DELL Technologies

Specification Sheet

Dell APEX Cloud Platform for Red Hat OpenShift

Dell APEX Cloud Platform for Red Hat OpenShift empowers organizations to unlock innovation with a consistent Kubernetes experience across their IT environments, utilizing Red Hat OpenShift. Through extensive integrations and numerous automations, the APEX Cloud Platform allows IT organizations to simplify application modernization and accelerate DevOps.

It is the first solution to offer seamless integration of the infrastructure presented directly into the OpenShift Web Console. Cluster administrators can manage the entire system from the same console they would use to manage the applications and services running in OpenShift.

The platform streamlines OpenShift operations by providing consistent management and operations, while reducing the cost, complexity, and eliminating the overhead of a hypervisor by running OpenShift directly on bare metal. This solution decreases the time it takes to deploy the cluster by up to 90% while minimizing your attack surface and simplifying the process of keeping the cluster up to date.

Collaboratively engineered by Dell and Red Hat to optimize the OpenShift experience

Key Features of Dell APEX Cloud Platform for Red Hat OpenShift

- Intelligently designed Dell MC nodes offer:
  - Initial deployment automation, full-stack lifecycle management, and ongoing infrastructure operations through the Dell APEX Cloud Platform Foundation Software
  - Flexible configurations for varying cloud-native application performance, capacity, or location requirements
  - Cluster scalability from a minimum of four to thousands of nodes
- Dell APEX Cloud Platform Foundation Software integrates with OpenShift Web Console, leveraging familiar interface that provides a simple, consistent, and centralized mechanism for operating all aspects of your OpenShift cluster.
- The Dell Software Defined Storage (SDS) is a common data storage solution that provides the availability of traditional infrastructure. This storage can be used with Dell APEX Navigator to enable data replication between on-premises and APEX Block Storage for Public Cloud.
- The Dell Container Storage Integration (CSI) allows for seamless access to the Dell Software Defined Storage to support stateful containers.
- The Dell APEX Cloud Platform creates a trustable way to handle infrastructure and call home events, create service requests and deliver remote support for troubleshooting.
- Dell ProDeploy and Dell ProSupport services deliver professional onsite deployment and single point-of-contact technical support.

MC-760 Compute Nodes

CPU Configuration	Single Socket	Dual Socket
Chassis Configurations	24 x 2.5” SAS Chassis No Drives Supported	
Processors	Up to two dual socket Intel Sapphire Rapids 4th Generation EP Processors (Silver/Gold/Platinum options)	
Memory	64 GB to 2 TB DDR5 (Up to 16 x DDR5 RDIMMs 4800 MT/s) (8 or 16 DIMM optimal Population)	128 GB to 4 TB DDR5 (Up to 32 x DDR5 RDIMMs 4800 MT/s) (16 or 32 DIMM optimal Population)
Storage controller	Internal HBA 355i 12Gbps SAS HBA Controller (NON-RAID)	None
Storage - OS Boot	BOSS N1 with dual hot-plug M.2 NVMe 960GB in RAID1	
Storage for Cache Min/Max RI = Read Intensive MU = Mixed Use WI = Write Intensive	-	-
Storage for Capacity Min/max RI = Read Intensive MU = Mixed Use WI = Write Intensive	-	-
Min/Max Raw Storage	-	-

Network cards	- Add-in-Card (required): 1-2
	  - Broadcom: 57414 dual port 10/25GbE SFP28
	  - NVIDIA: ConnectX-6 LX dual port 10/25GbE SFP28
	  - Mellanox: ConnectX-6 DX dual port 100GbE QSFP56
	- OCP NIC 3.0 Card (optional)
	  - Broadcom: 57414 dual port 10/25GbE SFP28
	  - Mellanox: ConnectX-6 LX dual port 10/25 GbE SFP28
	- Integrated LOM:
	  - 2 x 1 GbE Base-T Broadcom 5720 (used for factory imaging only, not supported for customer use cases)	

GPU DW = Double Wide SW = Single Wide	GPU capable: up to 4 x SW GPU or 2 x DW GPU - NVIDIA Ampere A2 SW, 60W, 16GB Passive - NVIDIA Ampere A16 DW, 250W, 64GB Passive - NVIDIA Ampere A30 DW, 165W, 24GB Passive - NVIDIA Ampere A40 DW, 300W, 48GB Passive	
Operating System	Red Hat CoreOS	
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise or Datacenter IPMI 2.0 compliant	
Integrations	Dell APEX Cloud Platform Foundation Software Dell APEX Cloud Platform extension in Microsoft Windows Admin Center	
Services	ProDeploy, ProDeploy Plus, ProSupport, ProSupport Plus, optional Dell Infrastructure and Consulting services Call-routing, phone home, remote support, and automated case creation supported with Secure Connect Gateway	
Security	Trusted Platform Module 2.0	
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100/1400/1800 W	
Form Factor	1U Rack	

