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About This Document

This document describes witness server deployment and configuration in HCI.

Intended Audience

This document is intended for:

- System Administrator
- O&M Personnel

Note Icons

English Icon	Description
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.
	Indicates a hazardous situation, which if not avoided, could result in settings failing to take effect, equipment damage, or data loss. NOTICE addresses practices not related to personal injury.
	Calls attention to important information, best practices, and tips. NOTE addresses information not related to personal injury or equipment damage.

Change Log

Date	Author	Document Version	Approver	Remark
Jun. 19, 2023	Chris Leung	01	Scott Zeng	This is the first release of this document.

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Chapter 1 Background

Client have one of HCl cluster which is two node deployment, due to two node deployment without witness function, If HCl storage network is abnormal, the VS data may inconsistent and caused <u>split</u> <u>brain</u>, so client would like to deploy 2 + 1 witness environment.



Chapter 2 Witness deployment Requirements

- 2 + 1 witness deployment only support on HCI 6.7.0R3 at this state (2023/Q2)

- License is not necessary for 2 + 1 witness deployment on HCI 6.7.0R3 (Remark: it still need license such as aSv, aSan or aNet for two node HCI cluster)
- Witness OS support deploy on VMware/HCI environment and Physical Server and below are the minimum system spec:
 - CPU: 4Cores
 - Ram: 16 GB
 - disk: Enterprise SSD with capacity >=64G
 - Virtualization deployment requires no less than 1000 IOPs
- Witness OS only need to connect Management network (Make sure the subnet is same as HCI cluster management network)
- Witness OS support link aggregate and sub-vlan interface
- Make sure the installation of witness OS is correct version (6.7.0R3 have related witness OS for different scenario)

upport manage	by SCP6.8.0.					
Name	Description	Size	File MD5	Last Update	Download	Operation
HCI 6.7.0_R3_EN Installation ISO	Support whole new installation, burn this ISO fi le to USB disk or CD and install it as guided. It can also be used for Linux OS business migrati on. New function: Since HCI 6.0.0, it is supporte d to replace system disk using the ISO.	3.9G	D657825DF0CA389F28D90368901B167C	17 Oct 2022 15:54	٤	Copy Link
HCI 6.7.0_R3_EN Upgrade Packag e	Support hot upgrade from HCI6.7.0_EN(with o ne minute of network impact). Support cold up grade from version 6.0.0R5 and above due to major changes in kernel.	2.7G	F7808335F68CDB1C19D610F13136165C	17 Oct 2022 15:54	٠	Copy Link
Witness Node In stallation ISO	Fresh installation for Witness Node on physical server.	3.9G	5CD744031A6C7CE150842D7B06346472	17 Oct 2022 15:55	4	Copy Link
Witness Node H CI Deployment	Witness node virtual disk and configuration file for HCI version 6.7.0_R3_EN.	8.3G	9B89A31065A66B45AD4E111EB63EAB25	17 Oct 2022 15:56	*	Copy Link
Witness Node U ograde Package	Support upgrade from older version of witness node.	2.7G	9276C62C07CD6EB438DFE0606D7C6670	17 Oct 2022 15:56	*	Copy Link
Witness Node V Mware Deploym ent	Witness node VMware virtual disk and configur ation file for HCI version 6.7.0_R3_EN.	8.2G	3FD50DC7BAD82552772CC4F3E23562B2	17 Oct 2022 15:56	2	Copy Link
2 Nodes VS Wit ness Node HCI Deployment	2 nodes VS witness node virtual disk and confi guration file for HCI version 6.7.0_R3_EN.	7.9G	9CECA0E67054A9BB1B1984BCDD03B25E	17 Oct 2022 15:57	÷	Copy Link
2 Nodes VS Wit ness Node VMw are Deployment	2 nodes VS witness node VMware virtual disk a nd configuration file for HCI version 6.7.0_R3_E N.	8G	033FEC5ED51A4CFC755EFCA70C476311	17 Oct 2022 15:58	±	Copy Link

 Before adding the witness server to HCI cluster, make sure <u>the virtual storage is not configured</u> yet and HCI cluster only need to create storage network, <u>because it need to create virtual storage</u> with witness server together. If the HCI cluster have virtual storage, it need to factory reset HCI to remove virtual storage.

