



Dell EMC Storage Spaces Direct Ready Nodes For Microsoft Azure Stack HCI

Hyper Converged Infrastructure for Microsoft Azure Stack HCI

Dell EMC Microsoft Storage Spaces Direct (S2D) Ready Nodes are pre-configured, validated and certified hyper converged infrastructure nodes designed to run Microsoft Azure Stack HCI. The S2D Ready Nodes are built on Dell EMC PowerEdge servers, which provide the high-performance compute, storage and networking to maximize benefits of software defined datacenter features of Microsoft Windows Server 2019.

Using Microsoft Storage Spaces Direct software defined storage in addition to Hyper-V compute virtualization capabilities available as part of Microsoft Windows Server 2019, customers can take advantage of the simplicity, availability and TCO advantages of hyper-converged architecture to modernize their IT infrastructure.

Dell EMC S2D Ready Nodes simplify Azure Stack HCI design, procurement, deployment and management by providing nodes which are pre-configured and optimized for features such as caching, storage tiering together with hardware innovations such as RDMA networking, Optane persistent memory, high performance SSD and NVMe drives to deliver unrivaled simplicity, efficiency and performance. Using S2D Ready Nodes as a scalable building block, customers can take advantage of solution configurations starting from 2 to 16 nodes with qualified networking, architectural and deployment guidance for infrastructure needs at Edge, ROBO or datacenter locations.

Key Features of Dell EMC S2D Ready Nodes:

- Multiple configurations across four different node models for varying application performance, capacity or location needs
- Simplified management, configuration and monitoring via Dell EMC OpenManage integrations with Microsoft Windows Admin Center (WAC) and Systems Center Virtual Machine Manager (SCVMM)
- Fully qualified Dell EMC Networking 10/25/100GbE switches with the Ready Nodes enable a complete hyper converged infrastructure solution
- Professional onsite deployment and single point of technical support with Dell EMC ProDeploy/ ProDeploy Plus and Dell ProSupport/ProSupport Plus

“Dell EMC did the work to build their Ready Nodes to have the maximum amount of power and storage in a 2U device that conforms and is on catalog for Storage Spaces Direct. It was really an easy design to put forward and to consolidate our existing Hyper-V virtual machines on to.”

Lee Harrison
Microsoft Solutions Architect, Fasthosts

Detailed specifications of Storage Spaces Ready Nodes and available configurations can be found below:

Dell EMC R440 S2D				
Storage Configuration	Hybrid (SSD + HDD)		All flash	
Chassis Configurations	10 x 2.5" front bay drives	8 x 2.5" front bay drives	8 x 2.5" front bay drives	10 x 2.5" front bay drives
Processors	Dual Intel Xeon Scalable (Select Silver/Gold/Platinum options)			
Memory	128 GB to 1 TB (16/32/64 GB DDR on 8, 16, 32 or 64 (12 DIMMs only)); supports RDIMM /LRDIMM; speeds up to 2666MT/s)			
Storage controller	Internal HBA330 12Gbps SAS HBA Controller (NON-RAID), Minicard			
Internal Boot Storage	BOSS with dual M.2 240GB and 480GB (RAID 1)			
Storage for Cache WI = write intensive MU = mixed use	2 x 800 or 960GB SAS/ SATA MU SSDs	2 x 800 or 960GB SAS/ SATA MU SSDs	-	-
Storage for Capacity	4/6/8 x 2 TB NL-SAS/ SATA or 2.4 TB SAS 10K HDD	4/6 x 2 TB NL-SAS/ SATA or 2.4 TB SAS 10K HDD	4 to 8 x SAS/SATA SSDs	4 to 10 x SAS/SATA SSDs
Min/Max Raw Storage	SATA: 8/12/16 TB SAS: 9.6/14.4/19.2 TB	SATA: 8/12/16 TB SAS: 9.6/14.4/19.2 TB	3.2 to 61.4 TB	3.2 to 76.8 TB
Network cards	Add-in-card: 1x QLogic QL41262 (Dual Port 25GbE) or 1 x Mellanox ConnectX-4 LX (Dual Port 25GbE) or 1 x Mellanox Connect X5 (Dual Port 100GbE) LOM: On-Board Broadcom 5720 Dual Port 1Gb LOM, or Broadcom 57416 Dual Port 10 GbE or, Broadcom 57414 Dual Port 25Gb			
HCI Software	Microsoft Windows Server 2019 or 2016 Datacenter Edition with Hyper-V, Storage Spaces Direct, SDN Microsoft Windows Admin Center (WAC) Microsoft Systems Center			
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise for 14G IPMI 2.0 compliant Quick Sync2 (Optional)			
Integrations	Dell EMC OpenManagement Integration for Windows Admin Center Dell EMC OpenManagement Integration for Microsoft Systems Center			
Services	ProSupport and ProSupport Plus, ProDeploy, ProDeploy Plus with add-on for Microsoft Storage Spaces Direct Ready Nodes ProSupport for Software for Storage Spaces Direct Ready Nodes Consulting Services for Azure Stack HCI			
Security	Trusted Platform Module 2.0 (optional)			
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100W or 1100W - 48VDC only Dual, Hot-plug, Redundant Power Supply (1+1), 1600W			
Form Factor	1 U Rack			

