

# Dell EMC vSAN Ready Nodes

Reduce project risk and improve storage efficiency with a VMware vSAN building block that's quick to scale.

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New applications are producing more data than ever, challenging IT to adopt a simpler, more streamlined and cost-effective approach to storage.

## Reduce risk

with tested, certified configurations

## Improve storage efficiency

reducing utilized storage capacity by up to 50%<sup>1</sup>

## Scale quickly

shortening implementation time from months to weeks<sup>14</sup>

## Because “software-defined” means hardware matters more than ever

New applications are producing more data than ever, challenging IT to adopt a simpler, more streamlined and cost-effective approach. This has drawn many enterprises to VMware® vSAN™ — software delivering flash-optimized, secure, shared storage with the simplicity of a VMware vSphere®-native experience for your critical virtualized workloads. vSAN runs on servers that help lower TCO by up to 50% versus traditional storage.<sup>1</sup>

But one of the biggest misconceptions about the software-defined world is that the hardware doesn't matter anymore. Quite the opposite. The performance of the software — and storage efficiency — depends heavily on the performance and reliability of the hardware it's running on. And not all hardware is created equal. You need a partner you can trust to deliver reliable infrastructure in easily purchased and deployed building blocks that can scale at the speed required to keep pace with data growth.

## Invest in hardware that's purpose-designed to support VMware vSAN

Dell EMC vSAN Ready Nodes are pre-configured building blocks that reduce deployment risks with certified configurations, improve storage efficiency by up to 50%<sup>1</sup>, and can help you build or scale your vSAN cluster faster.<sup>14</sup> Whether you're just getting started, and/or expanding your existing VMware environment, Dell EMC is here for you every step of the way with consulting, education, deployment and support services for the entire solution.

### Reduce project risk

Dell EMC vSAN Ready Nodes are jointly validated solutions in tested and certified server configurations for accelerating vSAN deployment. Dell EMC and VMware have collaborated on vSAN for more than five years, putting the technology through thousands of hours of testing.

### Improve storage efficiency

Dell EMC vSAN Ready Nodes improve storage efficiency while reducing capital expense (CapEx) with server-side economics, affordable flash and grow-as-you-go scaling. Reducing the time and effort it takes to deploy and manage compute and storage infrastructure reduces operational expense (OpEx).

### Scale quickly

Dell EMC vSAN Ready Nodes enable easy deployment with factory-installed, pre-configured and pre-tested configurations for a range of needs. Faster configuration, fewer update steps, and reduced time for maintenance, troubleshooting and resolution all add up to a solution that scales quickly.

<sup>1</sup> “VMware vSAN 6.7 datasheet,” August 2018.

<sup>2</sup> Based on a Dell EMC Engineering study using the TPC-E benchmark to test Microsoft® SQL Server® 2016, August 2017. Actual performance will vary.

<sup>3</sup> Dell EMC Engineering has tested and approved a maximum of 3 NVIDIA® GPUs in the 14G R740xd server compared to 2 GPUs in 13G R730 server. The NVIDIA Tesla® M10 GPU Accelerator supports up to 64 users per GPU board. For more information, read the [NVIDIA Tesla M10 data sheet](#).

<sup>4</sup> Principled Technologies (PT) report commissioned by Dell EMC, “[Faster, More Powerful Handling of Database Workloads](#),” March 2018 (revised), using the DVDSStore2 benchmark comparing R720 servers with HDD-based EqualLogic shared storage versus R740xd servers with Internal NVMe and SAS SSD disks in a 2-node vSAN cluster. Actual performance will vary based on configuration, usage and manufacturing variability.

<sup>5</sup> Dell EMC press release, “[Dell EMC Expands Server Capabilities for Software-defined, Edge and High-Performance Computing](#).”