Chapter 3 Implementation process

Due to HCI cluster version is 6.7.0R3 and it is deploy on third party server, so it will download below version OS and burn to USB for installation.

Witness Node In Scotter Stallation for Witness Node on physical 3.9G ScD744031A6C7CE150842D7B06346472

17 Oct 2022 15:55

🛓 Copy Link

(Remark: the server bios setting is same as normal HCI deployment)

Below is witness implement process.



Boot from USB and it should view above screen.





Choose 2. two host volume arbiter mode.



Choose the OS disk for installation

Remark: this is a testing environment, so we use non-SSD for this environment, please follow

minimum system spec as production environment.



Remark: Due to OS disk is greater than 2TB, so it need to enable UEFI in this setup.





Choose the ethernet interface for IP setup





After reboot success, it will display above screen

Remark: it is normal situation when the IP is not configured onEth0, it will auto add IP - 10.250.0.7 on Eth0

	-35-	© +60 127-117-128(7511)
Sangfor HCI	Sangfor HC Hyper-Converged Infrastruc	ture
Sangfor HCI is a software-defined infrastructure that utilizes virtualization		
technology and integrates compute, storage, network and security	Username	
resources to build a light-weight, stable and high-performance IT	Username	Θ
infrastructure. Through a unified web management platform, it supports	L	
business-critical applications across industries and visualizes O&M to help	Password	
enterprises build a simple, easy-to-scale, secure and reliable cloud-based	Password	~
data center.	✓ I have read and accept the End User License Ag Agreement	greement Data Processing
	Log In	
		nc. All Rights Reserved
in witness server (https://witness_server_IP) by de	fault account (admin/admin)
in maless server (<u>inteps.//waless_server_in</u>) by de	aan account (aanini) aanini	/

Sangfor HCI Witness	ness Node Witne	ess Node System							admin I Super Admin
C Refresh 🕛 Power C	off 🖒 Reset 🏘 A	idvanced 🗸							
Name	VLAN ID	Use of Interface	Description	IP Address/Netm	Gateway	Driver T	Link Mode	Status	Operation
th0	÷.	Management Interface		10.250.0.7 / 255		tg3	Auto-negotiation (100	~	Edit
eth1	22	1201	2			tg3	Auto-negotiation	~	Edit
eth2	-					tg3	Auto-negotiation	~	Edit
eth3	121	1221	2		121	tg3	Auto-negotiation	~	Edit
eth4	<i>t</i> :		×.			bnx2x	Auto-negotiation (100	~	Edit
eth5	6		а.			bnx2x	Auto-negotiation	~	Edit
eth6			*		141	bnx2x	Auto-negotiation	~	Edit
eth7	8	120	а С	127		bnx2x	Auto-negotiation	~	Edit
							Hey, try asking me ar	id receive a	in answer imm

It can see the configured IP(eth4) and default IP(eth0), due to the management role is configured on eth0, so it need to move to eth4

Sangfor HCI Witness Node Sangfor HCI Witness		Witness Node System							admin ! Super Admin
C Refresh 🕛 Power Off 🏷 Res	et	🛱 Advanced \vee							
Name	VLAN I	Add Aggregate Interface	Description	IP Address/Netm	Gateway	Driver T	Link Mode	Status	Operation
eth0	×	Others		10.250.0.7 / 255	~	tg3	Auto-negotiation (100	~	Edit
eth2				-		tg3	Auto-negotiation	~	Edit
th3	v.		4	2		tg3	Auto-negotiation	~	Edit

Select Witness Nodes > Advanced > Others

	angion norvinness									
You ca	an maintain witness no	Others (10.250.0.7)				×				
C Refres	h 🕛 Power Off 🍏 R	DNS	Static Route	Inter-Host Communication Interfaces						
Name Rame Rame Rame Rame Rame Rame Rame R	h0 h1 h2 h3 h4	Management Interface:	eth4 Save	•	•	n (n n n n	(100	itatus	Operation Edit Edit Edit Edit Edit	
	nə h7				c	n n Iose		~	Edit	

