Deploy HCI with Ease on VMware vSAN Ready Nodes™

In collaboration with: intel

Tech Note by

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Summary

Hyperconverged infrastructure is changing the way that IT organizations deliver resources to their users. In this short joint reference document with Dell Technologies and Intel we discuss the critical hardware components needed to successfully deploy vSAN.

The surge in remote work and virtual desktop infrastructure (VDI) is increasing resource demands in the data center. As a result, many enterprises are turning to hyperconverged infrastructure (HCI). But HCI implementation can be complex and time-consuming. VMware vSAN ReadyNode™ provides a turnkey solution for accelerating HCI.

vSAN ReadyNode is a validated configuration on Dell EMC™ PowerEdge™ servers. These servers are tested and certified for VMware vSAN™ deployment, jointly recommended by Dell and VMware. vSAN ReadyNode on Dell EMC PowerEdge servers can help reduce HCI complexity, decrease total cost of ownership (TCO), scale with business needs and accommodate hybrid-cloud solutions such as VMware Cloud Foundation™. Benefits include the following:

• **License efficiency**—Get the most from each software license. vSAN ReadyNode on Dell EMC PowerEdge servers is designed to provide the best performance for each VMware® license per 32-core socket.

• **High throughput**—Elastic, scalable storage is one of many vSAN benefits. vSAN ReadyNode on Dell EMC PowerEdge servers, built on high-performing Intel architecture, prioritizes storage throughput with fast write caching and capacity storage tiers.

• **Low latency**—As a vSAN deployment grows, and data needs to be accessed across the cluster, data-access response times become increasingly important. This architecture, featuring Intel Ethernet Network Adapters, takes advantage of VMware's recent addition of remote direct memory access (RDMA) to improve data response and user experience.

Key Considerations

- **Available in two configurations**—Both the "Base" and "Plus" configurations use similar all-flash NVM Express® (NVMe®) storage configurations. However, the Plus configuration is equipped with a higher-frequency CPU and Intel® Optane™ persistent memory (PMem). Both configurations are based on Intel® Select Solutions for VMware vSAN 7 HCI with 3rd Generation Intel® Xeon® Scalable processors.
- **Networking**—Both configurations are equipped with RDMA-capable Intel® Ethernet 800 Series network adapters that accelerate vSAN 7 performance (7.0 U2 or later). The Intel Ethernet Network Adapter E810-XXV network interface controller (NIC) can be used for network- and storage-intensive workloads requiring more than 25 gigabits per second (Gbps) of bandwidth.

- **Rack-space requirements**—The rack-space-optimized Dell EMC PowerEdge R650 server–based system can be used if large storage capacity is not needed (up to two storage groups are supported, each with a single cache drive and up to four capacity drives, with a maximum of 10 NVMe drives per system). For more drives or future-capacity scaling, the Dell EMC PowerEdge R750 server–based system is recommended.

Available Configurations

	Base configuration		**Plus configuration**	
Platform	Dell EMC™ PowerEdge™ R650, supporting 10 NVMe® drives (direct connection with no Dell™ PowerEdge RAID Controller [PERC]), 1RU	Dell EMC PowerEdge R750, supporting 24 NVMe drives (direct connection with no Dell PERC), 2RU	Dell EMC PowerEdge R650 supporting 10 NVMe drives (direct connection with no Dell PERC), 1RU	Dell EMC PowerEdge R750 supporting 24 NVMe drives (direct connection with no Dell PERC), 2RU
CPU	2 x Intel® Xeon® Gold 6338 processor (32 cores at 2.0 GHz)		2 x Intel® Xeon® Platinum 8358 processor (32 cores at 2.6 GHz) or 2 x Intel® Xeon® Platinum 8362 processor (32 cores at 2.8 GHz)	
DRAM	512 GB (16 x 32 GB DDR4-3200)		256 GB (16 x 16 GB DDR4-3200)	
Persistent Memory	*Optional*		1 TB (8 x 128 GB Intel® Optane™ PMem 200 series)	
Boot device	Dell EMC™ Boot Optimized Server Storage (BOSS)-S2 with 2 x 480 GB Intel® SSD S4510 M.2 Serial ATA (SATA) (RAID1)			
Storage adapter	*Not required for an all-NVMe configuration*			
Cache tier drives	2 x 400 GB Intel Optane SSD P5800X (PCIe Gen4) or 2 x 375 GB Intel Optane SSD DC P4800X (PCIe Gen3)[i]			
Capacity tier drives	6 x (up to 8 x) 3.84 TB Intel SSD DC P5500 (PCIe Gen4, read-intensive)	6 x (up to 12 x) 3.84 TB Intel SSD DC P5500 (PCIe Gen4, read-intensive)	6 x (up to 8 x) 3.84 TB Intel SSD DC P5500 (PCIe Gen4, read-intensive)	6 x (up to 12 x) 3.84 TB Intel SSD DC P5500 (PCIe Gen4, read-intensive)
NIC	Intel® Ethernet Network Adapter E810-XXV for OCP3 (dual-port 25 Gb)[ii]			

Get Started

View the vSAN Hardware Quick Reference Guide and VMware Compatibility Guide.

Learn More

- Contact your Dell or Intel account team. 1-877-289+-3355
- Read the Principled Technologies report: Reap better SQL Server OLTP performance with next-generation Dell EMC PowerEdge MX servers.
- Read the science behind the Principled Technologies report.
- View the Principled Technologies infographic.

[i] The Intel® Optane™ SSD P5800X is recommended, but the previous-generation Intel Optane SSD DC P4800X can be used instead if the Intel Optane SSD P5800X is not yet available.

[ii] When used with VMware vSAN™, the Intel® Ethernet Network Adapter E810-XXV for OCP3 requires appropriate RDMA firmware.