

DELL EMC POWERFLEX

Software-Defined Storage for Modern Datacenters

Specification Sheet

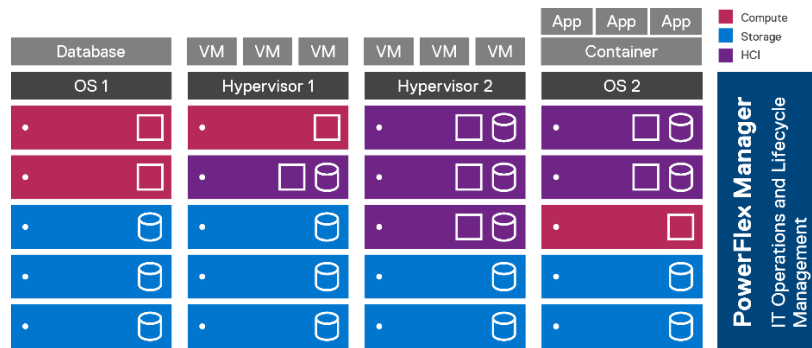


PowerFlex Software-Defined Storage

PowerFlex empowers organizations to harness the power of software so they can embrace change while achieving consistent predictable outcomes. PowerFlex is designed to deliver flexibility, elasticity, and simplicity with predictable performance and resiliency at scale by combining compute and high-performance storage resources in a managed unified fabric. In addition to delivering high-performance block storage with rich data services, PowerFlex offers simple yet comprehensive toolset for IT operations and lifecycle management of the entire infrastructure, helping automate infrastructure workflows. PowerFlex is ideal for high-value databases and workloads, agile private cloud deployments and datacenter consolidation.

Flexible Deployment Architectures

PowerFlex offers extreme flexibility and massive scalability. It offers deployment flexibility with two-layer (Server SAN), single-layer (HCI), storage-only, or mixed architectures.



Flexible Scalable PowerFlex Deployment

- Disaggregated two-layer architecture enables independent scaling of storage and compute resources, and may be ideal for minimizing licensing expenses for applications like Oracle. It also separates application performance from the datasets.
- In a single-layer HCI architecture, each node contributes compute and storage resources, hosting both applications and datasets. This may be optimal for general consolidation, allowing you to scale with a predefined building block.
- A storage-only architecture is optimal when the compute workload resides on a non-PowerFlex node but benefits from the high-performance resilient storage services provided by PowerFlex.

By allowing you to flexibly mix these architectures in a single deployment, PowerFlex enables you to deploy and scale to meet your exact needs.

