93dc19fea3fb4b105666972747561		
	+ Partitions > 1: vSAN > 2: vSAN	1 MB (1 blocks) 150 GB (153596 blocks)		- Partition diagram	1. vSAN (2 MB) 2. vSAN (150 GB)



VSAN-01 : ACTIONS Summary Monitor Configure Permissions	Hosts & Clusters VMs Datastores I	Networks Updates
Alarm Definitions Scheduled Tasks Network Protocol Profiles What is the Sto	VSAs Manage Storage Settings	
StorMagic Plugin V Management The StorMagic VSA is a datastores that reside		Storage
The StorMagic VSA ca mirrored storage, enab	1 Welcome 2 Host	The VSA requires storage from which to reallocate as shared storage. If you choose to skip storage configuration it can be configured later.
Basic Tasks	3 License Agreement 4 Deployment	 Allocate storage using raw device mapping. Allocate storage from an existing datastore. Skip storage allocation. Neither of the above options apply and you want to manually allocate storage to the VSA later.
合計 DEPLOY A VSA ONT 合計 DEPLOY VSAS ONTC	5 Storage	
CREATE A SHARED E	7 Networking	Datastore: 49.34 GB datastore1 >
6.3.100.15	8 Network Time Service 9 Licensing	Size: <u>49.34</u> <u>GB ~</u>
	10 Password	This provides lower performance than raw device mapping.
		CANCEL BACK NEXT

Figure 9 - VSA deploy wizard without vSAN partitions cleared

If the vSAN partitions are not removed, the VSA deploy wizard will not present the disks as available for use, believing them to already be consumed by something else.

Add the redeployed ESXi host to the existing vSAN Datacenter, **NOT the cluster** (vSAN will be reinstalled if this host is added to the cluster).



Figure 10 - ESXi host added to the Datacenter, not the cluster

VMware 7.0.x

https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.vcenterhost.doc/GUID-CCE2AEC1-FE9F-4387-8EBF-512CB4B51B26.html

3 DEPLOY SVSAN TO NODE 2

(see figures 11 to 20)

With the host added to vCenter, configure virtual switches for the ESXi host, based on your organization's network policies and requirements.

https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.esxi.install.doc/GUID-26F3BC88-DAD8-43E7-9EA0-160054954506.html

Deploy the StorMagic plugin to vCenter, if not already deployed.

https://stormagic.com/doc/svSAN/6-3-U1/en/Content/vSphere%20Plugin/Plugin_deploy_vsphere.htm

\equiv vSphere Client $$ Q	iene		C & Administ
	Summary Monitor Alarm Definitions Scheduled Tasks Network Protocol Profiles StocMage/Pulgin ~ Manugement	Configure Permissions Hosts & Clusters VMs Datastores Networks Updates Getting Started Manage VSAs Manage Storage Settings What is the StorMagic VSA The StorMagic VSA is a virtual storage appliance that allows you to create shared datastores that reside on your existing ESXI hosts. The StorMagic VSA can be configured to present datastores from multiple ESXI hosts as mirrored storage, enabling the use of high availability. Basic Tasks If DERLOY VAS ONTO A HOST If DERLOY VAS ONTO MULTIPLE HOSTS OERLOY WITRESS If CREAT VIRES CREAT & SHARED DATASTORE 6.3300.15 Store.	VIN StorMagic VIN Stor VIN Stor

Figure 11 - Deploy SvSAN Plugin to vCenter

Deploy a StorMagic VSA to the newly cleared ESXi host (node 2): https://stormagic.com/doc/svSAN/6-3-U1/en/Content/vsa-deploy-vs.htm

Deployment		Summary
You can change the defa consume 21 GB of disk sp	ault VSA hostname, domain name and datastore to install on. The StorMagic VSA will pace from the selected datastore.	When you click 'Finish', the deploy VSA task will be queued. You can view progress in Recent Tasks. The VSA will be powered on when deployment is completed.
VSA Hostname:	sc-vsa-02	Host: ESXiHostname: sc-vsan-02.ts.stormagic.com ESYiPorcupad: ***
VSA Domain Name:	ts.stormagic.com	Deployment:
Datastore:	70.34 GB datastore1 ~	VSAHOSTNAME: Sc-VSA-02.ts.Stormagic.com VSAPassword: *** Destination Datastore: localdatastore2 RAM: 3072 MB
		Storage:
		Keep VSA on deployment failure Download PowerShell script
	CANCEL BACK NEXT	CANCEL BACK FINISH