Choose Eth4 as management interface

									
C Refresh O Power O	nt 🧿 Reset 🛛 😰 A	avanced ~							
Name	VLAN ID	Use of Interface	Description	IP Address/Netm	Gateway	Driver T	Link Mode	Status	Operation
th0		41 1	24	10.250.0.7 / 255	*	tg3	Auto-negotiation (100	~	Edit
eth1			17	5		tg3	Auto-negotiation	~	Edit
th2			3	<i>e</i>	*	tg3	Auto-negotiation	~	Edit
th3		÷.	15	10	. 10	tg3	Auto-negotiation	~	Edit
eth4		Management Interface	-		1	bnx2x	Auto-negotiation (100	\checkmark	Edit
eth5	÷.		10	T	. to	bnx2x	Auto-negotiation	~	Edit
th6		*C			×	bnx2x	Auto-negotiation	~	Edit
time eth7	-		67	5)	- T-	bnx2x	Auto-negotiation	~	Edit

The management interface is move to Eth4 now

	Sangfor HCI Witness Node Witr Sangfor HCI Witness	ness Node System			admin <mark>!</mark> Super Admin
√ 1	Enable 🚫 Disable 📿 Refresh				
	Service	Port	Protocol	Description	Status
	Host discovery	4099	udp	Port for new node discovery that aims to discover nodes with Sangfor HCI installed	~
	VM migration	7001-7019	tcp	Port for VM migration within a cluster or across clusters. It will be automatically enabled after	~
	P2V migration	4000-4010,10809-10900	tcp/udp	Port for processing migration requests and transmitting data during executing P2V tasks	0
	Samba	139,445	tcp	Port for management of Samba shared directories	0
	Correlated security service	4433	tcp	Port for an API gateway for correlated security services	0
	SNMP	161	udp	Administrator can know running physical resources via SNMP service, which requires a dedic	🛇
	VMware VM console proxy	4481	tcp	Port for access to admin console of VMware aCenter virtual machine	0
	iSCSI	3260	tcp	Port for external access to storage based on iSCSI virtual disks and shared disks, iSCSI prot	
	Access to web admin console of the virtual netwo	4480	tcp	Port for web access to admin console of virtual network device. The service is protected by S	
÷.	Web access to HCI admin console	80,443	tcp	Port for web access to HCI admin console	~ ·
	SSH Port orf After databled, remote access to yo SCP will also be impacted.	ur physical hosts with HCI inst	alled will be denied when enco	ountering technical issues. VM migration across clusters and image distribution via	able
ole SSH	I port before adding	to HCI clus	ster	Port for VM migration within a cluster or across clusters. It will be automatically enabled after	
	P2V migration	40 Alect		mitting data during executing P2V tasks	0
	Samba	13		×	0
	Correlated security service	44	Are you sure you want	to enable port (22)?	0
	SNMP	16	Enter password of admin to c	confirm this operation confirm this operation confirm this operation	
	VMware VM console proxy	44		enter virtual machine	0
	ISCSI	32		SI virtual disks and shared disks, iSCSI prot	
2	Access to web admin console of the virtual netwo	44		OK Cancel Hetwork device. The service is protected by S	
	Sangfor HCI Witness Node	80.443	ten	Port for web access to HCL admin console	admin !
	Sangfor HCI Witness	Cystem			Super Admin
Syster	m > Port Management				
✓ E	Enable 🚫 Disable C Refresh				
	Service	Port	Protocol	Description	Status
	Host discovery	4099	udp	Port for new node discovery that aims to discover nodes with Sangfor HCI installed	~
	VM migration	7001-7019	tcp	Port for VM migration within a cluster or across clusters. It will be automatically enabled after	··· 🗸
	P2V migration	4000-4010,10809-10900	tcp/udp	Port for processing migration requests and transmitting data during executing P2V tasks	0
	Samba	139,445	tcp	Port for management of Samba shared directories	0
	Correlated security service	4433	tcp	Port for an API gateway for correlated security services	0
	SNMP	161	udp	Administrator can know running physical resources via SNMP service, which requires a dedic	🛇
	VMware VM console proxy	4481	tcp	Port for access to admin console of VMware aCenter virtual machine	0
-	ISCSI	3260	tcp	Port for external access to storage based on iSCSI virtual disks and shared disks, iSCSI prot	
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-	Web access to HCI admin console	80,443	tcp	Port for web access to HCl admin console	ıt.
	SSH Port on Port for repute technical support of	garding remote diagnostice. In	oubleshooting and recovery to	Port enabled suc	ccessfully.

