

FlexPod Drives Application Acceleration

With Red Hat OpenShift Container Platform

FlexPod: Power and flexibility for DevOps deployments

- Offers a trusted, end-to-end solution that unleashes the potential of your DevOps environments and accelerates application development and delivery
- Delivers groundbreaking performance to speed DevOps workloads and deliver results
- Automates and simplifies the deployment of containers to support rapid DevOps cycles
- Secures your DevOps environments with storage-based data protection and recovery and advanced risk protection

There are many reasons why your organization strives to deliver infrastructure and services in less time. One of those reasons is the need to accelerate application development and delivery. Your IT teams know that enhancing continuous integration and continuous delivery (CI/CD) workflows and practices can be accomplished by deploying containers. This innovative technology allows everything that is needed—application executables, microservices, libraries, and configuration files to name a few—to be stored together in a separated area on shared infrastructure.

Because speed is the new scale, it's important to deploy containers on a platform that's built to perform and doesn't require your IT staff to spend a lot of time making all of the components (computing,

networking, storage, containers, and management) work together. Red Hat OpenShift Container Platform running on FlexPod gives you what you need to reduce complexity and risk and increase agility.

The FlexPod Solution

Whether you need a few or tens of thousands of containers, we make it easy to deploy what you need, when you need it. Our solution combines FlexPod and Red Hat OpenShift Container Platform into a converged infrastructure solution that supports applications modernization.

Building on the popular FlexPod® platform, the Cisco® validated solution includes Cisco Unified Computing System™ (Cisco UCS®) blade and rack servers,

Power to Fuel Your Applications

Cisco UCS servers use the latest processors so that you can best support workloads:

- More cores to accelerate parallelized virtualized and bare-metal workloads
- Larger memory capacity for better performance and larger in-memory databases
- High memory bandwidth to accelerate information flow to and from the CPUs
- Up to 8 NVIDIA GPU accelerators for demanding workloads and virtual environments



Cisco Nexus® 9000 Series switches, Cisco UCS 6000 Series Fabric Interconnects, NetApp® AFF A800 flash storage arrays with NetApp ONTAP® software, VMware vSphere software, and Red Hat OpenShift Container Platform (Figure 1).

Share Infrastructure and Increase Consolidation

This FlexPod solution allows your IT staff to consolidate more workloads onto fewer servers so there are fewer components to buy and manage. Safely sharing these IT resources requires strong application isolation capabilities so that one application environment does not impact another. Built on proven open source technologies, Red Hat OpenShift Container Platform integrates architecture, processes, platforms, and

services, and provides a powerful cluster management and orchestration system for multitenant environments.

Whether you need to deploy in your enterprise data center, at the edge, or in a hybrid cloud, Red Hat OpenShift Container Platform provides everything you need—an enterprise-grade Linux operating system, container runtime, monitoring, container registry, authentication, and authorization solutions—to quickly and easily provision, isolate, run, and secure environments and applications.

Gain agility

This FlexPod solution takes the guesswork out of making components work together and perform. With our integrated solution, your IT staff can deploy