Figure 12 - Deploy a SvSAN VSA to the newly cleared ESXi host (node 2)



Create a non-mirrored datastore

As per the documentation at the link below, select the one StorMagic VSA and create an unmirrored datastore sharing to the ESXi hosts in the cluster.

https://stormagic.com/doc/svSAN/6-3-U1/en/Content/datastore-create-vs.htm

Create Datastore					
To create mirrored storage	e, select two VSAs.				Í
Datastore Name:	SvSANDatastore				
Size.	149.98	GB V			
5126.	145.50				
Available Space:	149.98 GB 🛛 🖌 Use all				\searrow
Make Spanned					
Make Encrypted					
VSA	↑ т	Free			
sc-vsa-02.ts.storma	gic.com	149.98 GB			
			CANCEL	ВАСК	NEXT

Figure 14 - Datastore creation wizard



Figure 15 - Non-mirrored storage creation message



Figure 16 - Optionally enable caching



Figure 17 - Share the datastore to both, and any additionally desired, ESXi hosts

Host Credentials			
Log into and authenticate each host.			
Host	↑ ▼ Authenticated		
sc-vsan-01.ts.stormagic.com	•••••• © LOG IN		
sc-vsan-02.ts.stormagic.com	Yes		

Figure 18 - Login to the ESXi hosts with the plugin

Host Credentials		
Log into and authenticate each host.		
Host	↑ ▼ Authenticated	
sc-vsan-01.ts.stormagic.com	Yes	
sc-vsan-02.ts.stormagic.com	Yes	

Figure 19 - Ensure the hosts are authenticated

Summary
When you click 'Finish', the create VMFS task will be queued. You can view progress in Recent Tasks.
Datastore:
Datastore: SvSANDatastore
Type: Simple
Size MB: 153588
Encrypted: No
ESXi Host Mounts:
Hostname: sc-vsan-02.ts.stormagic.com
Hostname: sc-vsan-01.ts.stormagic.com
VSA:
Hostname: sc-vsa-02.ts.stormagic.com
Pool: P1714562206446

Figure 20 - Datastore creation wizard summary

4 MIGRATE ALL GUEST VMs FROM NODE 1 TO NODE 2

(see figures 21 to 22)

Leveraging VMware VM Compute and Storage vMotion, or other tools, migrate the VMs from node 1 to the newly presented SvSAN storage and newly reprovisioned ESXi host (node 2).

2 Virtual Machines - N	<i>Migrate</i>							
1 Select a migration type 2 Select a compute resource	Select a migration type Change the virtual machines' compute resource, storage, or both.							
3 Select storage 4 Select networks 5 Select vMotion priority 6 Ready to complete	 Change compute resource only Migrate the virtual machines to another host or cluster. Change storage only Migrate the virtual machines' storage to a compatible datastore or datastore cluster. 							
	 Change both compute resource and storage Migrate the virtual machines to a specific host or cluster and their storage to a specific datastore or datastore cluster. Cross vCenter Server export Migrate the virtual machines to a vCenter Server not linked to the current SSO domain. 							



2 Virtual Machines - N	/ligra	te												×
 1 Select a migration type 2 Select a compute resource 	Select Select	storage the destination sto	orage	for the virtual	mac	hine migratio	on.							
3 Select storage 4 Select networks 5 Select vMotion priority 6 Ready to complete	BAT Select VM St	CH CONFIGURE virtual disk format orage Policy	GURE PER DIS	JRE PER DISK Same format as source v Keep existing VM storage policies v										
		Name	Ŧ	Storage Compatibility	Ŧ	Capacity	Ŧ	Provisioned T	Free	Ŧ	Туре	Ŧ	Cluster	T
	\bigcirc	localdatastor	re2			71.75 GB		21.99 GB	49.76 GB		VMFS 6			
	Compa	SVSANDatas	to s succ	eeded.		149.75 GB		1.41 GB	148.34 GB		VMFS 6			2 items
											CANCEL	[ЗАСК	NEXT

Figure 22 - Select the new SvSAN datastore to migrate the guest VMs to

After all VMs are migrated, validate that they are operational before proceeding.

5 REBOOT NODE 1, REINSTALL ESXI AND SCRUB vSAN PARTITIONS

(see figures 23 to 24)

Follow the below process for the remaining ESXi host and cluster (node 1):

- 1. On the VMware Cluster, disable DRS, if in use.
- 2. On the VMware Cluster, disable HA, if in use.
- 3. Under the Cluster > vSAN Services, turn off VMware vSAN.