Now the witness server configuration is complete, it can goto HCI cluster for next step configuration.

• Below is HCI cluster configure process.



Now it can login HCI cluster to add witness server

Sangfor Hyper-Cor	r HCI nverged Infrastructure	Home	Compute	Networking	Storage	Nodes	Reliability	System	Health Check	۵ 🌲	admin Super Admin
Nodes	Physical Interfa	ces Communication	n Interfaces	System Disks	USB Devi	ces					
G Refresh	Add New Node	Configure Contro	oller Node Pool	 Show Reso 	ource Usage ~	i∃ Sort	by Name 🗸				Total 2
CPU Usage	Controller 5%	Cluste Cluster Controller, (Cluster Controller, CPU Usage	er Controller								
CPU Allocation	25%	CPU Allocation	25%								
Mem Allocation	0%	Mem Allocation	0%								

Goto communication interfaces to configure storage network setting.



Create the storage area network



Due to two nodes, the serveer storage interfaces are direct connect, so it choose Other > Link aggregation with two switches.

Sang	Storage Area Network Settings				× Super Admin
Nodes	Specify Interface Mode	Specify Deployment Mode	3 Select Interface	Configure Interface IP	6 Confirm
	© If you select link aggregation, go to Nodes	> Physical Interfaces to configure an aggregate	interface. Layer 4 load balancing is	recommended.	turne (
	C Refresh 📰 Configure Storage N	letwork Interface		Node Nan	ne Q vork deploymen
	Node Name 🔶 Sto	orage Network Interface 🕕		Status	
	et 🖬 🖬	h4,eth5		Normal	
Flow Contro	e	h4,eth5		Normal	
Sangfo	Storage Area Network Settings				× admin Super Admin
Nodes	Specify Interface Mode	Specify Deployment Mode — 🛛 🤤	Select Interface	Configure Interface IP	Confirm
	Modify Interface IP 🖪 Configure 1	Vetmask		Node Name	Q tame Q
	Node Name	\$	Interface IP		work deployment
			10.251.251.2		/ 24
			10.251.251.1		/ 24

350 Storage Area Network Settings × Specify Interface Mode 🛛 🛛 🐼 Specify Deployment Mode Select Interface ------Configure Interface IP 6 Confirm yment Mode erface M 34 Deployment Mode Link aggregation with two switches Dedicated Mode (recommended) Storage Network Interface and IP Address Storage Network Interface Interface IP Node Name 10.251.251.2 / 24 eth4, eth5 eth4, eth5 10.251.251.1/24 Sangfor HCI Home Compute Networking Storage Nodes Reliability System 🌲 🛃 admin Super Ad 🛞 н Physical Interfaces Communication Interfaces System Disks USB Devices Nodes C Refresh 📓 IP Address Pool 🕜 Reset Storage Area Network 🔅 Test Connectivity Management Interface Q A storage network interface is used for communication between different nodes in the cluster. VMs access storage resources across nodes through this interface. (Storage network deploy mode : Dedicated mode - Link aggregation with two switches) Overlay Network Interface MTU Opera Edge-Connected Interface eth4, eth5 10.251.251.1/24 10000Mb/s 1500 Edit Storage Network Interface eth4, eth6 10.251.251.2/24 10000Mb/s 1500 Edit Flow Control

Witness server deployment and configuration on HCI

After storae network setup is complete, it can configure virtual storage.