**34% increase** in VMs/node<sup>2</sup>

**Up to 50% more VDI users** per server<sup>3</sup>

**Up to 12X more database IOPS** in a vSAN cluster<sup>4</sup>

**Up to 20% better TCO** per four-node cluster for vSAN deployments at the edge<sup>5</sup>



As the only software-defined storage platform native to VMware vSphere®, vSAN helps customers evolve to HCI without risk while lowering IT costs and providing an agile solution ready for future hardware, cloud and application changes.

vSAN delivers flash-optimized, secure storage with the industry's first native HCI encryption solution at a fraction of the cost of traditional, purpose-built storage and less-efficient HCI solutions.<sup>6</sup>

## Are you facing any of these challenges?

### Optimizing servers for vSAN is time consuming

Dell EMC vSAN Ready Nodes are jointly tested and certified solutions that take the guesswork out of building vSAN architecture. Based on trusted and proven PowerEdge Servers, Dell EMC vSAN Ready Nodes offer powerful processors, high core counts, maximum memory densities, lots of fast internal storage and innovative modular network interface card (NIC) technology. You'll also benefit from the simplicity of having a single trusted source for the entire solution — which can be installed, implemented and supported globally by Dell EMC.

### Maximizing storage efficiency is becoming more difficult

Dell EMC vSAN Ready Nodes can increase storage efficiency with up to 10X greater storage utilization with dramatically lower storage capacity and costs.<sup>6</sup> Capital expenditures are minimized because you have the flexibility to spend less up front and scale only when necessary. Administrative overhead is reduced with fewer interfaces, fewer steps to complete tasks and reduced need for specialized knowledge. System management integration across servers, storage and networking from Dell EMC OpenManage and VMware vCenter Server® plug-ins means that one team can manage the day-to-day operations of compute and storage in one tool. Additionally, you can accelerate responsiveness to traditionally time-consuming tasks — from troubleshooting to performance tuning — with intelligent analytics, advanced monitoring and VM-level automation.

### Scaling is expensive and time consuming

Dell EMC vSAN Ready Nodes are pre-configured building blocks, specifically designed to simplify deployment and speed scaling. Dell EMC offers adaptable implementation options with a broad choice of rack-optimized, blade or kinetic systems. To scale up, simply add flash devices to existing hosts for increased performance. Add hard drives or flash devices to increase capacity. To scale out, just add more hosts with hybrid or all-flash devices. With Dell EMC vSAN Ready Nodes, Rackspace® was able to shorten implementation timeframes from months to weeks.<sup>14</sup>

<sup>6</sup> VMware vSAN 6.6 datasheet, "[Evolve without Risk to Secure Hyper-Converged Infrastructure](#)," March 2017.

## Dell EMC vSAN Ready Nodes

Not all workloads have the same requirements, so Dell EMC provides a variety of ready-to-order options and select factory-installed configurations based on different workload requirements for performance and capacity.

### Starting all-flash and hybrid rack configurations

vSAN Ready Nodes powered by the latest Intel technology						
<b>Server</b>	<b>PowerEdge R440</b>		<b>PowerEdge R640</b>		<b>PowerEdge C6420</b>	
						
	<b>All-flash</b>	<b>Hybrid</b>	<b>All-flash</b>	<b>Hybrid</b>	<b>All-flash</b>	<b>Hybrid</b>
<b>CPU</b>	Intel® Xeon® Gold 5118		Intel Xeon Silver 4114 to Intel Xeon Gold 6126	Intel Xeon Gold 5118	Intel Xeon Gold 5118	
<b>Memory</b>	192GB to 384GB					
<b>Storage<sup>7</sup></b>	7.68TB to 30.72TB NVMe 32TB Max, cache available	3.68TB to 16TB	7.68TB to 15.36TB NVMe SSD 70TB Max, cache available	4TB to 10.8TB	7.68TB to 15.36TB NVMe 16TB Max, cache available	3.6TB to 8TB
<b>Network</b>	On-board dual port and dual port daughter card		Dual port daughter card and add-in card		Dual port mezzanine card and quad port add-in card	
<b>Server/ Blade</b>	<b>PowerEdge R740</b>		<b>PowerEdge R740xd</b>		<b>PowerEdge FC430</b>	
						