Then, repeat the steps outlined earlier in this guide for clearing and reinstalling ESXi, this time on node 1:

- 1. Place Host in Maintenance Mode.
- 2. Remove Host from vSAN cluster.
- 3. Reinstall ESXi on this host.
- 4. Clear the old VMware vSAN partitions from the cache and capacity drives.
- 5. Add this ESXi host to the Datacenter, and provision a new cluster.

✓ III vSAN-01	I/O Filters	• // m vink0
 V (I) New Cluster 	Networking V	
 ở sc-vsan-01.ts.stormagic.com (Maintenance Mode) is vsan-test-01 is c-vsan-02.ts.stormagic.com is GuestVM-01 is GuestVM-02 is c-vsa-02.ts.stormagic.com 	Actions - sc-vsan-01ts stormagic.com (Maintenance Mode)	
	Maintenance Mode Connection Power	Enter Maintenance Mode

Figure 23 - Exit the Maintenance Mode

- 6. Drag both the ESXi hosts into the new cluster with vSAN disabled.
- 7. Configure virtual networking.

Virtual switches
✓ Standard Switch: vSwitch0 ADD NETWORKING EDIT MANAGE PHYSICAL ADAPTERS ····
S Management Network ···· Physical Adapters
VLAN ID:
VM Network ···· VLAN ID: Virtual Machines (0)
✓ Standard Switch: vSwitch1 ADD NETWORKING EDIT MANAGE PHYSICAL ADAPTERS ····
VLAN ID: VLAN ID: VMkernel Ports (1) vmkl : 192.168.1.41
Image: Signal System Image: Signal System VLAN ID: Virtual Machines (0)
Standard Switch: vSwitch2 ADD NETWORKING EDIT MANAGE PHYSICAL ADAPTERS ***
VLAN ID: V VAkernel Ports (I) vmk2 : 192.168 2.141 ····

Figure 24 - Example networking utilized for this guide

6 DEPLOY SVSAN TO NODE 1 AND MIRROR THE STORAGE WITH NODE 2

(see figures 25 to 30)

Deploy a StorMagic VSA to the remaining host.

https://stormagic.com/doc/svSAN/6-3-U1/en/Content/vsa-deploy-vs.htm

✓ III vSAN-01
✓ [.]] New Cluster
sc-vsan-01.ts.stormagic.com
sc-vsan-02.ts.stormagic.com
GuestVM-01
GuestVM-02
🔂 sc-vsa-01.ts.stormagic.com
🔂 sc-vsa-02.ts.stormagic.com

Figure 25 - Hosts in a new cluster, running VSAs

Ensure ESXi or vCenter credentials for all ESXi hosts are entered into each VSA. See the article below for more information:

4/1/	StorMagic	SVSAN sc-vsa-02.ts.stormagic.com NORMAL						E	EN⊕ ℃
//// StorMag Home Yestem System Network Discovery Targets Initiators Pools Events Events Events Log Out	Home System	Initiators							
品	Network	Initiator IQN	Hostname	OS Type	CHAP Secret	ESXi Credentials	Targets	Sessions	
ଭ୍	Discovery	ign.1998-01.com.vmware:sc-vsan-01.ts.stormagic.com:778282692:65	SC-vSAN-01.ts.stormagic.com	ESXi	×	~	1		
2	Targets	iqn.1998-01.com.vmware:sc-vsan-02.ts.stormagic.com:296585542:65	sc-vsan-02.ts.stormagic.com [Local Hypervisor]	ESXi	×				
Ð	Initiators								
	Pools								
Ē	Events								
⊡	Log Out								
Actio	IS								
 Creation 	te Initiator								
• Crec	lentials								

https://support.stormagic.com/hc/en-gb/articles/5971578201373-SvSAN-and-ESXi-Credentials

Figure 26 - Validate VMware credentials on any/all SvSAN VSAs

If DNS is on the cluster, change the ESXi hostname to IP address.