MC-760 Storage Nodes

Storage Configuration	All Flash (All-SSD)	All Flash (All-NVMe)
Chassis Configurations	24 x 2.5” SAS Chassis Up to 24 SSD front drives (SAS)	24 x 2.5” NVMe Chassis Up to 24 NVMe front drives
Processors	Up to two dual socket Intel Sapphire Rapids 4th Generation EP Processors (Silver/Gold/Platinum options)	
Memory	128 GB to 4 TB DDR5 (Up to 32 x DDR5 RDIMMs 4800 MT/s) (16 or 32 DIMM optimal Population)	
Storage controller	Internal HBA 355i 12Gbps SAS HBA Controller (NON-RAID)	None
Storage - OS Boot	BOSS N1 with dual hot-plug M.2 NVMe 960GB in RAID1	
Storage for Cache Min/Max RI = Read Intensive MU = Mixed Use WI = Write Intensive	-	-
Storage for Capacity Min/max RI = Read Intensive MU = Mixed Use WI = Write Intensive	Minimum: 5 x 1.6 TB = 6.4 TB Maximum: 20 x 7.68 TB = 153.6 TB - Options for SAS devices - RI devices at >1.92 TB - MU => 1.6 TB	Minimum: 5 x 1.6 TB = 6.4 TB Maximum: 20 x 7.68 TB = 153.6 TB - RI devices at >1.92 TB - MU => 1.6 TB
Min/Max Raw Storage	6.4 to 160 TB	6.4 to 160 TB
Network cards	- Add-in-Card (required): 1-2 - Broadcom: 57414 dual port 10/25GbE SFP28 - NVIDIA: ConnectX-6 LX dual port 10/25GbE SFP28 - Mellanox: ConnectX-6 DX dual port 100GbE QSFP56 - OCP NIC 3.0 Card (optional) - Broadcom: 57414 dual port 10/25GbE SFP28 - Mellanox: ConnectX-6 LX dual port 10/25 GbE SFP28 - Integrated LOM: - 2 x 1 GbE Base-T Broadcom 5720 (used for factory imaging only, not supported for customer use cases)	
GPU DW = Double Wide SW = Single Wide	No GPU support in storage nodes	
Operating System	Red Hat Enterprise Linux 8.8	
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise or Datacenter IPMI 2.0 compliant	
Integrations	Dell APEX Cloud Platform Foundation Software Dell APEX Cloud Platform extension in OpenShift Web Console	
Services	ProDeploy, ProDeploy Plus, ProSupport, ProSupport Plus, optional Dell Infrastructure and Consulting services Call-routing, phone home, remote support, and automated case creation supported with Secure Connect Gateway	
Security	Trusted Platform Module 2.0	
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100/1400/1800 W	
Form Factor	1U Rack	

MC-660 Compute Nodes

CPU Configuration	Single Socket	Dual Socket
Chassis Configurations	10 x 2.5” SAS Chassis No Drives Supported	
Processors	Up to two dual socket Intel Sapphire Rapids 4th Generation EP Processors (Silver/Gold/Platinum options)	
Memory	64 GB to 2 TB DDR5 (Up to 16 x DDR5 RDIMMs 4800 MT/s) (8 or 16 DIMM optimal Population)	128 GB to 4 TB DDR5 (Up to 32 x DDR5 RDIMMs 4800 MT/s) (16 or 32 DIMM optimal Population)
Storage controller	Internal HBA 355i 12Gbps SAS HBA Controller (NON-RAID)	None
Storage - OS Boot	BOSS N1 with dual hot-plug M.2 NVMe 960GB in RAID1	
Storage for Cache Min/Max RI = Read Intensive MU = Mixed Use WI = Write Intensive	-	-
Storage for Capacity Min/max RI = Read Intensive MU = Mixed Use WI = Write Intensive	-	-
Min/Max Raw Storage	-	-

Network cards	- Add-in-Card (required): 1-2
	  - Broadcom: 57414 dual port 10/25GbE SFP28
	  - NVIDIA: ConnectX-6 LX dual port 10/25GbE SFP28
	  - Mellanox: ConnectX-6 DX dual port 100GbE QSFP56
	- OCP NIC 3.0 Card (optional)
	  - Broadcom: 57414 dual port 10/25GbE SFP28
	  - Mellanox: ConnectX-6 LX dual port 10/25 GbE SFP28
	- Integrated LOM:
	  - 2 x 1 GbE Base-T Broadcom 5720 (used for factory imaging only, not supported for customer use cases)	