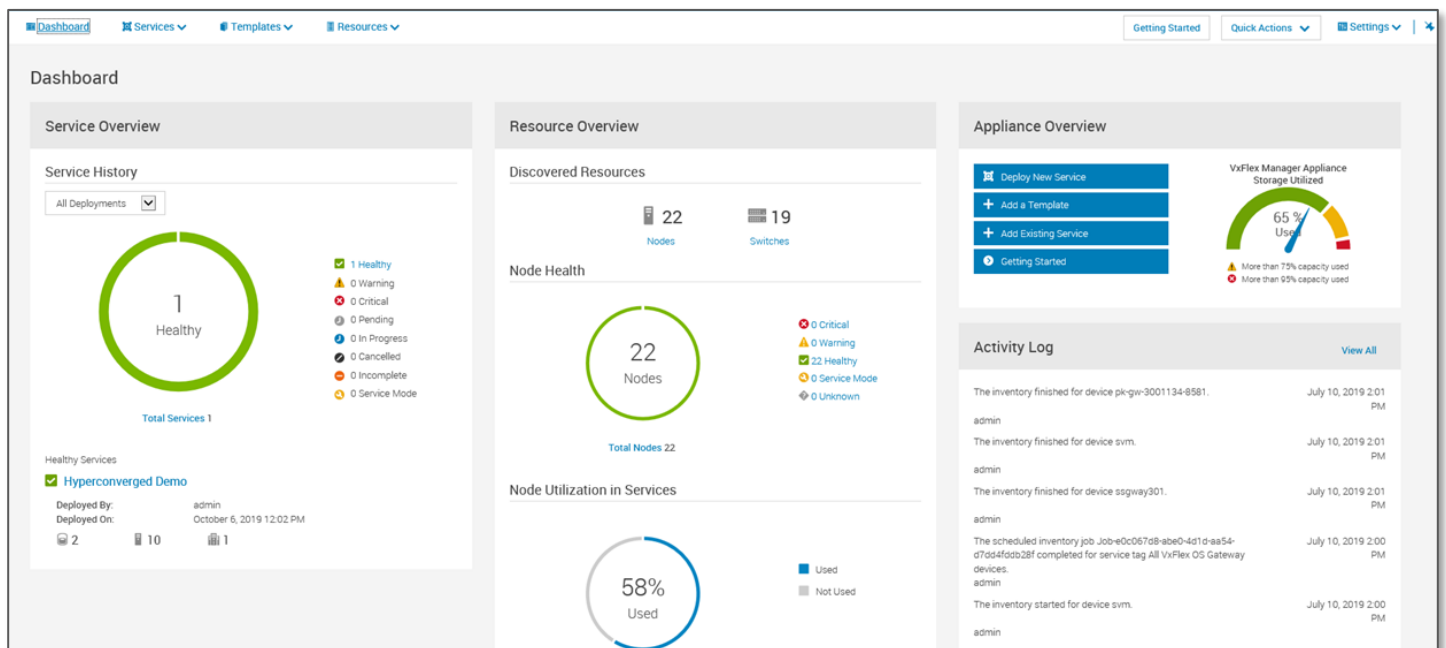
Management and Operations

PowerFlex offers a robust toolset for simplifying IT operations for the entire infrastructure. PowerFlex Manager, a key component of the PowerFlex family, offers tools for IT operations and lifecycle management that automate infrastructure workflows from BIOS and firmware to nodes, hypervisors and networking.

Additionally, PowerFlex includes critical data services with its all-inclusive software licensing. They include high-availability with quick rebuilds, native data replication and snapshots, integrated hardware-based encryption, and data reduction. These services further simplify how administrators manage, protect and secure data.

PowerFlex utilizes standards-based hardware nodes based on industry-leading PowerEdge servers that are rigorously tested and integrated into the PowerFlex system. PowerFlex rack offers integrated networking with professional deployment, simplifying deployment operations. Further, PowerFlex supports standards-based open APIs, making it a breeze to integrate with third party tools and custom workflows. PowerFlex Manager offers:

- Deployment – deploy services through the use of standardized templates aligned with Hyperconverged, Storage-Only and Compute-Only offerings.
- Health and alerting – health status at a glance, pass alerts via Secure Remote Services (SRS) or configure alert connector to send email alerts.
- Compliance – PowerFlex Manager uses the RCM or IC to track and remediate drift management.
- Maintenance – maintenance modes allow for servicing the system.
- Expansion – expand by duplicating existing services, matching the configuration.
- Upgrade – when changing between RCMs/ICs, PowerFlex Manager supports upgrading all major components, including BIOS, firmware and drivers, NXOS, ESXi, PowerFlex software and CloudLink.



PowerFlex Consumption Option

Dell EMC strongly believes that one size does not fit all. That is why for the PowerFlex family, you have choice and flexibility in how you choose to consume the PowerFlex architecture:

- PowerFlex appliance allows customers the flexibility and savings to 'bring their own' networking. With PowerFlex appliance, customers benefit from a smaller starting point, with massive scale potential, without having to compromise on performance and resiliency.
- PowerFlex rack is a rack-scale engineered system with integrated networking for easy scale-out. A white glove deployment service ensures a complete turnkey experience while the Release Certification Matrix (RCM) further simplifies upgrades and keeps systems stabilized and optimized and removes the challenge of self-testing all firmware and software.

	PowerFlex R640	PowerFlex R740xd	PowerFlex R840
Compute, Storage and Memory (per Node)			
Chassis	1U1N	2U1N	2U1N
Intel™ Xeon™ Scalable Gen 1 and Gen 2 Processors			
CPU sockets	Dual	Dual	Quad
CPU cores	8 – 56	8 – 56	16 – 112
CPU frequency	1.9 GHz – 3.8 GHz	1.9 GHz – 3.8 GHz	2.1 GHz – 3.8 GHz
RAM*	96 GB – 3072 GB	96 GB – 3072 GB	384 GB – 6144 GB
All flash storage		960 GB – 7.68 TB SAS, or 480 GB – 3.84 TB SATA or 1 TB – 6.4 TB NVMe** 1.92 TB – 61.44 TB SAS <i>or</i> 1.92 TB – 30.7 TB SATA 1.92 TB – 153.6 TB SAS <i>or</i> 1.92 TB – 76.8 TB SATA	
Drive bays	10 x 2.5"	24 x 2.5"	24 x 2.5"
NVDIMM + RDIMM Support	Yes**	Yes	Yes
Boot/OS solution	1x 240GBSATA M.2 "BOSS"	1x 240GB SATA M.2 "BOSS"	1x 240GB SATA M.2 "BOSS"
GPU Options	n/a	Nvidia V100, M10, P40	Nvidia V100, M10, P40
Node network connectivity	Intel X710/I350 NDC Intel X710 Mellanox CX4 NDC Mellanox CX4 Mellanox CX5	Intel X710/I350 NDC Intel X710 Mellanox CX4 NDC Mellanox CX4 Mellanox CX5	Intel X710/I350 NDC Intel X710 Mellanox CX4 NDC Mellanox CX4 Mellanox CX5
Management port	iDRAC 9 Out of Band Management	iDRAC 9 Out of Band Management	iDRAC 9 Out of Band Management

