DELL POWERFLEX

Unbounded software-defined infrastructure for the modern enterprise

Specification Sheet

PowerFlex Software-Defined Infrastructure

PowerFlex is an unbounded software-defined infrastructure that maximizes IT ecosystem flexibility. It provides a solid foundation for the customers for their IT infrastructure modernization journey. Capabilities such as unified block and file storage, and broad OS, hypervisor, platform support flexibility help consolidates disparate, heterogeneous workloads onto a common platform. Additionally, PowerFlex is designed to automate for agility with a unified management toolset, PowerFlex Manager, that simplifies IT operations and lifecycle management with extensive automation capabilities. Finally, software-driven storage optimization ensures extreme workload results, delivers linear scalability, and enables extreme consolidation without performance degradation, allowing customers to optimize their outcomes and meet extreme SLAs.

Modernize without limits

PowerFlex offers extreme flexibility to meet the diverse and rapidly evolving needs of modern enterprises. It offers unprecedented choice for customers to architect their mission-critical IT environments.

Mix and match storage, compute and HCI nodes in a dynamic deployment, allowing users to scale storage and compute resources together or independently, one node at a time, as needs dictate.
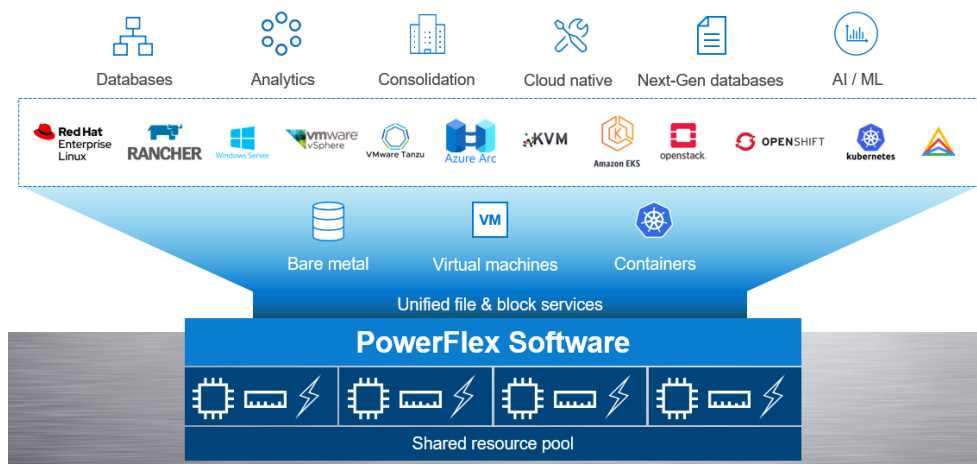
The platform can also support a broad range of operating environments – bare metal operating systems, hypervisors as well as container platforms – simultaneously with a unified infrastructure platform and management. By allowing you to flexibly mix these architectures in a single deployment, PowerFlex enables you to deploy, scale, and evolve all your applications to meet your business objectives.