Sangfor HCI Hyper-Converged Infrastructure	Home Comp	oute Networking Storage	Nodes Reliability	System	Health Check 🌲 🛃 admin Super Admin
Summary Virtual Storage	e Other Datastores				
Virtual Datastores	C Refresh 🕂 New 🖱 🙇 Expa	and Capacity 🌼 Storage Area Network Sett	lings 🏟 Settings		⑦ About Storage Policy
Physical Disks					
Shared Disks					
ISCSI Virtual Disks					
Storage Policy					
			No virtual datastore was found. Click the bi	utton below to create one.	
			Create Virtual Data	store	

Sangfor HCI Hyper-Converged Infrastructure						Health Check 🌲 🛃 admin Super Admin
Summary Virtual Storage	Other Datastores					
Virtual Datastores	C Refresh + New	🗖 🔏 Expand Capa	city 🛱 Storage Area Network Settings 🕻	Settings	,	
Physical Disks		Create Virtual Data	store		×	
Shared Disks		1 Select	Datastore Type — 2 Select Node —	3 Select Disks — 4 Use of Disks —	5 Confirm	
ISCSI Virtual Disks		Virtual Datastore Name:	VirtualDatastore1			
Storage Folicy		Туре:	Ordinary datastore			
			La L	Introduction Ordinary datastores use automated tiering to give full play to the advantages of SSDs and HODs and active excellent performance. Based on specific datas, up to 2 datastores cane be created using 3 hosts. Configuration Requirement For ordinary datastore, nodes can use SSD or HDD as data data. Features Logical subvolume, auto tiering, aRaid2.0		
				Next	Cancel	
Create Virtual Datasto	re	non ochinge	- Contango	×		
Select Da	tastore Type (2 Select Node	- Select Disks - Allse	of Disks 6 Confirm	1	
Ordinary datastore can be	created based on specific	disks. Disks on the	same hosts can be used to create up to 2 data	stores. Configuration Guide		
Method: O Use disks on n	ew hosts OUse unus	ed disks added to ex	isting datastores			
Node Name	Interface IP	tual datastore to cre	Toal SSDs	Z node(s) selected		
	10.251.251	1/24	2	3		
	10.251.251	2/24	2	3		
Best Practice: Less than 12 o Prev	nodes associated with a c	latastore		Next Cancel		
Create Virtual Datastore				×	1	
Select Dates						
Method: O Use disks on new Select new hosts which have no	nosts Use unused at Message	disks added to exis	ng datastores	× 2 note(s) selected		
	•	Currently, 2 virtual datas storage bas provisionin, A witness node the datastore of	nodes have been selected to creat tores. To use more features (such a ed snapshots and dynamic disk), please add a witness node. can only be associated with a datastore durin eation.	e 15 er		
Best Practice: Less than 12 not						
-						
Her				Hipt		

After select all host to build virtual storage and click "Next", it will have a message to add witness node, click "Add Now"