Dell EMC R640 S2D Ready Nodes

Storage Configuration	Hybrid (SSD + HDD)	Hybrid (SSD + HDD) (ROBO)	Optane + SSD	NVMe + SSD	All NVMe	NVMe + HDD	All flash (ROBO)	All flash	Optane Memory + NVMe	Optane Memory +SSD
Chassis Configurations	10 x 2.5" front bay + 2 x 2.5" rear bay drives	10 x 2.5" front bay drives	10 x 2.5" front bay drives (10 NVMe, Max of 8 SAS/SATA, 3 PCIe Slots, 2 CPU only)				10 x 2.5" front bay drives	10 x 2.5" front bay drives + 2 x 2.5" rear bay drives	10 x 2.5" front bay drives (10 NVMe, Max of 8 SAS/SATA)	10 x 2.5" front bay drives
Processors	Dual Intel Xeon Scalable (Select Silver/Gold/Platinum options)									
Memory	128 GB to 1.5 TB (16/32/64 GB DDR on 8,12,16 or 24 DDR4 DIMM slots; supports RDIMM /LRDIMM; speeds up to 2666MT/s)									DRAM Memory: 384 GB via 12 x 32 GB DIMMs-Optane DC Persistent Memory: 1.5 TB via 12 x 128 GB DIMMs only
Storage controller	Internal HBA330 12Gbps SAS HBA Controller (NON-RAID)									
Internal Boot Storage	BOSS with dual M.2 240GB and 480GB (RAID 1)									
Storage for Cache WI = write intensive MU = mixed use	2/3/4 x 800 GB to 3.84 TB SAS (WI/ MU)/ SATA (MU) SSDs	2 x 800 GB to 3.84 TB SAS (WI/ MU) / SATA (MU) SSDs	2 x 375 GB P4800x Optane NVMe	2 x 1.6/3.2/ 6.4 TB MU NVMe	-	2 x 1.6/3.2/ 6.4 TB MU NVMe	-	-	12 x 128 GB Optane Memory	12 x 128 GB Optane Memory
Storage for Capacity	4/8/9 x 2 TB NL-SAS/ SATA or 2.4 TB SAS 10K HDD	4/6/8 x 2 TB NL-SAS/ SATA or 2.4 TB SAS 10K HDD	4/6/8 x 800/960/ 1.6 / 1.92 TB SAS/ vSAS/ SATA SSD	4-8 x 800GB to 7.68 TB SAS/ vSAS/ SATA SSD	4/6/8/10 x 4 TB RI or 1.6/3.2/ 6.4 TB SSD NVMe MU	4/6/8 x 2 TB SATA or 2.4 TB SAS 10K HDD	4 to 10 x 800GB to 3.84TB SAS/ SATA SSDs	4 to 12 x 800GB to 3.84TB SAS/ SATA SSDs or 7.68TB vSAS	4/6/8/10 x 960 GB/1 TB RI NVMe or 1.6 TB MU NVMe	4/6/8/10 x 800/960 GB/1.6/ 1.92 TB SAS/ SATA SSDs
Min/Max Raw Storage	8 to 21.6 TB	8 to 19.2 TB	8 to 15.3 TB	3.2 to 61.4 TB	6.4 to 64 TB	3.2 to 61.4 TB	3.2 to 76.8 TB	3.2 to 92.16 TB	3.2GB to 19.2 TB	3.8 to 16 TB
Network cards	Add-in-cards: 1x QLogic QL41262 (Dual Port 25GbE) or 1 x Mellanox ConnectX-4 LX (Dual Port 25GbE) or *1 x Mellanox Connect X5 (Dual Port 100GbE) *[On selected models] Network daughter card (NDC): Dual Port 10GbE + Dual Port 1GbE (Intel, Broadcom, Qlogic, Qlogic FastLinQ)									