*Adding NVDIMM changes max RAM configuration: 736GB for R640 & R740xd

** R640 does not support both NVMe and NVDIMM together

PowerFlex Clustering, Scaling and Management

Min Nodes Per Cluster (integrated rack, Two Layer Configuration)	4 Storage Only Nodes Minimum (6 or more recommended), 3 Compute Only Nodes
Max Nodes Per Cluster (integrated rack, HCI Configuration)	4 HCI Nodes minimum (6 or more recommended)
Min Nodes Per Cluster (appliance, Two Layer Configuration)	4 Storage Only Nodes Minimum, 3 Compute Only Nodes. Note:
Max Nodes Per Cluster (appliance, HCI Configuration)	4 HCI Nodes minimum*
Scaling Increments	1 Node (HCI, Compute Only or Storage Only)**
PowerFlex Manager Management Node Requirements***	PowerFlex Manager: • 8 vCPU, 32G RAM, 200GB disk space minimum PowerFlex Gateway: 2 vCPU, • 4GB, (These can reside on physical servers or as VMs)

* In 2-layer environments where existing compute nodes are to be utilized or compute nodes are running an operating system not supported by PowerFlex Manager, the minimum requirement is for four storage nodes only.

** A single node is the minimum scaling required to expand an existing Storage Pool. Creation of a net new Storage Pool requires the addition of a minimum of 3 Storage or HCI Nodes.

*** A PowerFlex Management Node will be required for new appliance installation at customer sites that do not have an existing management server. A Management Node is not required with PowerFlex integrated rack, as PowerFlex Manager is installed onto the controller nodes.

	PowerFlex R640	PowerFlex R740xd	PowerFlex R840
Networking (per node)			
Appliance Connectivity*	4x10/25 GbE SFP28 or 4x10 GbE RJ45	4x10/25 GbE SFP28 or 4x10 GbE RJ45	4x10/25 GbE SFP28 or 4x10 GbE RJ45
Management Ports	2x 1GbE (via rNDC)	2x 1GbE (via rNDC)	2x 1GbE (via rNDC)

PowerFlex Manager Supported Switches

Management Switches*	Cisco Nexus 3172, Cisco Nexus 31108TC-V, Dell EMC S4148T-ON
Access or Leaf Switches	Cisco Nexus 3132QX, Cisco Nexus 3164Q, Cisco Nexus 93180YC-EX, Cisco Nexus 93240YC-FX2, Dell S5048F-ON, Dell S5248F-ON, Dell S5224F-ON**, Dell S4148F-ON**
Aggregation or Spine Switches	Cisco Nexus 9236C, Cisco Nexus 9336C-FX2, Cisco Nexus 9332-PQ, Cisco Nexus 9364C, Dell EMC S5232F-ON

* For PowerFlex appliance, the management switch can be "bring your own".

** PowerFlex appliance only.

	PowerFlex R640	PowerFlex R740xd	PowerFlex R840
Power and Dimensions			
High-efficiency dual redundant PSU*	1100W -48V DC 750W 100 - 240V AC 1100W 100V – 240V AC 1600W 100V – 240V AC	1100W 100 - 240V AC 1600W100 - 240V AC 2000W 200V – 240V AC 2400W 200V – 240V AC	1600W 200V – 240V AC 2000W 200V – 240V AC 2400W 200V – 240V AC
Redundant cooling fans	8	6	4 or 6
Physical dimensions	42.8mm/1.68in H 434.0mm/17.09in W 733.82mm/29.61in D 21.9kg/48.28lb	86.8mm/3.42in H 434mm/17.09in W 678.8mm/26.72in D 28.1kg/61.95lb	86.8mm/3.42in H 434mm/17.09in W 678.8mm/26.72in D 28.1kg/61.95lb

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Environmental and Certifications			
Ambient operating temperature	10°C to 30°C 50°F to 86°F	10°C to 30°C 50°F to 86°F	10°C to 30°C 50°F to 86°F
Storage temperature range	-40°C to +65°C -40°F to +149°F	-40°C to +65°C -40°F to +149°F	-40°C to +65°C -40°F to +149°F
Operating relative humidity	10% to 80% (non-condensing)	10% to 80% (non-condensing)	10% to 80% (non-condensing)
Operating altitude with no deratings	3048m approx. 10,000 ft	3048m approx. 10,000 ft	3048m approx. 10,000 ft

STATEMENT OF COMPLIANCE

Dell EMC Information Technology Equipment is compliant with all currently applicable regulatory requirements for Electromagnetic Compatibility, Product Safety, and Environmental Regulations where placed on market.

Detailed regulatory information and verification of compliance is available at the Dell Regulatory Compliance website. http://dell.com/regulatory_compliance



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1-866-438-3622