		306600			2
	Node IP:				
	Username: ad	min			
	Password:				
ter	witness mar	agement	t IP and witne		Cancel
eate V	firtual Datastore	lagemen	t iP and withe	ss server password	J
	Select Datastore Type	— 📀 Sele	oct Node — 3 Select	Disks — 4 Use of Disks —	6 Confirm
rdinary	datastore can be created base	id on specific disks. D	lisks on the same hosts can be	used to create up to 2 datastores. Configura	tion Guide
hod: 🔇	Use disks on new hosts	OUse unused disks	added to existing datastores		
ectnew	hosts which have not been ad	Ided to any virtual data	astore to create a new datastore:		3 node(s) sele
No	ide Name	Interface IP	Toal SSDs	Toal HDDs	
			2	3	
1		10.251.251.1/24			
a	(Witness	10.251.251.1/24 10.251.251.2/24	2	3	
2 Contraction of the second se	(Witness (Witness	10.251.251.224	2	3 1 Next	Cancel
a a a a a a a a a a a a a a a a a a a	Ce: Less than 12 nodes assoc	10.251.251.224 10.251.251.224 interview of the second se	2 0 er, also it can s	3 1 Select to add.	Cancel
2 2 2 4 Practice Preventer of the second sec	Witness Witness ce: Less than 12 nodes assoc display witn Virtual Datastore	10.251.251.224	2 0 er, also it can s	3 1 Select to add.	Cancel
2 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Witness (Witness ce: Less than 12 nodes assoc display witn Virtual Datastore Virtual Datastore Select Datastore Typ	10.251.251.224	2 0 er, also it can s lect Node — 3 Select	3 1 Select to add.	Cancel Confirm Selected: 2 SSDs. 6 HI
a a a a a a a a a a a a a a a a a a a	Witness Witness Witness Witness Witness Select Datastore Select Datastore Typ sks to be added to the datastor Wick Select	10.251.251.224 10.251.251.224 	2 0 er, also it can s ect Node 3 select	3 1 Select to add.	Cancel
2 Prest Prest Will Create	Witness Witness ce: Less than 12 nodes assoc display witn Virtual Datastore Virtual Datastore twick Select Disk	10.251.251.224 10.251.251.224 In Sated with a datastore ESS SETVE In In Sate Set Set Set In In In In In In In In In In	2 0 er, also it can s lect Node — 3 Setect	3 1 Select to add.	Cancel Confirm Selected: 2 SSDs, 6 HD
a st Practice Preventions Create	Witness (Witness) (Witness (Witness) (Witness	10.251.251.224 10.251.251.224	2 0 er, also it can s ect Node — 3 select Type SATA SSD	3 1 Ned Select to add.	Cancel Confirm Selected: 2 SSDs, 6 HE
st Practice Pree Will Create	Ce: Less than 12 nodes assoc display with Virtual Datastore Select Datastore Typ sks to be added to the datastor tuck Select Disk Disk 0 Disk 3	10.251.251.2124 10.251.251.224 iated with a datastore ess serve e e	2 0 er, also it can s eect Node — 3 Select Type SATA SSD SATA HDD	3 1 Next Select to add.	Cancel Confirm Selected: 2 SSDs, 6 HE
st Practice Prev Will Create	Ce: Less than 12 nodes assoc display with Virtual Datastore Select Datastore Typ sks to be added to the datastor tuick Select Disk Disk 0 Disk 3 a	10.251.251.224	2 0 er, also it can s ect Node — 3 Select Type SATA SSD SATA HDD	3 1 Next Select to add.	Cancel Confirm Selected: 2 SSDs, 6 HD
a st Practice Preverses Select dia Select di	Ce: Less than 12 nodes assoc display with Virtual Datastore Virtual Datastore Virtual Datastore Select Datastore Typ asks to be added to the datastor tick Select Disk 0 Disk 0 Disk 3 SAMSUNG MZ7L33T6HBN	10.251.251.224 10.251.251.224	2 0 er, also it can s ect Node — 3 select Type SATA SSD SATA SSD	3 1 Select to add. Disks (1) Use of Disks (1) Size 3.49 TB 14.55 TB 14.55 TB	Cancel Cancel Cancel Cancel
st Practice Preverence Create	Ce: Less than 12 nodes assoc display with Virtual Datastore Virtual Datastore Select Datastore Typ Select Datastore Typ bisk to be added to the datastor Uick Select Disk 0 Disk 3 SAMSUNG MZ7L33T8HBN SAMSUNG MZ7L33T8HBN	10.251.251.224 10.251.251.224 ialed with a datastore ess serve re re Hard LA0087C S Hard Hard	2 0 er, also it can s lect Node — 3 select Type SATA SSD SATA HDD SATA SSD SATA HDD SATA SSD	3 1 Select to add. Disks (1) Use of Disks (1) Size 3.49 TB 14.55 TB 14.55 TB 14.55 TB	Cancel Cancel Cancel Cancel
st Practic Prev Will Create	Witness (Witness (Witness) Witness (Witness) Witness) Witness (Witness (Witness) Witness (Witness) Witness (Witness) Witness	10.251.251.224 10.251.251.224 iated with a datastore ess serve re re A-0087C S A-0087C S Hard Hard 12.251.251.224	2 0 err, also it can s lect Node — 3 select Type SATA SSD SATA HDD SATA ASD SATA HDD SATA HDD	3 1 Next Select to add. Disks (1) Use of Disks (1) Size 3.49 TB 14.55 TB (1) 4.55 TB (1) 4.55 TB (1) 4.55 TB	Cancel Cancel Cancel
Select dia Select	Witness (Witness (Witness (Witness) Ce: Less than 12 nodes assoc Control of the datastore Control of the	10.251.251.224 10.251.251.224 ialed with a datastore ess serve re A.0087C S A.0087C S Hard i26JJ2HP i2CKZPESN i2CKZRE6N	2 0 err, also it can s lect Node — 3 select SATA SSD SATA ASD SATA ADD SATA HDD SATA HDD SATA HDD	1 Select to add. Disks (4) Use of Disks (4) Size 3.49 TB (4).55 T	Cancel Cancel Cancel
st Practice Preventions Select dist Create	Witness (Witness) Witness (Witness) With all and a second	10.251.251.224 10.251.251.224 ialed with a datastore ess serve ess serve ialed with a datastore for a serve ialed with a datastore ialed with a datastore	2 0 er, also it can s lect Node — 3 select Type sata SSD sata NDD sata HDD sata HDD sata HDD	Next Select to add.	Cancel Cancel Cancel