Dell EMC R640 S2D Ready Nodes

HCI Software	Microsoft Windows Server 2019 or 2016 Datacenter Edition with Hyper-V, Storage Spaces Direct, SDN Microsoft Windows Admin Center (WAC) Microsoft Systems Center
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise for 14G IPMI 2.0 compliant Quick Sync2 (Optional)
Integrations	Dell EMC OpenManagement Integration for Windows Admin Center Dell EMC OpenManagement Integration for Microsoft Systems Center
Services	ProSupport and ProSupport Plus, ProDeploy, ProDeploy Plus with add-on for Microsoft Storage Spaces Direct Ready Nodes ProSupport for Software for Storage Spaces Direct Ready Nodes Consulting Services for Azure Stack HCI
Security	Trusted Platform Module 2.0 (optional)
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100W or 1100W - 48VDC only Dual, Hot-plug, Redundant Power Supply (1+1), 1600W
Form Factor	1U Rack

Dell EMC R740XD S2D Ready Nodes

Storage Configuration	Hybrid (SSD + HDD)		NVMe AIC + HDD	All NVMe	NVMe + HDD	NVMe + SSD	All flash
Chassis Configurations	12 x 3.5" front bay + 4 x 3.5" mid bay + 2 x 3.5" rear bay drives	12 x 3.5" front bay drives	12 x 3.5" front bay drives with 2 NVMe AICs	24 x 2.5" front bay drives, with up to 12 NVMe	24 x 2.5" front bay drives, including 4 NVMe		24 x 2.5" front bay drives
Processors	Dual Intel Xeon Scalable (Select Silver/Gold/Platinum options)						
Memory	128 GB to 1.5 TB (16/32/64 GB DDR on 8,12,16 or 24 DDR4 DIMM slots; supports RDIMM /LRDIMM; speeds up to 2666MT/s)						
Storage controller	Internal HBA330 12Gbps SAS HBA Controller (NON-RAID)						
Internal Boot Storage	BOSS with dual M.2 240GB and 480GB (RAID 1)						
Storage for Cache WI = write intensive MU = mixed use	Up to 6 x 800 GB to 3.84 TB SAS (WI/MU) / SATA MU SSDs	2 or 4 x 800 GB to 3.84 TB SAS (WI/MU) / SATA (MU) SSDs	2 x 1.6 TB to 6.4 TB PCIe SSD NVMe MU Add-in-Cards (AIC)	-	2 or 4 x 1.6 TB to 6.4 TB PCIe SSD NVMe MU (drives)		-
Storage for Capacity	Up to 12 x 4/8/12 TB NL-SAS/ SATA HDDs	4 or 8 x 2/4/8 TB NL-SAS/ SATA HDDs	4, 8 or 12 x 2/4/8 TB NL-SAS/ SATA HDDs	4 to 12 x 1.6 to 6.4 TB PCIe SSD NVMe MU (drives)	4 to 20 x 2 TB NL-SAS/SATA or 2.4 TB SAS 10k HDD	4 to 20 x NL-SAS/SATA MU SSD (Multiple Capacity Points)	4 to 24 x 800GB to 3.84TB SAS / SATA SSDs or 7.68TB vSAS
Min/Max Raw Storage	48 to 96 TB	8 to 64 TB	24 to 96 TB	6.4 to 76.8 TB	8 to 48 TB	8 to 76.8 TB	3.2 to 184.32TB
Network cards	Add-in-cards: 1 or 2x *QLogic QL41262 (Dual Port 25GbE) *[4x on selected models] or 1 or 2x Mellanox ConnectX-4 LX (Dual Port 25GbE) or 1 or 2x *Mellanox Connect X5 (Dual Port 100GbE) *[On selected models] Network daughter card (NDC): Dual Port 10GbE + Dual Port 1GbE (Intel, Broadcom, Qlogic, Qlogic FastLinQ)						

