The science behind the report:

Use VMware vSAN HCI Mesh to manage your storage resources and share them across server clusters

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report Use VMware vSAN HCI Mesh to manage your storage resources and share them across server clusters.

We concluded our hands-on testing on April 19, 2021. During testing, we determined the appropriate hardware and software configurations and applied updates as they became available. The results in this report reflect configurations that we finalized on April 16, 2021 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

System configuration information

Table 1: Detailed information on the system we tested.

Server configuration information	Dell EMC™ PowerEdge™ MX740c	Dell EMC PowerEdge MX750c
BIOS name and version	Dell 2.9.4	Dell 0.4.2
Non-default BIOS settings	Virtualization performance mode	Virtualization performance mode
Operating system name and version/build number	VMware® ESXi 7.0.2 17630552	VMware ESXi 7.0.1 17630552
Date of last OS updates/patches applied	04/16/21	04/16/21
Power management policy	Performance	Performance
Processor		
Number of processors	2	2
Vendor and model	Intel® Xeon® Gold 6230	Intel® Xeon® Gold 6330
Core count (per processor)	20	28
Core frequency (GHz)	2.10	2.00
Stepping	7	6
Memory module(s)		
Total memory in system (GB)	192	512
Number of memory modules	12	16
Vendor and model	Hynix® HMA82GR7AFR8N-VK	Hynix HMAA4GR7AJR8N-XN
Size (GB)	16	32
Type	PC4-21300	PC4-23400
Speed (MHz)	2,666	2,933
Speed running in the server (MHz)	2,666	2,933
Storage controller		
Vendor and model	VMware® NVMe™ PCIe®	VMware NVMe PCIe
Driver version	1.2.3.9-2vmw.701.0.0.16850804	1.2.3.9-2vmw.701.0.0.16850804
Local storage		
Number of drives	1	4
Drive vendor and model	Dell Ent NVMe AGN MU U.2 1.6TB	Dell Ent NVMe AGN MU U.2 3.2TB
Drive size (GB)	1,600	3,200
Drive information (speed, interface, type)	U.2 NVMe, 8GT/s	U.2 NVMe, 16GT/s
Network adapter		
Vendor and model	Intel Ethernet 25G 2P XXV710 Mezz	Broadcom Adv Quad 25Gb Ethernet
Number and type of ports	2 x 25GbE	4 x 25GbE
Driver version	1.8.1.123-1vmw.701.0.0.16850804	216.0.50.0-16vmw.701.0.0.16850804

Table 2: Detailed information on the Dell EMC PowerEdge MX7000 we tested.

Server configuration information	Dell EMC PowerEdge MX7000
I/O modules	
Vendor and model number	Dell EMC Networking MX9116N Fabric Switching Engine
I/O module firmware revision	10.5.1.7.273
Number of compute sleds used	5
Power supplies	
Vendor and model number	Dell 0H7TFGA02
Number of power supplies	6
Wattage of each (W)	3,000

How we tested

Deploying VMware vSAN™ HCI Mesh

This configuration assumes five pre-existing, functional ESXi 7.0U2 hosts: two PowerEdge MX740c compute sleds, and three PowerEdge MX750c compute sleds.

Configuring the Dell EMC PowerEdge MX740c standard cluster

1. Open the vSphere Client in a browser, and navigate to the Hosts and Clusters view.
2. Right click each host and select Maintenance Mode → Enter Maintenance Mode.
3. Right-click the server folder containing the two MX740c hosts to be included in the cluster, and select New Cluster.
4. Name the cluster, and click Next.
5. Click Finish.
6. Select the cluster you created, and in the Configure pane, under Add hosts, and click Add.
7. Click Existing Hosts, select the MX740c hosts to add, and click Next.
8. Review the Host summary page, and click Next.
9. Click Finish.
10. On the cluster Configure Quickstart pane, under Configure Cluster, and click Configure.
11. Select 1 distributed switch.
12. Name the distributed switch.
13. Assign the physical adapters (vmnic) to the vDS.
14. Click Next.
15. On the Advanced options page, enter an NTP server address.
16. Enable EVC, select the EVC mode for the hardware, and click Next.
17. Click Finish.

Configuring the Dell EMC PowerEdge MX750c vSAN cluster

1. Open the vCenter vSphere Client, and navigate to the Hosts and Clusters view.
2. Right click each host, and select Maintenance Mode → Enter Maintenance Mode.
3. Right-click the server folder containing the two MX740c hosts to be included in the cluster, and select New Cluster.
4. Name the cluster, click to enable vSAN, and click Next.
5. Click Finish.
6. Click Add Hosts.
7. Click Existing hosts, and select the three MX750c hosts to add, and click Next.
8. Review the Host summary page, and click Next.
9. Click Finish.
10. On the cluster Configure Quickstart pane, under Configure Cluster, click Configure.
11. Select 1 distributed switch.
12. Name the distributed switch.
13. Assign the physical adapters (vmnic) to the vDS, and click Next.
14. On the Storage traffic page, select Use VLAN, enter the VLAN for vSAN traffic, and click Next.
15. On the Advanced options page, leave vSAN Options unchanged.
16. In Host Options, enter an NTP server IP address.
17. Click to Enable EVC, select the EVC mode for the hardware, and click Next.
18. On the Claim disks page, click the Claim For dropdowns, assign the correct tier and Drive Type per disk, and click Next.
19. On the Proxy settings page, click Next.
20. Review the settings on the final page, and click Finish.

Pre-configuring the cluster networking for HCI Mesh

1. In the vSphere Client, open the Networking view.
2. Right the first virtual distributed switch, and select Settings → Edit Settings.
3. Click Advanced, and set the MTU to 9000.
4. Select the Discovery protocol for your network hardware, and click OK.
5. Right-click the VDS, select Upgrade→Upgrade Distributed Switch.
6. Select 7.0.2 - ESXi 7.0.2 and later, and click Next.
7. Confirm all hosts are compatible, and click Next.
8. Click Finish.
9. Repeat steps 2-8 for the second VDS.
10. Right-click the compute cluster DVS, select Distributed Port Group→New Distributed Port Group.
11. Name the port group to be used for vSAN connectivity, and click Next.
12. Select VLAN type VLAN.
13. Enter the VLAN ID that matches the vSAN VLAN, and click Next.
14. Click Finish.
15. Right-click the newly-created VSAN port group, and click Add VMkernel Adapters.
16. Click Attached hosts, and select the hosts in the cluster. Click OK.
17. Click Next.
18. Under Available services, click vSAN, click Next.
19. Select Obtain IPv4 settings automatically, and click Next.
20. Review the settings, and click Finish.

Configuring compute cluster to connect to HCI Mesh

1. In the Hosts and Clusters view, select the compute cluster.
2. Navigate to Configure→vSAN→Services.
3. Click Configure vSAN.
4. Select vSAN HCI Mesh compute cluster, and click Next.
5. Click Finish.
6. Click Mount Remote Datastores.
7. Click Mount Remote Datastore.
8. Select the datastore from the vSAN cluster, and click Next.
9. Confirm compatibility check completes successfully, and click Finish.
10. If using vSphere HA, return to Hosts and Clusters view, select the compute cluster, and click the Configure tab.
11. Select vSphere Availability, and click Edit.
12. Enable vSphere HA, and Enable Host Monitoring.
13. In the Datastore with APD dropdown, select "Power off and restart VMS - Conservative restart policy."
14. Click OK.

Read the report at http://facts.pt/FGiJdQ8 ▶

This project was commissioned by Dell EMC.