

# VxRack FLEX and VxFlex Ready Nodes for Kubernetes

VxRack FLEX and VxFlex Ready Nodes, also known as the Flex family, create a server-based SAN by combining virtualization software, known as VxFlex OS, with Dell EMC PowerEdge servers to deliver flexibility, scalability, and capacity on demand. Local storage resources are combined to create a virtual pool of block storage with

## VxRack FLEX and VxFlex Ready Nodes integrate with any Kubernetes implementation

VxFlex OS is the key enabler capable of supporting a single, scalable block storage service across hypervisors, container platforms and other data center services

varying performance tiers. The platform enables you to start small (with as little as four nodes) and scale incrementally. The Flex family provides enterprise-grade data protection, multi-tenant capabilities, and add-on enterprise features such as QoS, thin provisioning, and snapshots. VxFlex OS is the key enabler and provides an unmatched combination of performance, resiliency and flexibility to address enterprise data center needs. The unique features of VxFlex OS make it an excellent complement to Kubernetes for stateful applications, such as databases, continuous integration, logging and monitoring platforms.

### Direct Integration with Kubernetes Dynamic Volume Support

VxFlex OS leverages a Container Storage Interface (CSI) compatible driver with Kubernetes, which supports the broadest set of features for block storage integration. Using storage classes, persistent applications will dynamically provision VxFlex OS volumes directly for any persistent volume requirements.

### Portability between Bare Metal and Virtualized Deployments

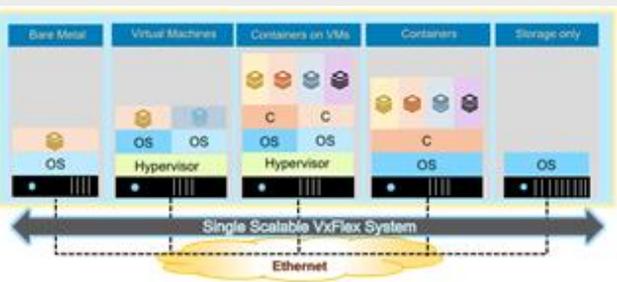
VxFlex OS offers a choice of hypervisor and operating system. Kubernetes customers can deploy with a combination of VMware vSphere, RHV, Linux and Windows hosts, and serve block storage as a service to any of those environments. This ability even makes it possible to deploy stateful applications with virtualized Kubernetes and transition those applications to bare metal if the applications or infrastructure require.

### Supports the Most Demanding Workloads

Stateful applications in container platforms have varied requirements for high availability, performance and protocols. Applications such as Cassandra, Kafka, Elasticsearch and PostgreSQL often have very high throughput, bandwidth and availability requirements. VxFlex OS can handle the most demanding workloads in the data center, including databases and analytics platforms.

### Deploy within Kubernetes Cluster, or as External Storage

VxFlex OS is extremely lightweight, only requiring 64 MB of RAM and very little CPU; therefore, it can be deployed easily to run on both virtualized and bare metal systems as part of the Kubernetes cluster itself. Conversely, when running large multi-tenant environments, it can be attractive to run a separate storage cluster, apart from Kubernetes. VxFlex OS can be deployed on completely separate systems as well, with effectively no performance delta between the two deployments.



## True Block Storage as a Service

- Provisioned natively through Kubernetes
- Dynamically create and delete volumes on demand
- Support quality of service and security context through container storage interface
- Dynamically scale storage service to match demand
- Support fully non-disruptive updates without the need for any future fork-left migrations



### Dynamically Upgrade and Scale for Day-2 Operations

The VxFlex OS architecture supports maintenance, lifecycle and dynamic scalability for container platforms. You can expand the cluster dynamically, automatically adding capacity and performance to an existing environment and even increasing the performance of existing volumes.

You can also replace VxFlex systems with newer hardware, without the need to migrate, take downtime or reconfigure existing systems.

### Summary

VxRack FLEX and VxFlex Ready Nodes with VxFlex OS are HCI offerings that can replace an enterprise grade SAN using Dell EMC PowerEdge servers and intelligent software. They exhibit balanced and predictable behavior, allow for varying performance and capacity ratios, decouple compute and storage resources, and can scale enormously and non-disruptively.

These HCI platforms deliver consistent, predictable IOPS and latency, eliminating hotspots—an excellent match for any Kubernetes environment.



Modular hyper-converged infrastructure that delivers extreme performance, resiliency and flexibility for Kubernetes



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