

DELL EMC INTEGRATED SYSTEM FOR MICROSOFT AZURE STACK HUB

Dell EMC Integrated System for Azure Stack Hub powered by Dell EMC hyperconverged infrastructure

Overview

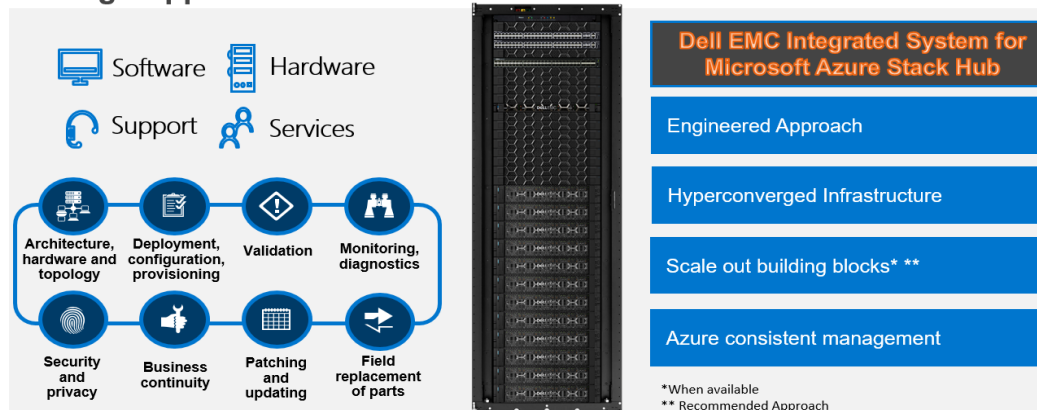
Dell EMC Integrated System for Microsoft Azure Stack Hub is a fully engineered hybrid cloud platform that is built on hyperconverged infrastructure powered by the latest Dell EMC PowerEdge servers. Leveraging Microsoft Windows 2016 software defined storage and networking capabilities, built with unparalleled Dell EMC hyperconverged infrastructure, and managed via the Microsoft Azure Stack interface, the Dell EMC Integrated System for Azure Stack Hub provides customers with a familiar Azure experience, whether in the cloud or on premises.

This architecture consists of common modular building blocks that scale linearly from 4 to 16 nodes in a scale unit (SU). The Integrated System for Microsoft Azure Stack Hub provides a simple, cost-effective solution that delivers multiple performance and capacity options to match any use case and covers a wide variety of cloud-native applications and workloads.

Based on Microsoft Azure Stack software and incorporating Intel Xeon Gold and Platinum processors, the Dell EMC solution enables customers to start small and grow, scaling capacity and performance easily with minimal disruption. Scaling in predictable units ensures a “pay-as-you-grow” approach for future growth.

Dell EMC Integrated System for Microsoft Azure Stack Hub

Design Approach



Configuration options

The following table lists the dense, hybrid, and all-flash SUs that are available with the Integrated System for Microsoft Azure Stack solution.

Table 1. Scale units

Nodes	Server
4	Dell EMC PowerEdge R840, Dell EMC PowerEdge R740xd, or Dell EMC PowerEdge R640

Nodes	Server
8	Dell EMC PowerEdge R840, Dell EMC PowerEdge R740xd, or Dell EMC PowerEdge R640
12	Dell EMC PowerEdge R840, Dell EMC PowerEdge R740xd, or Dell EMC PowerEdge R640
16	Dell EMC PowerEdge R840, Dell EMC PowerEdge R740xd, or Dell EMC PowerEdge R640

The following tables list the capacity and performance options that each SU supports.

Table 2. Capacity and performance option for dense configuration

Configuration	Processor	Memory	SSD capacity
96-core	Platinum 8260 24 cores, 2.4 GHz	1,532 GB	24 x 3.84 TB (92.16 TB)

Table 3. Capacity and performance options for hybrid configurations

Configuration	Processor	Memory	Cache	Data storage		
24-core	Gold 4214 12 cores, 2.2 GHz	384 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS		
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS		
				10 x 12 TB (120 TB) SAS		
		576 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS		
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS		
				10 x 12 TB (120 TB) SAS		
32-core	Gold 5220 36 cores, 2.2 GHz	384 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS		
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS		
				10 x 12 TB (120 TB) SAS		
		576 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS		
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS		
				10 x 12 TB (120 TB) SAS		
		768 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS		
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS		
				10 x 12 TB (120 TB) SAS		
		40-core	Gold 6248 20 Cores, 2.5 GHz	576 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS
					6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS
						10 x 12 TB (120 TB) SAS
768 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS			10 x 4 TB (40 TB) SAS		
	6 x 1.92 TB (11.5 TB) SAS			10 x 8 TB (80 TB) SAS		
				10 x 12 TB (120 TB) SAS		