Automate for agility

PowerFlex is engineered to streamline operations and boost agility with intelligent software-driven automation. PowerFlex Manager, a unified management toolset for PowerFlex systems, simplifies IT Operations and lifecycle management tasks by providing extensive automation that reduces administrative time. Further, a rich out-of-the-box toolset including PowerFlex REST API, PowerFlex Ansible modules, and Dell Container Storage Modules (CSM) and CSI drivers enhance DevOps productivity and IT agility. Lastly, with CloudIQ, PowerFlex leverages an AI/ML-based approach to infrastructure monitoring and management, ensuring simplicity and consistency at scale.
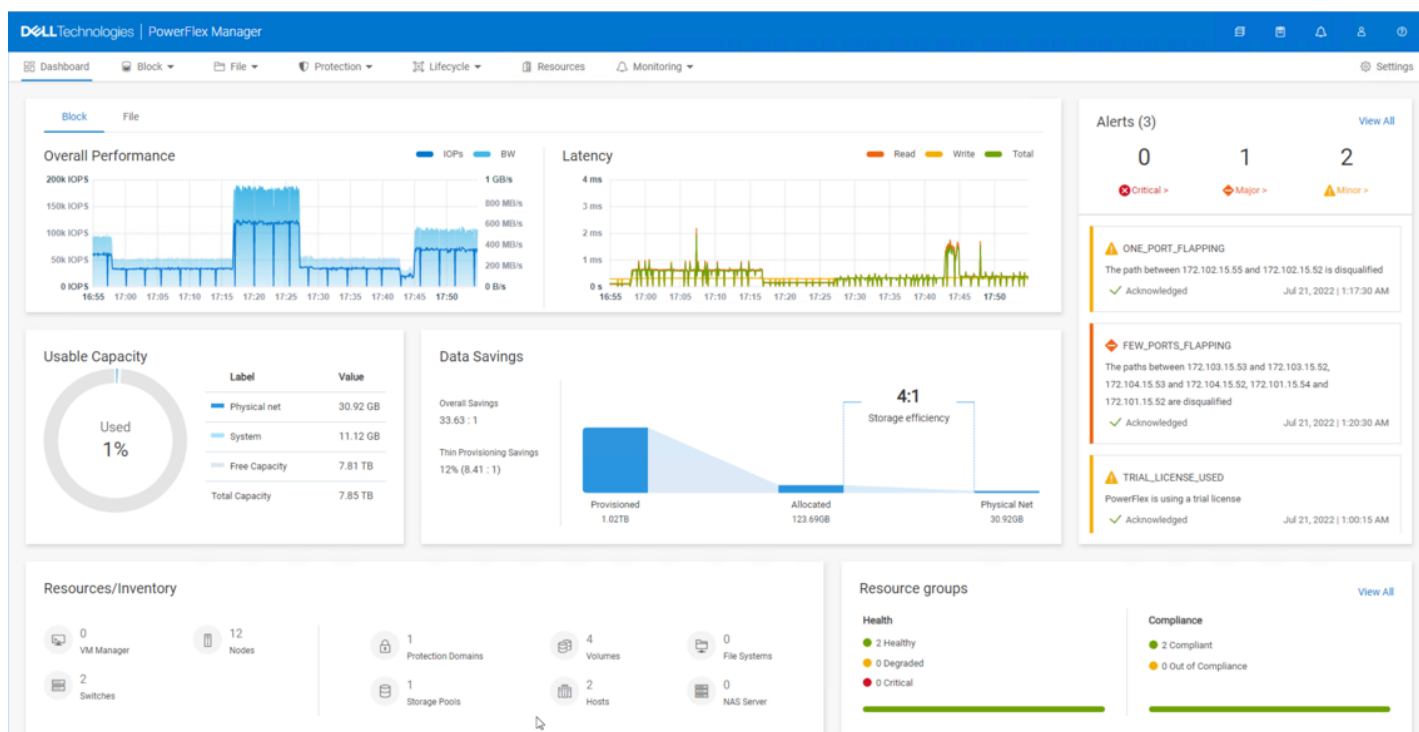
Optimize your outcomes

PowerFlex is designed from the ground up to leverage industry standards and software-driven infrastructure optimization. The architecture delivers massive performance for I/O and throughput-intensive workloads by aggregating resources across many nodes while optimizing data path and placement to deliver the best outcomes. Mission-critical applications running on PowerFlex deliver millions of IOPs at sub-millisecond latency, scale linearly and ensure 99.9999% availability with real-life workloads. Additionally, the software-driven approach provides adaptability, enabling customers to quickly scale their infrastructure to address specific resource bottlenecks and reconstruct and recompose their resource pools to address changing seasonal or long-term requirements.

PowerFlex Deployment Options

With PowerFlex, you have choice and flexibility in how you choose to consume the PowerFlex architecture:

- PowerFlex rack is a fully engineered system with integrated networking. It is designed to simplify deployment and accelerate time to value.
- PowerFlex appliance is a flexible solution with a small starting point and massive scale potential. PowerFlex appliance provides a broad choice of supported networking.
- PowerFlex is also available with OpEx-based consumption options with APEX Custom Solutions. Customers can choose between APEX Flex on Demand and APEX Datacenter Utility based on their unique requirements.

	PowerFlex R640	PowerFlex R740xd	PowerFlex R840
Compute, Storage and Memory (per Node)			
Chassis	1 RU	2 RU	
CPU technology	2nd Gen Intel Xeon		
CPU sockets	Two		Four
CPU cores (total)	8 - 56		16 - 112
CPU frequency	2.1 GHz - 3.8 GHz		2.1 GHz - 3.8 GHz
RAM*	96 GB - 3072 GB		384 GB - 6144 GB
Maximum storage capacity (raw TB)	76TB SAS 38TB SATA 76TB NVMe	128TB SAS 92TB SATA 128TB NVMe	
Drive bays	10 x 2.5"	24 x 2.5"	
NVDIMM + RDIMM Support	Yes†	Yes	
Boot solution	240 GB SATA M.2 (RAID1) "BOSS"		
Nvidia GPU Options	T4	M10, T4, A10, A16, A30, A40	M10, V100S
PowerFlex network connectivity (standard 4x 25Gb)	Intel X710‡ rNDC Mellanox ConnectX-4 rNDC Mellanox ConnectX-4 Mellanox ConnectX-6		
Management port	iDRAC 9 Out of Band Management		

