

# FlexPod Drives Application Acceleration with Red Hat OpenShift

## FlexPod: The power of flexibility for Red Hat OpenShift deployments

- Offers a trusted, end-to-end solution that accelerates your application deployment and delivery
- Supports diverse use cases—including HPC, AI/ML, hybrid cloud, edge computing, DevOps, and legacy modernization—enhancing your system's performance, scalability, and security
- Automates and simplifies the deployment and management of containerized and virtualized applications on bare-metal
- Secures your workload environments with storage-based data protection and recovery and advanced risk protection

In an era where digital transformation dictates the pace of business innovation, organizations like yours are relentlessly seeking solutions that enhance agility, streamline operations, and provide competitive advantages. The adoption of containerization technologies has emerged as a cornerstone in this transformative landscape, enabling enterprises to deploy, to manage, and to scale applications with unprecedented efficiency. However, to fully harness the potential of containerized environments, your underlying infrastructure must be equally dynamic, robust, and scalable.

Enter FlexPod® with Red Hat OpenShift—a cohesive, integrated solution that combines the best of FlexPod converged infrastructure with the agility of Red Hat's OpenShift platform. FlexPod, a collaborative offering from industry leaders Cisco and NetApp, delivers a high-performance, flexible, and

scalable architecture that is validated to reduce deployment risk, to increase operational efficiency, and to simplify management. When paired with Red Hat OpenShift, FlexPod gives you a resilient, secure, and automated environment that meets the demands of modern applications.

Red Hat OpenShift is the leading hybrid cloud application platform, bringing together a comprehensive set of tools and services that streamline the entire application lifecycle, for cloud-native, AI, virtual, and traditional workloads alike. With its automated installation, upgrades, and lifecycle management of cloud-native applications, Red Hat OpenShift empowers your organization to embrace DevOps methodologies, to streamline the application delivery pipeline, and to innovate at the speed of market demands.

## Key Reasons to Deploy This Solution

- 1 Consolidate workloads onto fewer servers so that you have fewer components to buy and to manage.
- 2 Automate your infrastructure and Red Hat OpenShift deployment to shorten time to delivery and to increase productivity.
- 3 Accelerate applications with the fastest unified scale-out all-flash storage, with up to 1TBps throughput in a cluster, up to 40 million IOPS, and 99.9999% availability.
- 4 Deliver a persistent storage layer that stores, protects, and accelerates access to information.
- 5 Scale up or out to satisfy the growing number of your user workloads and applications.
- 6 Seamlessly tier, back up, replicate, and cache your data to private and public clouds.

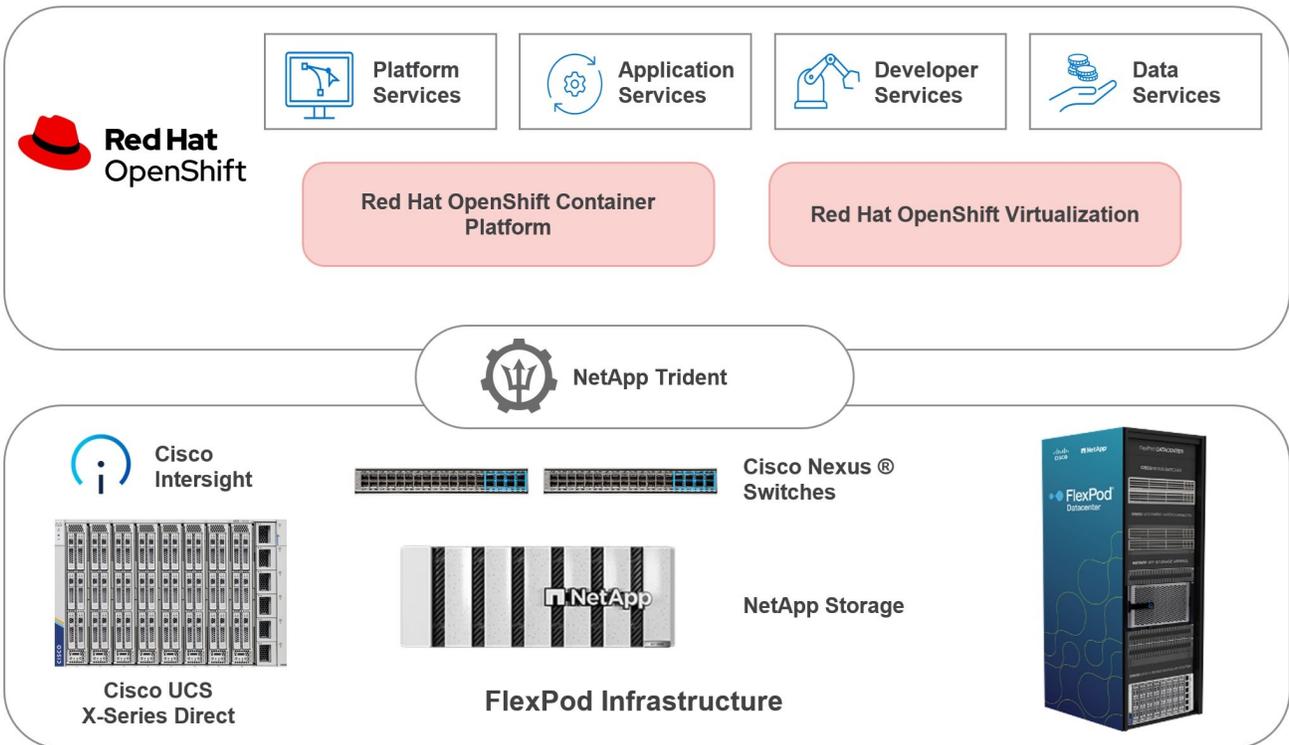
## Share infrastructure and increase consolidation