Configuration	Processor	Memory	Cache	Data storage
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS 10 x 12 TB (120 TB) SAS
96-core	Platinum 8260 24 cores, 2.4 GHz	768 GB	6 x 960/800 GB SSD = approx. 5.7 TB SAS	10 x 4 TB (40 TB) SAS
			6 x 1.92 TB (11.5 TB) SAS	10 x 8 TB (80 TB) SAS
				10 x 12 TB (120 TB) SAS

Table 3. Capacity and performance options for all-flash configurations

Configuration	Processor	Memory	SSD capacity
24-core	Gold 4214 12 cores, 2.2 GHz	384 GB	10 x 1.92 TB (19.2 TB)
		576 GB	
		768 GB	
36-core	Gold 5220 18 cores, 2.2 GHz	576 GB	10 x 1.92 TB (19.2 TB)
			10 x 3.84 TB (38.40 TB)
		768 GB	10 x 1.92 TB (19.2 TB)
			10 x 3.84 TB (38.40 TB)
40-core	Gold 6248 20 Cores, 2.5 GHz	768 GB	10 x 1.92 TB (19.2 TB)
			10 x 3.84 TB (38.40 TB)
48-core	Platinum 8260 24 cores, 2.4 GHz	768 GB	10 x 3.84 TB (38.40 TB)

Note: The capacity and performance options must be homogenous. You cannot mix and match within an SU.

Each SU also includes the required HLH server and network switches as listed in the following table.

Table 4. Server and network switches

Switch	Quantity	Hybrid configuration	All-flash configuration
Management server (HLH)	1	Dell EMC PowerEdge R640	Dell EMC PowerEdge R640
Top-of-rack (ToR)	2	Dell EMC Networking S5048-ON	Dell EMC Networking S5048F-ON Cisco Nexus 93180YC-FX
Management (Mgt)	1	Dell EMC Networking S3048-ON	Dell EMC Networking S3048-ON Cisco Nexus 9348GC-FXP

Environmental requirements

The following tables list the environmental requirements for an Integrated System for Microsoft Azure Stack Hub solution with different configurations of:

- 14 GB SUs

- 200-volt AC input voltage
- 35°C maximum ambient temperature

Table 5. Dense configuration environmental requirements

Object	4-node		8-node		12-node		16-node	
	Watts	BTU/hr	Watts	BTU/hr	Watts	BTU/hr	Watts	BTU/hr
Input power	5,630	19,200	10,411	35,500	15,161	51,700	19,941	68,000
Input current (amps) at 200 Vin	28.4		52.4		76.4		100.4	
Weight	880 lbs (399 kg)		1204 lbs (546 kg)		1,593 lbs (693 kg)		2301 lbs (1,044 kg) 2 racks	

Table 6. Hybrid configuration environmental requirements

Object		4-node		8-node		12-node		16-node	
		Watts	BTU/hr	Watts	BTU/hr	Watts	BTU/hr	Watts	BTU/hr
Input power	Min config.	3,395	11,577	5,979	20,388	8,563	29,200	11,147	38,011
	Mid config.	3,691	12,586	6,571	22,407	9,451	32,228	12,331	42,049
	Max config.	3,927	13391	7,043	24,017	10,159	34,642	13,275	45,268
Input current (amps)	Min config.	17.2		30.3		43.4		56.5	
	Mid config.	18.7		33.3		47.8		62.4	
	Max config.	19.9		35.6		51.4		67.1	
Weight		790 lbs (358 kg)		1,082 lbs (491 kg)		1,374 lbs (623 kg)		1,666 lbs (756 kg)	

Table 7. All-flash configuration environmental requirements

Object		4-node		8-node		12-node		16-node	
		Watts	BTU/hr	Watts	BTU/hr	Watts	BTU/hr	Watts	BTU/hr
Input power	Min config.	2,620	8,800	4,360	14,600	6,090	20,400	7,830	26,200
	Max config.	3,410	11,500	5,930	20,000	8,460	28,500	10,980	37,100
Input current (amps)	Min config.	13.1		21.8		30.5		39.7	
	Max config.	17.05		29.7		42.3		54.9	
Weight		703 lbs (319 kg)		899 lbs (408 kg)		1,096 lbs (497 kg)		1,292 lbs (586 kg)	

PDU power-drop requirements

The following table lists the power drops required for each number of SUs.

Table 8. Power-drop requirements

Number of SU nodes	Required number of power drops		
	Single phase	Three-phase Delta	Three-phase Wye
Dense			

Number of SU nodes	Required number of power drops		
	Single phase	Three-phase Delta	Three-phase Wye
4	2	1	1
8	3	1	1
12	4	2	1
16	5	3	2
Hybrid			
4	2	2	2
8	4	2	2
12	6	2	2
16	8	2	2
All flash			
4	2	2	2
8	4	2	2
12	4	2	2
16	6	2	2



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