	PowerFlex R650	PowerFlex R750	PowerFlex R6525
Compute, Storage and Memory (per Node)			
Chassis	1 RU	2 RU	1 RU
CPU technology	3rd Gen Intel Xeon		3rd Gen AMD EPIC
CPU sockets	Two		
CPU cores (total)	16 - 80		16 - 124
CPU frequency	2.00 GHz - 3.60 GHz		2.00 GHz - 3.70 GHz
RAM*	256 GB - 8192 GB		256 GB – 4096 GB
Maximum storage capacity (raw TB)	76TB SAS 38TB SATA 76TB NVMe	128TB SAS 92TB SATA 128TB NVMe	diskless
Drive bays	10 x 2.5"	24 x 2.5"	diskless
NVDIMM + RDIMM Support	Yes		No
Boot solution	480 GB SATA M.2 (RAID1) "BOSS-S2"		
Nvidia GPU Options	T4	M10, T4, A10, A16, A30, A40, A100	T4
PowerFlex network connectivity (standard 4x 25Gb)	Mellanox ConnectX-5 OCP Mellanox ConnectX-5 PCIe Mellanox ConnectX-6 PCIe		
Management port	iDRAC 9 Out of Band Management		

* Adding NVDIMM reduces maximum memory capacity
† R640 does not support both NVMe and NVDIMM together
‡ 10Gb NIC only supported on PowerFlex rack

PowerFlex Clustering, Scaling and Management

Min Nodes Per Cluster (Two-Layer Configuration)	4 Storage Only nodes minimum (6 or more recommended), 1 to 3 Compute Only nodes (depending on host OS)
Min Nodes Per Cluster (HCI Configuration)	4 HCI Nodes minimum (6 or more recommended)
Scaling Increments	1 Node (HCI, Compute Only or Storage Only) †
PowerFlex Manager Management Node Requirements‡	Jump Server — 8GB RAM, 2 vCPU, 320GB storage SRS — 4GB RAM, 2 vCPU, 16GB storage PowerFlex Manager — 96GB RAM, 48 vCPU, 1.95TB storage CloudLink (optional) — 18GB RAM, 12 vCPU, 192GB storage (These are all supplied as virtual machines)

* 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.

‡ New PowerFlex appliance deployments include a single-node management controller (with an option for three-node for larger systems). New PowerFlex integrated rack deployments include a three-node management controller. Both PowerFlex Management Controller options are ESXi based.

PowerFlex Manager Supported Switches

Management Switches*	Cisco Nexus 3172TQ, Cisco Nexus 31108TC-V, Cisco Nexus 92348GC-X, Dell S4148T-ON
Access or Leaf Switches	Cisco Nexus 3132QX, Cisco Nexus 3164Q, Cisco Nexus 93180YC-EX, Cisco Nexus 93180YC-FX, Cisco Nexus 93240YC-FX2, Cisco Nexus N93360YC-FX2, Dell S5048F-ON, Dell S5248F-ON, Dell S5296F-ON‡, Dell S5224F-ON‡, Dell S4148F-ON‡
Aggregation or Spine Switches	Cisco Nexus 9236C, Cisco Nexus 9336C-FX2, Cisco Nexus 9364C-GX, Cisco Nexus 9364C-GX, Dell S5232F-ON

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

† RJ45 only supported on PowerFlex rack

‡ PowerFlex appliance only

	PowerFlex R640	PowerFlex R740xd	PowerFlex R840
Power and Dimensions			
High-efficiency dual redundant PSU	1100W -48V DC 750W 100 - 240V AC 1100V 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	H 42.8mm W 434mm D 734mm Wgt 21.9kg	H 86.8mm W 434mm D 679mm Wgt 28.1kg	H 86.8mm W 434mm D 679mm Wgt 28.1kg

	PowerFlex R650	PowerFlex R750	PowerFlex R6525
Power and Dimensions			
High-efficiency dual redundant PSU	800W 100-240Vac / 240Vdc 1100W 100-240Vac / 240Vdc 1400W 100-240Vac / 240Vdc 1100W 48-60Vdc	800W 100-240Vac / 240Vdc 1100W 100-240Vac / 240Vdc 1400W 100-240Vac / 240Vdc 2400W 100-240Vac / 240Vdc 1100W 48-60Vdc	800W 100-240Vac / 240Vdc 1100W 100-240Vac / 240Vdc 1400W 100-240Vac / 240Vdc 1100W 48-60Vdc
Redundant cooling fans	8	6	8
Physical dimensions	H 42.8mm W 434mm D 751mm Wgt 21.2kg	H 86.8mm W 434mm D 700mm Wgt 35.3kg	H 42.8mm W 434mm D 751mm Wgt 21.2kg

	PowerFlex R640	PowerFlex R740xd	PowerFlex R840
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

	PowerFlex R650	PowerFlex R750	PowerFlex R6525
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	8% to 80% (non-condensing)	8% to 80% (non-condensing)	8% 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

Learn more about Dell PowerFlex solutions

Contact a Dell Technologies expert
1-866-438-3622