GPU DW = Double Wide SW = Single Wide	GPU capable: up to 2 x SW GPU - NVIDIA Ampere A2 SW, PCIe, 60W, 16GB Passive (limit 1 per node)	
Operating System	Red Hat CoreOS	
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise or Datacenter IPMI 2.0 compliant	
Integrations	Dell APEX Cloud Platform Foundation Software Dell APEX Cloud Platform extension in Microsoft Windows Admin Center	
Services	ProDeploy, ProDeploy Plus, ProSupport, ProSupport Plus, optional Dell Infrastructure and Consulting services Call-routing, phone home, remote support, and automated case creation supported with Secure Connect Gateway	
Security	Trusted Platform Module 2.0	
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100/1400/1800 W	
Form Factor	1U Rack	

MC-660 Storage Nodes

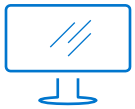
Storage Configuration	All Flash (All-SSD)	All Flash (All-NVMe)
Chassis Configurations	10 x 2.5” SAS Chassis Up to 10 SSD front drives (SAS)	10 x 2.5” NVMe Chassis Up to 10 NVMe front drives
Processors	Up to two dual socket Intel Sapphire Rapids 4th Generation EP Processors (Silver/Gold/Platinum options)	
Memory	128 GB to 4 TB DDR5 (Up to 32 x DDR5 RDIMMs 4800 MT/s) (16 or 32 DIMM optimal Population)	
Storage controller	Internal HBA 355i 12Gbps SAS HBA Controller (NON-RAID)	None
Storage - OS Boot	BOSS N1 with dual hot-plug M.2 NVMe 960GB in RAID1	
Storage for Cache Min/Max RI = Read Intensive MU = Mixed Use WI = Write Intensive	-	-
Storage for Capacity Min/max RI = Read Intensive MU = Mixed Use WI = Write Intensive	Minimum: 5 x 1.6 TB = 6.4 TB Maximum: 10 x 7.68 TB = 76.8 TB - Options for SAS devices - RI devices at >1.92 TB - MU => 1.6 TB	Minimum: 5 x 1.6 TB = 6.4 TB Maximum: 10 x 15.36 TB = 153.6 TB - RI devices at >1.92 TB - MU => 1.6 TB
Min/Max Raw Storage	6.4 to 76.8 TB	6.4 to 153.6 TB
Network cards	- Add-in-Card (required): 1-2 - Broadcom: 57414 dual port 10/25GbE SFP28 - NVIDIA: ConnectX-6 LX dual port 10/25GbE SFP28 - Mellanox: ConnectX-6 DX dual port 100GbE QSFP56 - OCP NIC 3.0 Card (optional) - Broadcom: 57414 dual port 10/25GbE SFP28 - Mellanox: ConnectX-6 LX dual port 10/25 GbE SFP28 - Integrated LOM: - 2 x 1 GbE Base-T Broadcom 5720 (used for factory imaging only, not supported for customer use cases)	
GPU DW = Double Wide SW = Single Wide	No GPU support in storage nodes	
Operating System	Red Hat Enterprise Linux 8.8	
Out of Band Management	Integrated Dell Remote Access Controller (iDRAC) 9 Enterprise or Datacenter IPMI 2.0 compliant	
Integrations	Dell APEX Cloud Platform Foundation Software Dell APEX Cloud Platform extension in OpenShift Web Console	
Services	ProDeploy, ProDeploy Plus, ProSupport, ProSupport Plus, optional Dell Infrastructure and Consulting services Call-routing, phone home, remote support, and automated case creation supported with Secure Connect Gateway	
Security	Trusted Platform Module 2.0	
Power Supplies	Dual, Hot-plug, Redundant Power Supply (1+1), 1100/1400/1800 W	
Form Factor	1U Rack	

Additional Resources:

- Dell Partner Page on Red Hat
  https://www.redhat.com/dell

- Dell SDS Block Storage Specification Sheet
  https://www.delltechnologies.com/asset/en-us/products/storage/technical-support/powerflex-specification-sheet.pdf

- Dell APEX Navigator for Multicloud Storage Specification Sheet
  https://www.delltechnologies.com/asset/en-us/solutions/apex/briefs-summaries/apex-navigator-for-multicloud-storage-solution-overview.pdf



Learn more about Dell APEX Cloud Platform for Red Hat OpenShift

Contact a Dell Expert
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