Dell EMC R740XD S2D Ready Nodes

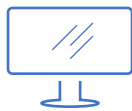
HCI Software	Microsoft Windows Server 2019 or 2016 Datacenter Edition with Hyper-V, Storage Spaces Direct, SDN Microsoft Windows Admin Center (WAC) Microsoft Systems Center
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise for 14G IPMI 2.0 compliant Quick Sync2 (Optional)
Integrations	Dell EMC OpenManagement Integration for Windows Admin Center Dell EMC OpenManagement Integration for Microsoft Systems Center
Services	ProSupport and ProSupport Plus, ProDeploy, ProDeploy Plus with add-on for Microsoft Storage Spaces Direct Ready Nodes ProSupport for Software for Storage Spaces Direct Ready Nodes Consulting Services for Azure Stack HCI
Security	Trusted Platform Module 2.0 (optional)
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100W or 1100W - 48VDC only Dual, Hot-plug, Redundant Power Supply (1+1), 1600W Dual, Hot-plug, Redundant Power Supply (1+1), 2000W
Form Factor	2U Rack

Dell EMC R740XD2 S2D Ready Nodes

Storage Configuration	Hybrid (SSD + HDD)
Chassis Configurations	12 x 3.5" front bay 1 + 12 x 3.5" front bay 2
Processors	Dual Intel Xeon Scalable (Select Silver/Gold/Platinum options)
Memory	96 GB to 384 GB (16/32/64 GB DDR on 8,12,16 or 24 DDR4 DIMM slots; supports RDIMM /LRDIMM; speeds up to 2666MT/s)
Storage controller	Internal HBA330 12Gbps SAS HBA Controller (NON-RAID)
Internal Boot Storage	BOSS with dual M.2 240GB and 480GB (RAID 1)
Storage for Cache WI = write intensive MU = mixed use	Up to 8 x 800 GB to 3.84 TB SAS (WI/MU)/SATA MU SSDs (front bay 2 only)
Storage for Capacity	Up to 20 x 8 to 12 TB NL-SAS/SATA HDD (front bay 1 and 2)
Min/Max Raw Storage	128 to 280 TB
Network cards	Add-in-cards: 1 or 2 x Mellanox ConnectX-4 LX (Dual Port 25GbE) or 1 or 2 x QLogic QL41262 (Dual Port 25GbE) On-Board: Broadcom 5720 Dual Port 1 GbE Mezz Card: Broadcom 57416 Dual Port 10 GbE SFP+
HCI Software	Microsoft Windows Server 2019 Datacenter Edition with Hyper-V, Storage Spaces Direct, SDN Microsoft Windows Admin Center (WAC) Microsoft Systems Center
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise for 14G IPMI 2.0 compliant Quick Sync2 (Optional)
Integrations	Dell EMC OpenManagement Integration for Windows Admin Center Dell EMC OpenManagement Integration for Microsoft Systems Center
Services	ProSupport and ProSupport Plus, ProDeploy, ProDeploy Plus with add-on for Microsoft Storage Spaces Direct Ready Nodes ProSupport for Software for Storage Spaces Direct Ready Nodes Consulting Services for Azure Stack HCI

Dell EMC R740XD2 S2D Ready Nodes

Security	Trusted Platform Module 2.0 (optional)
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 750W Dual, Hot-plug, Redundant Power Supply (1+1), 1100W
Form Factor	2U Rack



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for Microsoft Azure Stack HCI



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