Click Next and it can view all nodes 's disks, however it may have incompatible issue of hardware model when it is third party server.

	Select Datastore Type —	Select Node — 3 Se	elect Disks — 4 Use of Disks —	5 Confirm
electo	disks to be added to the datastore		Se	lected: 2 SSDs, 6 HDD
•	Quick Select			
~	Disk	Туре	Size	
~	Disk 0	SATA SSD	3.49 TB	'
-	Disk 3	SATA HDD	14.55 TB	
-	A			
-	SAMSUNG MZ7L33T8HBNA-00B7C S	🔇 SATA SSD	3.49 TB	
- 1	SAMSUNG MZ7L33T8HBNA-00B7C S	🔇 SATA SSD	3.49 TB	
	WDC WUH721816ALE6L4 2BJJ2HHP	SATA HDD	14.55 TB	
-	WDC WUH721816ALE6L4 2CKZPESN	SATA HDD	14.55 TB	
-	WDC WUH721816ALE6L4 2CKZRE6N	SATA HDD	14.55 TB	
-	Witness Node)			
-	HPE PWXKV0BRHDL9SR	🚷 HDD	5 GB	
	Prev	Quorum disk requires a minimur is deployed as a witness node, u quorum disk. If a virtual machine configure a virtual disk of no less	n of 1000 IOPS. If a physical host se an enterprise SSD as the is deployed as a withess node, than 1000 IOPS as the quorum Next	Cancel

Also it may have above error message when witness server is not fulfill the minimum spec, so it can not proccess to next step.

It is better to contact Sangfor support for these situations. If support verify these disks is fulfill requirment, it will help to bypass for these disks.

eiect	disks to be added to the datastore		Selecte	ac 4 SSDS, 7 HDI
N	Quick Select			
	Disk	Туре	Size	
~	Disk 0	SATA SSD	3.49 TB	
~	Disk 3	SATA HDD	14.55 TB	
~	4			
~	SAMSUNG MZ7L33T8HBNA-00B7C S6KS	SATA SSD	3.49 TB	
~	SAMSUNG MZ7L33T8HBNA-00B7C S6KS	SATA SSD	3.49 TB	
~	WDC WUH721816ALE6L4 2BJJ2HHP	SATA HDD	14.55 TB	
~	WDC WUH721816ALE6L4 2CKZPESN	SATA HDD	14.55 TB	
~	WDC WUH721816ALE6L4 2CKZRE6N	SATA HDD	14.55 TB	
~	(Witness Node)			
~	HPE PWXKV0BRHDL9SR	HDD	5 GB	

Above screen is after bypass.

Remark: It is normal for the quorum disk of witness server to only use a capacity of 5GB.

Create Virtual Datastore 🧭 Select Datastore Type 🛛 🖌 🥪 Select Node 🖳 Select Disks -----4 Use of Disks — 5 Confirm Expand All 📄 Collapse All 🅥 Restore Defaults About Disk Groupi - Node: Data disk: 2 Cache disk: 2 Spare disk: 1 Disk Group Disk Size Use of Disk Disk Туре Operation SSD 3.5 TB Cache disk 🔹 Disk 1 Group 1 Edit Delete 14.6 TB Disk 2 HDD Data disk 🔹 SSD 3.5 TB Disk 0 Cache disk 🔹 Group 2 Edit Delete Disk 3 HDD 14.6 TB Data disk 🔹 Free Disk 4 HDD 14.6 TB Spare disk 🔹 + Node: Data disk: 2 Cache disk: 2 Spare disk: 1 Dick Group Diek I lea of Dick Time Cance Prev Create Virtual Datastore Confirm Configuration of Ordinary datastore (VirtualDatastore1): 2 58.21 TB 🕦 29.09 TB 25% 🕐 Not supported ① Nodes Raw Capacity Cache Disk Ratio 2-replica Storage Capacity 3-replica Storage Capacity Virtual Datastore: Node Name Disk Groups Cache Disks Data Disks Spare Disks Data Disk Size Cache Disk Size 29.11 TB 6.99 TB 2 6.99 TB 29.11 TB 2 2 1 Witness Node: Node IP Quorum Disk Type Quorum Disk Capacity HDD 5 GB Confirm the setting and click "OK" Details × 55% Status: Action: Create virtual datastore Start Time: 2023-05-26 00:14:26 End Time: Username: admin(Node: Object Type: storage_obj Object: Virtual Datastore (VirtualDatastore1) Description:

Sangfor Hyper-Convert	HCI rged Infrastructure	Home	Cor	mpute Netw	vorking	Storage	Nodes	Reliability	System
Nodes	Physical Interfa	ces Communication In	terfaces	System Disks	USB Devic	es			
🕝 Refresh 🔹 (e 1∃ View: By List ∽	🛱 Con	figure Controller No	ode Pool 🕔 🕒	Show Resour	ce Usage 🗸	JΞ Sort by Name ∽	
	Controller	Cluster C	ontroller	(Witness)					
CPU Usage	6%	CPU Usage	8%	CPU Usage	11%				
Physical Mem Usag	ge 9%	Physical Mem Usage	10%	Physical Mem Usag	e 4%				
CPU Allocation	25%	CPU Allocation	25%						
Mem Allocation	0%	Mem Allocation	0%						

After Vitual storage configuration sccess, it can view witness server on "Nodes" and it is already add to HCI cluster.

Sangfor HCI Hyper-Converged Infrastructure	Home	Compute	Networking	Storage	Nodes	Reliability	System
Summary Virtual Storage	Other Datastores						
Virtual Datastores	Panel List	C Refresh					
Physical Disks	VirtualDatastore1						
Shared Disks	✓ VirtualDatastore1						
Storage Policy			26.7 G	B/29.1 TB			26.7 GB/29.1 TB
	VirtualDatastore1			- 1	VirtualDatastore1		
	Disk Group 1: SSD	HDD		- 1	Disk Group 1: SS	D HDD	
	Disk Group 2: SSD Spare disk: HDD	HDD		- 1	Disk Group 2: SS Spare disk: HD	D HDD	
	Collapse 🛸				Collapse 🖈		
	(Witnes	s Node)	4.8	GB/5 GB			
	VirtualDatastore1						
	Disk Group 1: HDD						

It also can view the witness node disk status on "Virtual Storage > Physical Disks". The witness server deplyment is complete.

Remark: It is normal for the quorum disk of witness server to only use a capacity of 5GB.

Chapter 4 Summary

- Data "Brain Split" is usually due to network failure and caused multiple replicas of data are isolated and unable to synchronize information with each other in time, and each replica writes and updates different data in isolation, resulting in data inconsistency between replicas, and is "each own data that the other does not"
- 2. After HCI5.2 and above version, it has witness mechanism for virtual storage. When the virtual storage data is inconsistent under abnormal conditions such as network interruption, witness mechanism can help HCI cluster to select the correct copy to avoid data split-brain.
- 3. The replica mechanism of aSAN makes data in addition to have multiple data replicas and with witness replicas at the same time. The witness replica is a special replica that only has a small amount of verification data and occupies a small amount of actual storage space. It is mainly used to prevent data replicas from brain-splitting.
- 4. The core principle of the witness mechanism is "the minority obeys the majority". Which is when the number of accessible data replicas on the node where the virtual machine is running is less than half of the total number of replicas (data replicas + arbitration replicas), the virtual machine is prohibited from running on this node. Otherwise, virtual machines can run on that node.
- 5. if the number of HCI hosts is greater than or equal to 3, the witness mechanism will be enabled by default, so there is no manual configuration is required and no witness nodes need to be configured, only Stretched Cluster scenario or two node HCI cluster scenario (6.7.0R3 and 6.8.0) needs to be deploy witness node.