	<b>All-flash</b>	<b>Hybrid</b>	<b>All-flash</b>	<b>Hybrid</b>	<b>All-flash</b>	
<b>CPU</b>	Intel Xeon Silver 4114 to Intel Xeon Gold 6126	Intel Xeon Gold 5118	Intel Xeon Gold 6126		Intel Xeon E5-2670 v3 Intel Xeon E5-2680 v4	
<b>Memory</b>	192GB to 384GB				256GB	
<b>Storage<sup>7</sup></b>	15.36TB to 46.08TB	8.4TB to 14.4TB	38.4TB to 80.64TB NVMe SSD 204.8TB Max, cache available	8.4TB to 25.2TB	5.76TB NVMe SSD 70TB Max	
<b>Network</b>	Dual port daughter card and add-in card				QLogic® 57810 Dual Port 10Gb Direct Attach/SFP+ Low Profile Network Adapter	

<sup>7</sup> Capacities shown are common ranges of raw, configurable storage per node. To calculate cluster storage, multiply by 4 for all-flash and by 3 for hybrid.

### PowerEdge MX NVMe, all-flash, and hybrid configurations

vSAN Ready Nodes powered by the latest Intel technology					
Server	PowerEdge MX740C			PowerEdge MX740C in the MX5106S	
					
	NVMe	All-flash	Hybrid		
<b>CPU</b>	Intel Xeon Gold 6130 2.1G, 16C/32T, 10.4GT/s, 22M Cache, Turbo, HT (125W)				
<b>Memory</b>	196GB to 384GB				
<b>Storage<sup>7</sup></b>	4TB to 20TB	15.36TB to 57.6TB	9.6TB to 19.2TB	15.36TB to 57.6TB	4TB to 192TB
<b>Controller</b>	HBA330				
<b>Network</b>	Intel XXV710 Dual Port 25GbE Mezzanine Card				

### AMD all-flash and hybrid configurations

vSAN Ready Nodes with AMD EPYC processors, designed for software defined storage with 128 PCIe lanes						
Server	PowerEdge R6415		PowerEdge R7415		PowerEdge R7425	
						
	All-flash	Hybrid	All-flash	Hybrid	All-flash	Hybrid
<b>CPU</b>	AMD® EPYC™ 7351P				AMD EPYC 7351	
<b>Memory</b>	128GB to 2048GB	64GB to 2048GB	128GB to 2048GB	64GB to 2048GB	128GB to 2048GB	64GB to 2048GB
<b>Storage<sup>7</sup></b>	7.68TB to 30.72TB NVMe cache available	3.6TB to 80TB	7.68TB to 80.64TB NVMe cache available	4.8TB to 200TB	46.08TB to 80.64TB NVMe cache available	14.4TB to 200TB
<b>Network</b>	Dual port networking and LOM add-in card				Quad port with network daughter card	Dual port and LOM add in card

View the [VMware Compatibility Guide](#).

## Why Dell EMC?

Dell EMC holds leadership positions in some of the biggest and largest growth categories in the IT infrastructure business, and that means you can confidently source your IT needs from one provider — Dell EMC.

- #1 in hyper-converged infrastructure<sup>8</sup>
- #1 converged infrastructure<sup>8</sup>
- #1 in traditional and all-flash storage<sup>9</sup>
- #1 virtualized data center infrastructure<sup>10</sup>
- #1 cloud IT infrastructure<sup>11</sup>
- #1 in data protection<sup>12</sup>
- #1 in software-defined storage<sup>13</sup>



Peter FitzGibbon  
GM and VP of VMware practice at Rackspace

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“With vSAN Ready Nodes, we can deploy faster across the globe and shorten that time from signing a contract and having an agreement with the customer to actually designing the gear and deploying the solution for them.