Via the VSA1 WebGUI add the mirror to VSA2, selecting your SvSAN witness of choice: <u>https://stormagic.com/resources/data-sheets/svsan-witness-data-sheet/</u>

https://stormagic.com/doc/svsan/6-3-U1/en/Content/target.htm#convert-simple-target

https://stormagic.com/doc/svsan/6-3-U1/en/Content/plex.htm

https://support.stormagic.com/hc/en-gb/articles/16651389633821-How-to-convert-a-simple-target-to-a-mirrored-target

'111	StorMagic	SVSAN sc-vsa-02.ts.stormagic.com NORMAL							
↑	Home System Network	Mirroring Target Information							
0	Discovery	Name	M m0svsandatastore						
୍ଲ	Targets	IQN	iqn.2006-06.com.stormagic:f2d25e020000018.m0svsandatastore						
ി	Initiators	EUI-64	000339F2D25E0001						
	Pools	Enabled	✓						
Ē	Events	State	Online						
_		Pool	₩ P1714562206446						
E→	Log Out	Size	149.98 GB						
Action	e	Authentication	None						
• Discovery • Target		Notes							
		Encryption	×						
		UNMAP support	x						
		Manage Target Storage							
		Enable Mirroring							
		Mirroring							
		Isolation Policy	Majority 👻						
		Global Witness	Use Global Witness (Configure)						
		Witness	SCpluginOva [00505682590D]						
		Remote Hostname	sc-vsa-01.ts.stormagic.com [72A593B51202]						
		Remote Pools	● ■ P1714653631241 149.98 GB free of 149.98 GB ○ ■ C1714653634163 0 MB free of 39.98 GB						
		Resynchronization Priority	Equal priority						
		Prefer Local Path							
		CREATE							

Figure 27 - Mirror the target

VSAN-01 :AC	CTIONS								
Summary Monitor	Configure Permissions Hos	ts & Clusters VM	ls Datastores	Networks Updates					
Alarm Definitions	Getting Started Manage VS/	As Manage Stora	age Settings						
Network Protocol Profiles	Manage Storage								
StorMagic Plugin V Management Select a datastore to display its summary information.									
	C REFRESH + CREATE	ACTIONS Y							
	Datastore	Grow	т	Hosts	Ŧ				
	• SvSANDatastore	Migrate		sc-vsan-02.ts.stormagic.com					
		Mount.							
		Cancel							
		Destroy							

Figure 28 - Mount the datastore to the newly deployed host (node 1)

	Hos	t					
1 Welcome	Select the hosts you want to mount the datastore onto.						
2 Host	Select the hosts you want to mount the datastore onto.						
3 Host Credentials		sc-vsan-01.ts.stormagic.com					

Figure 29 - Selecting any and all additional hosts to mount the volume

Ensure path availability for all hosts to both VSAs:

sc-vsan-Ults.stormagic.com															
ummary Monitor Configure Permissions VMs Datastores Networks Updates															
Storage 🗸	9	Storage Adapters													
Storage Adapters		ADD SOFTWARE ADAPTER ~	REFRESH RESCAN STORAGE	RESCAN ADAPTER	REMOVE										
Host Cache Configuration		Adapter T	Model	Ŧ	Туре	τ	Status	T	Identifier	٣	Targets	Ŧ	Devices ·	τ	Paths
Protocol Endpoints		💿 🗇 vmhba65	iSCSI Software Adapter		iSCSI		Online		iscsi_vmk(iqn.1998-01.com	n.v					
I/O Filters		🔿 🔶 vmhba1	PIIX4 for 430TX/440BX/MX IDE Co	ntroller	Block SCSI		Unknown				1		1		1
Networking V		🔿 🔶 vmhba64	PIIX4 for 430TX/440BX/MX IDE Co	ntroller	Block SCSI		Unknown				0		0		0
Virtual switches		🔿 🔶 vmhba0	PVSCSI SCSI Controller		SCSI		Unknown				3		3		3
Host Profile		EXPORT -													
Time Configuration															
Authentication Services	F	Properties Devices	Paths Dynamic Discovery	Static Discovery	Network Port Binding		Advanced Options								
Certificate															
Power Management		ENABLE DISABLE													
Advanced System Settings		Runtime Name	T	Target					T LUN				▼ Status		
System Resource Reservation		Vmhba65:C1:T0:L0		iqn.2006-06.com.sto	rmagic:f2d25e0200000	018.m	Osvsandatastore:192.168	3.1.143:	3260 0				Active		
Firewall		Vmhba65:C0:T0:L0		iqn.2006-06.com.sto	rmagic:f2d25e0200000	018.m	Osvsandatastore:192.168	3.1.144:	:3260 0				Active (I/O)		
Services															

Figure 30 - iSCSI software adapter ensuring path availability to both VSAs

7 ENABLE VMware HIGH AVAILABILITY AND ANY OTHER HYPERVISOR FEATURES REQUIRED

With the Datastore now mirrored, enable VMware High Availability and any additional hypervisor features required by your organization.