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## The FlexPod solution

As enterprises navigate rapid technological shifts and look beyond traditional virtualization approaches, they require infrastructure that not only meets present needs but also lays the groundwork for future applications, especially in cloud-native architectures and AI. Recognizing this need, Cisco and NetApp, in collaboration with Red Hat, have continued to innovate FlexPod to deliver a robust foundation that offers options beyond conventional virtualization platforms and that supports emerging applications.

The FlexPod with Red Hat OpenShift Container Platform (OCP) Bare Metal and FlexPod with OpenShift Virtualization Cisco Validated Designs (CVDs)



offer you a standardized approach to deploy Red Hat OpenShift on FlexPod bare-metal infrastructure. The solutions deliver a unified platform to run containerized applications, including AI/ML workloads, and virtualized workloads that are not yet ready to be containerized—enabling both to coexist seamlessly on the same infrastructure across enterprise data centers and network edges.

FlexPod with Red Hat OCP leverages the high-speed, low-latency performance and the advanced data management of NetApp® AFF storage systems, enabling efficient storage scaling and simplified operations. The CVDs use also the Cisco UCS X-Series Direct, which transforms the Cisco UCS X-Series Modular System into a self-contained setup with integrated fabric interconnects (FIs). Although the CVDs are based on the UCS X-Series Direct, the solution equally applies to UCS X-Series or UCS Rack Servers with FIs that are separate from the chassis, because both configurations exhibit identical FI behavior. For persistent storage, the solutions integrate the NetApp® Trident™ container storage interface (CSI), supporting NFS, iSCSI, and NVMe/TCP. And to streamline the installation of OpenShift, the solutions use Red Hat Assisted Installer.

By combining the FlexPod infrastructure with Red Hat

OpenShift, your organization can consolidate workloads on a single, reliable platform. However, workload consolidation requires robust application isolation to prevent one application from affecting others in a shared environment. Red Hat OpenShift meets this need with a proven open-source ecosystem, encompassing architecture, processes, and services. You get a powerful management and orchestration system that is designed for effective multitenant environments so that your applications remain isolated and secure.

### Gain agility

FlexPod solutions take the guesswork out of making components work together and perform at a high level. With our integrated solution, your IT staff can deploy systems faster—and your users can access agile application development resources faster—so that you can focus on strategic business objectives.

The verified reference architecture with detailed design and implementation guidance helps reduce risk and guesswork by giving your IT administrators and architects a guidebook for implementation.

And when your team needs more resources, you can scale and repurpose systems without having to adjust your software or your

## Agile and Efficient: How FlexPod Drives Data Center Modernization



**65%** more time spent on innovation and new projects



**43%** fewer staff needed to manage FlexPod



**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 White Paper, US45212519

networking capabilities or having to interrupt operations. You can

purchase the systems that you need today and scale up your integrated infrastructure for greater performance and capacity (by adding or upgrading compute, network, or storage resources). Or you can scale out if you need multiple consistent deployments (by adding more integrated systems).

With an intelligent system and its 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 define profiles, and the solution automatically configures the infrastructure as needed.

The solutions specify one way to configure your infrastructure, but they are flexible and allow you to take advantage of storage improvements to accelerate applications and to 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. It also works with other NetApp solutions to create NetApp Snapshot™ copies of, to replicate, to clone, and to encrypt

data for end-to-end security and protection.

## Trust a proven platform

FlexPod has a reputation for delivering superior infrastructure solutions, which is recognized and trusted by organizations around the globe. We're ready to demonstrate how FlexPod can enhance your ITOps. Let us show you the way to better infrastructure.



## Learn More

- [netapp.com/flexpod](https://netapp.com/flexpod)
- [cisco.com/go/flexpod](https://cisco.com/go/flexpod)
- Read about [NetApp AFF storage performance](#)
- Read about [Cisco UCS X-Series servers](#)
- Read the design guide [FlexPod Datacenter with OpenShift Container—Bare metal](#)
- Read the design guide [FlexPod Datacenter with OpenShift Virtualization](#)

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