If I were describing vSAN Ready Nodes to my mom, I would tell her it’s like making a cake where a number of the ingredients are prepackaged and prebundled for you. You’re not starting from scratch every time, so you get that cake onto the table faster.”

— Peter FitzGibbon, general manager and vice president of the VMware practice at Rackspace<sup>14</sup>

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<sup>8</sup> [“Worldwide Converged Systems Revenue Increased 19.6% Year Over Year During the First Quarter of 2018 with Vendor Revenue Reaching \\$3.2 Billion, According to IDC.”](#) June 2018.

<sup>9</sup> [“Worldwide Enterprise Storage Market Grew 34.4% during the First Quarter of 2018, According to IDC.”](#) June 2018.

<sup>10</sup> Dell EMC [#1 in server market share](#) and VMware [#1 in virtualization software](#) according to IDC. Also stated in the Dell EMC Annual Report.

<sup>11</sup> [“Worldwide Cloud IT Infrastructure Revenues Continue to Grow by Double Digits in the First Quarter of 2018 as Public Cloud Expands, According to IDC.”](#) June 2018.

<sup>12</sup> [“Gartner Magic Quadrant for Data Center Backup and Recovery Solutions.”](#) July 2017.

<sup>13</sup> IDC WW Semiannual Software Tracker, April 2018.

<sup>14</sup> Dell EMC case study, [“Private Cloud as a Service.”](#) August 2018.



## Get the storage you need to support the business

Don't wait to find out more about how you can reduce project risk and improve storage efficiency with a VMware vSAN building block that's quick to scale.

Contact your Dell EMC sales representative, or visit the [Dell EMC vSAN Ready Nodes web page](#) to learn more.

## Contact us

To learn more, visit [dell EMC.com/servers](http://dell EMC.com/servers) or contact your local representative or authorized reseller.

## Services and financing

### Solutions customized for your needs

From the edge to the core to the cloud, [Dell EMC consulting](#) can partner with you to plan, advise, and execute your digital, IT, and workforce transformations. We stay with you every step of the way, linking people, process, and technology to accelerate innovation and achieve optimal business outcomes.

### Deployment assistance when you want it

To make your IT investments as productive as possible, as quickly as possible, [Dell EMC deployment services](#) can provide smart planning, bulletproof data migration, and high performance reliability. We've spent over 30 years building a deployment practice to complement your IT team so you can deploy your digital technology faster, with less effort and more control.

### Factory installation available

Dell EMC vSAN Ready Nodes Factory Install services help you experience an error-free first boot so you can focus on other projects — not on system configuration. Deployment is easy because:

- Firmware levels are configured correctly up front.
- Software versions are already installed for all components.
- The configuration arrives ready to add to a vSAN cluster.

### Support is always on

With our advanced digital tools and technologies, you can rest easy, knowing your support model is tailored to your exact needs. You'll get the visibility and insight to work smarter and can address small issues before they become a crisis. [Dell EMC support services](#) can help maximize uptime, prevent issues, accelerate repairs and reduce parts shipments. That's not just good for IT, but also for your bottom line and for the environment.

### Dell EMC Customer Solution Centers

Experience Dell EMC solutions in our global network of 21 dedicated facilities. [Dell EMC Customer Solution Centers](#) are trusted environments where world-class IT experts can collaborate with you to share best practices, and facilitate in-depth discussions of effective business strategies using briefings, workshops or proofs-of-concept to help you become more successful and competitive. Dell EMC Customer Solution Centers reduce the risk associated with new technology investments and can help improve speed of implementation.

### Dell Financial Services

- Full-service leasing and financing solutions are located throughout the U.S., Canada and Europe.
- [Dell Financial Services](#) can finance the total technology solution.
- Efficient electronic quoting and online contracts offer the best customer experience.