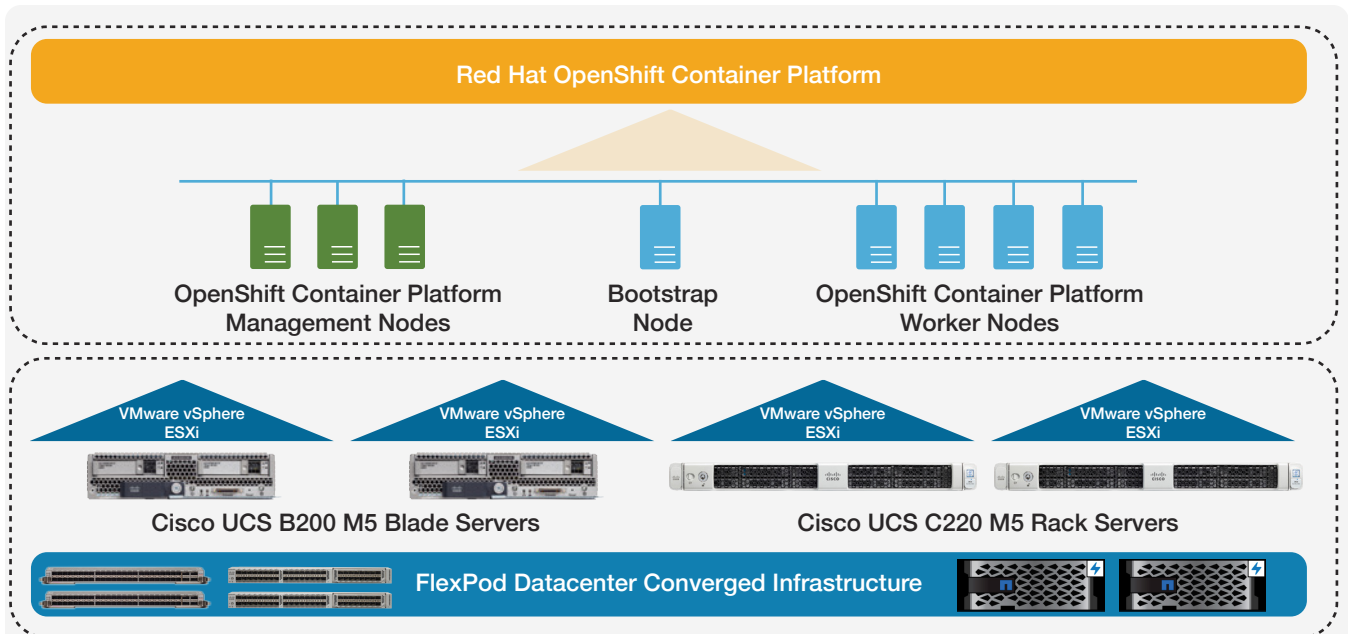


Figure 1) The solution architecture uses a scalable design that lets you add compute capacity, storage, or network bandwidth as needed

Key Reasons to Deploy this Solution

- 1** Consolidate workloads onto fewer servers so there are fewer components to buy and manage
- 2** Automate infrastructure and container deployment to shorten time to delivery and increase productivity
- 3** Accelerate applications with the fastest unified scale-out all-flash array, with up to 11.4 million I/O operations per second (IOPS) and latency of less than 100 microseconds
- 4** Deliver a persistent storage layer that stores, protects, and accelerates access to information
- 5** Scale up or out to satisfy a growing number of users workloads, and applications
- 6** Accelerate data transfer and processing and support large memory capacities with Intel® Optane™ DC persistent memory
- 7** Seamlessly tier, backup, replicate, and cache data to private and public clouds

systems faster—and your users can access agile application development resources faster—so that you can focus on strategic business objectives.

It's made possible by a verified, reference architecture with detailed design and implementation guidance that helps reduce risk and guesswork by giving your IT administrators and architects a guidebook for implementation. By following the guidelines in this Cisco® Validated Design, your staff can quickly deploy the containers they need to get work done.

When more resources are needed, you can scale and repurpose systems without having to adjust your software or your networking capabilities or interrupt operations. You can purchase the systems you need today and scale up your integrated infrastructure for greater performance and capacity (adding or upgrading computing, network, or storage resources), or scale out if you need multiple consistent deployments (adding more integrated systems).

With a self-aware system, built-in automation, and powerful tools, you can consistently deploy, monitor, and manage your IT infrastructure and better support your development teams. Your IT staff simply defines profiles and the solution automatically

configures the infrastructure as needed. By automating layers of repeatable and error-prone manual configuration that your IT staff likely performs today, you can consistently deliver containers in less time and with end-to-end consistency.

Accelerate Applications

The Cisco UCS blade and rack servers used in this FlexPod solution are powered by Intel Xeon Scalable, delivering up to 28 cores in 2- and 4-socket configurations for excellent performance and scalability. The CPUs provide excellent memory channel performance and include three Intel UltraPath Interconnect (Intel UPI) links across the sockets for scalability and intercore data flow.

Processing isn't the only thing that's fast in this solution. The use of [NetApp AFF All Flash Arrays](#) gives you access to 100% NVME storage that accelerates data access, with up to 11.4 million I/O operations per second (IOPS) and latency of less than 100 microseconds.

Support More Data

This solution specifies one way to configure your infrastructure, but it is flexible and allows you to take advantage of storage

improvements to accelerate applications and reduce the burden on your IT staff and budgets. And with NetApp ONTAP software, you can cluster storage, use it on premises, or tier it to a private or public cloud. This powerful data management software includes inline data compression, deduplication, and compaction, and works with other NetApp solutions to snapshot, replicate, clone, and encrypt data for end-to-end security and protection.

Simplify Management

Cisco Intersight™ management as a service extends computing to anywhere you need it, at any



Learn More

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- netapp.com/flexpod
- cisco.com/go/flexpod
- [Read about FlexPod AFF performance](#)
- [Read the design guide FlexPod Datacenter for OpenShift Container Platform 4](#)

scale. A single interface lets you manage your deployments at once with support for installation, inventory management, and health status. A recommendation engine can tell you when you vary from best configuration practices, and a connection to the Cisco Technical Assistance Center (TAC) enables the software to automatically open service requests should problems arise.

Cisco Workload Optimization Manager continuously analyzes workload consumption, costs, and compliance constraints and automatically allocates resources in real time. You can determine when, where, and how to move and resize workloads, and quickly model infrastructure and workload growth scenarios

NetApp Trident automates the persistent volume provisioning process. It monitors volumes, selects storage with varied characteristics and costs, and presents composable storage infrastructure to containerized workloads without complexity.

Trust a Proven Platform

FlexPod is trusted worldwide to help organizations like yours deliver better infrastructure. Let us show you how.

Agile And Efficient: How FlexPod Drives Datacenter Modernization



65%
more time spent on innovation and new projects



43%
fewer staff needed to manage



32%
faster software installation and management



23%
savings on cloud computing



34%
reduction in data center floor space



28%
savings on services, outsourcing, and consulting



29%
less time spent on monitoring, troubleshooting, and remediation



24%
CapEx reduction for both hardware and software



23%
savings on annual maintenance fees



29%
savings on power and cooling

Source: IDC document #US45212519