

# Hyperconverged with Dell EMC PowerFlex

The end-to-end hyperconverged solution for Epic with no limits on scale

## Meeting Healthcare's Most Difficult Requirements with HCI and PowerFlex



Modular hyperconverged infrastructure system that delivers extreme scalability and flexibility

- Consolidate multiple workloads that demand high performance, availability, and resiliency onto a single system
- Simplify traditional SAN environments that have high-operational costs and are difficult to scale
- Avoid expensive and risky tech refreshes and data migrations

## Dell EMC PowerFlex

PowerFlex is a hyperconverged solution that delivers flexible, scalable, and highly-performant software-defined storage. This solution was tested with and has passed Epic GenerateIO and DiskSpd testing to run Caché/IRIS operational databases, relational databases, Hyperspace presentation tier and web/service server VMs.

Only Dell EMC hyper-converged systems provide standardization, modular scale, tightly integrated converged solutions, life cycle management, and industry-best customer experience—enabling on-demand IT services that further accelerate business outcomes and time-to-value.

## Hyperconverged for High-Performance Applications and Databases

Unlike other hyperconverged solutions, every node in the PowerFlex cluster is used in the processing of I/O operations, making all I/O and throughput accessible to any application within the cluster. Such massive I/O parallelism eliminates performance bottlenecks and the primary reason why PowerFlex is approved for your entire EMR deployment, from presentation, application to databases.

Throughput and IOPs scale in direct proportion to the number of nodes added to the system, improving cost/performance rates with growth. Performance optimization is automatic; whenever rebuilds and rebalances are needed, they occur in the background with minimal or no impact to applications and users.

Dell EMC PowerFlexOS is the software that abstracts, pools, and automates block storage in the PowerEdge Servers, meaning all servers participate in servicing I/O requests. Its massively parallel processing ensures that I/O is aggregated and performance scales linearly as the number of servers grows, eliminating bottlenecks.

## PowerFlex Manager

PowerFlex Manager enables automated IT operations and lifecycle management for the entire infrastructure. Powerful REST APIs also help automate and integrate PowerFlex infrastructure with applications and cloud-automation tools, driving further predictability and consistency.

Components	Configuration
Compute	Dell PowerEdge servers
Storage	DAS
Networking	Cisco Nexus switches
Server virtualization/OS	VMware vSphere, RHV, bare metal
Bare-metal support	Yes
Management infrastructure	vCenter, PowerFlex alerting and monitoring, Dell EMC PowerFlex OS
Environmental	Intelligent physical infrastructure consisting of Cabinet 2.0 – fully welded and dynamically load-rated



## Consumption Models

PowerFlex offers three consumption models:

- Integrated rack – preinstalled with integrated top-of-rack, aggregation and out-of-band (OOB) management switches to provide optimal networking performance
- Appliance – offers a turnkey experience and gives customers bring-your-own network flexibility
- Ready node – standalone servers that are preconfigured to run PowerFlex

## Mixed Hypervisor

PowerFlex offers VMware® vSphere integration along with the ability to support other hypervisors and even bare-metal configurations. This unique ability provides workload flexibility and gives groups within the organization the ability to change requirements as needed if new projects and workloads arise.

The ability to allow different nodes to run different hypervisors while all sharing the same storage pool allows independent upgrades and shifting to different virtual environments as needed.

## Start Small & Grow to Scale

PowerFlex enables massive scale-out capabilities for your data center. Start with as little as four nodes and grow your EMR environment to web scale. Add nodes one by one within a single rack or scale out with additional racks as compute and storage resources are consumed. This provides your infrastructure with elastic sizing and efficient scalability, allowing you to start small with your proof of concept or new application and grow to web-scale size as your requirements evolve.

## Integrated Networking

A hyper-converged network can be complex to design, build, and scale and many solutions simply exclude it. Ignoring the network makes it very difficult to plan for growth and as the environment scales, performance degrades.

PowerFlex encompasses complete support for the unique requirements of hyper-converged networking. Integrated Top of Rack (ToR), Aggregation, and Out-of-Band Management switches provide optimal network traffic flow. As the PowerFlex system scales, the east-west traffic is fully contained within the system, reducing the need for network expertise and changes outside of the solution.

## Dell EMC PowerEdge Servers

Business applications and workloads vary greatly. Dell EMC strongly believes that one size does not fit all when it comes to hyper-converged infrastructure. With an unmatched hyperconverged infrastructure portfolio, Dell EMC enables IT organizations to accelerate their modernization initiatives by making it easy to deploy infrastructure platforms on which they can build and run both traditional and cloud-native applications. Integrating the latest generation of industry-leading Dell PowerEdge servers with Dell EMC HCI offerings is another example of the power of the combined companies. Dell EMC's ability to deliver the entire hyper-converged infrastructure stack (from software through servers to storage) provides even more customer value, enabling faster innovation while leveraging Dell's

world-class supply chain to drive down costs. Healthcare organizations can now partner with a single vendor for end-to-end technology solutions that will modernize their data center.

## Summary

PowerFlex is a hyperconverged (HCI) offering that delivers the same levels of performance, availability, and resiliency provided by an enterprise-grade SAN using Dell PowerEdge servers and intelligent software. PowerFlex is flexible and delivers high performance. It exhibits balanced and predictable behavior, provides a choice of Dell PowerEdge servers, allows for varying performance and capacity ratios, decouples the scalability of compute and storage resources, and can scale enormously and non-disruptively.

PowerFlex provides a completely distributed pool of storage capacity and performance. It delivers consistent IOPS and latency, eliminating hotspots—no matter the load.

PowerFlex can be arranged to span environments where compute and storage teams are separate or instances where a single team manages both compute and storage. This allows organizations to manage their transition to a fully hyperconverged environment on their own terms and timeline.