



Modernize your IT on hybrid cloud with Cisco UCS

Highlights

Modernize your apps and data services while embracing the hybrid cloud with Red Hat OpenShift Data Foundation on Cisco Unified Computing System (Cisco UCS) X-Series Modular System.

Speed implementation and reduce risk with a pre-designed, integrated, and validated architecture for the datacenter.

Deploy modern containerized and cloud-ready workloads alongside existing OpenStack workloads, without onerous storage migrations.

Choose the Cisco UCS X-Series Modular System with Cisco Intersight for a modular system managed from a cloud environment for intelligent automation, observability, and optimization.

Modernize everything without all the drama

Modern container-based models are compelling for the sea change they bring to scalability, agility, and economics. Cloud-native approaches have changed how applications are developed and deployed amid a stream of continual innovation. The reach of data analytics is growing as organizations use artificial intelligence and machine learning (AI/ML) to glean new insights from their data. At the same time, modernizing your apps drives a broader need for IT modernization—including supporting data

services, compute resources, and network infrastructure—without disrupting existing virtualized apps and services.

Deploying [Red Hat® OpenShift® Container Platform](#) and [Red Hat OpenShift Data Foundation](#) on [Cisco Unified Computing System \(Cisco UCS\) X-Series Modular System](#) provides a fully modular and modern unified platform with validated components proven to work together. Red Hat is a clear leader in cloud-native development and deployment. Cisco is the leader in networking and converged infrastructure. Together, Red Hat and Cisco provide an open, cloud-native architecture designed to meet the needs of modern applications and processes—supported by a Cisco Validated Design.

Embrace containers at your own pace

Most organizations have made considerable investments in applications running in virtual machines. Despite the significant benefits of IT modernization, any new platform must flexibly support legacy virtualized apps and their supporting data services infrastructure. Red Hat and Cisco have taken this tenant to heart, meeting organizations wherever they are on their modernization journey. Red Hat OpenShift provides a common infrastructure from private cloud to public cloud and from bare metal to virtual machine environments. Existing virtualized infrastructure, modern container environments, and the eventual embrace of a hybrid cloud environment are all supported.

This innovative approach allows organizations to flexibly support existing apps and infrastructure even as they explore new dynamically scalable containerized apps.

- ▶ **Operate anywhere.** Red Hat OpenShift Container Platform runs on bare metal on Cisco UCS X-Series and all major cloud providers, including Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform, and IBM Cloud.
- ▶ **Run all your apps.** Virtualized applications can run on top of Red Hat OpenShift, alongside new containerized apps and can move from on-premise to a cloud environment.



Deploy persistent container-native storage with Red Hat OpenShift Data Foundation on Cisco UCS X-Series

Deliver a consistent user experience from on-premise bare metal and virtual machines to private and public clouds.

- ▶ **Maintain consistent data services as you migrate.** Red Hat OpenShift Data Foundation integrates popular Ceph® as its storage layer, supporting existing virtualized apps when running on Red Hat OpenShift Platform.¹

A predesigned, integrated, and validated architecture

Container adoption has become an imperative, allowing line of business (LOB) developers to shape and enhance the customer experience. At the same time, building modern, scalable, and secure cloud-ready infrastructure can be complex. Data services are an essential consideration, and storage solutions that are not cloud-native can be an impediment. Kubernetes must be able to orchestrate storage and data management as a service, or the promise of scalability and agility is easily lost. Without reliable cloud-native data services, stateful applications can fail, resulting in lost data and:

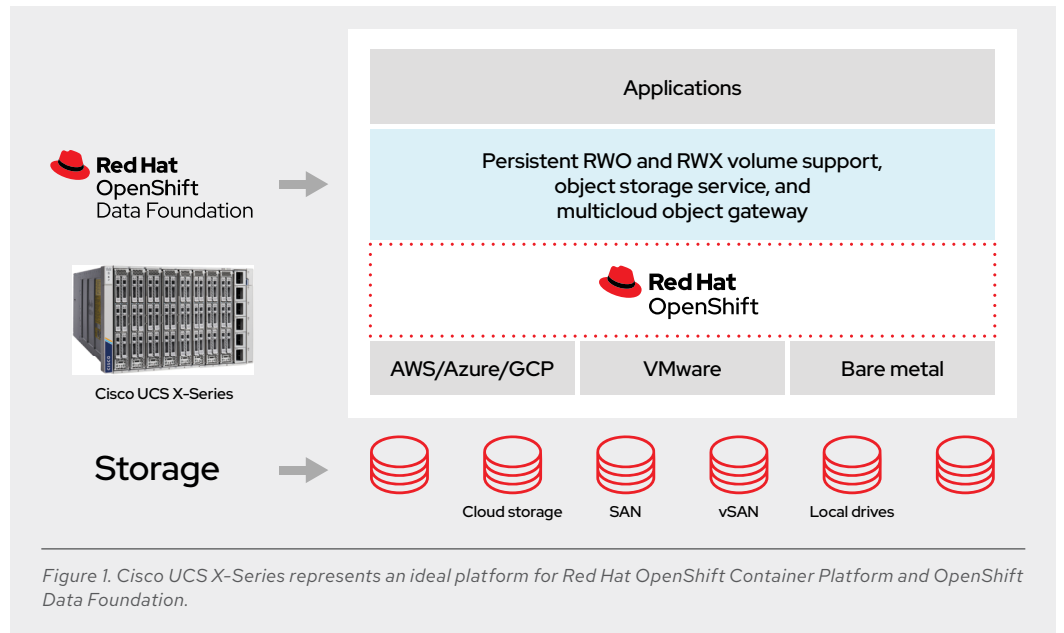
- ▶ Application downtime.
- ▶ Lost revenue.
- ▶ Lower customer satisfaction.

Red Hat and Cisco have partnered to help organizations accelerate their digital transformation and enhance their cloud-native and application modernization practices. The collaboration has resulted in a fully tested and validated Cisco Validated Design that combines [Red Hat OpenShift Container Platform with OpenShift Data Foundation on Cisco UCS X-series](#). The solution delivers versatile multipurpose data services for containerized applications. The addition of Red Hat Ansible® Automation Platform helps eliminate error-prone tasks, allowing quicker and more consistent solution deployments that let organizations:

- ▶ **Speed deployment and reduce risk.** Organizations need to support expansion in their tier-1 applications, and they need the flexibility to scale up or out as their unique needs dictate. The Cisco Validated Design provides a roadmap for organizations to rapidly deploy hardware and cloud-ready software infrastructure as a unified system. Cisco UCS X-series supports scale-up and scale-out architectural approaches, while OpenShift Data Foundation provides unified data services to applications as they grow.
- ▶ **Simplify applications and infrastructure.** Few organizations can afford to research, engineer, and test their own cloud-ready infrastructure. Red Hat OpenShift is tightly integrated with Cisco UCS X-series, resulting in a system that is simple to deploy for Day 0 through Day 2 operations. The engineering collaboration between Red Hat and Cisco yields a stable, manageable, and more secure system—combining hardware performance with software tooling performance.
- ▶ **Automate provisioning for self-service.** DevOps culture and practice demand fully automated self-service capabilities that let developers and operations staff operate autonomously. Red Hat OpenShift acts as both an app development platform and a platform-agnostic hybrid cloud deployment platform. Integrated Ansible scripting and predefined playbooks help get software into a state that is ready to run. The resulting infrastructure requires less administration and less preprovisioning.
- ▶ **Deliver a consistent user experience.** As organizations modernize their datacenters with multicloud or hybrid cloud solutions, they must keep the user experience simple. Red Hat OpenShift delivers a consistent user experience, independent of the underlying infrastructure, whether on-premise or in a public cloud environment. Apps and workloads can be deployed on Cisco UCS X-Series and then move to a public cloud vendor of choice—with their data services intact.

Red Hat and Cisco solution components

The Cisco UCS X-Series Modular System is ideal for Red Hat OpenShift Container Platform and OpenShift Data foundation (Figure 1). It allows rapid development and deployment of on-demand, container-based applications and provides a platform engineered to scale in multiple dimensions—compute, storage, and network. Innovative Red Hat software manages the application and data services layers, while Cisco Intersight assembles modular Cisco UCS X-series components into systems.



Red Hat OpenShift Container Platform

Red Hat OpenShift Container Platform is a leading enterprise Kubernetes platform that enables a cloud-like experience everywhere. Whether deployed in the cloud, on-premise, or at the network edge, OpenShift Container Platform gives you the ability to choose where you build, deploy, and run applications through a consistent experience. OpenShift Container Platform’s full-stack automated operations and self-service provisioning for developers let teams work together more efficiently to move ideas from development to production. Red Hat OpenShift Container Platform offers:

- ▶ Cloud-like operation with an automatic installation process.
- ▶ A consistent foundation for virtualized and containerized apps.
- ▶ Rapid deployment with developer-friendly workflows.

Red Hat OpenShift Data Foundation

Running as a Kubernetes service, OpenShift Data Foundation is persistent software-defined storage integrated with and optimized for Red Hat OpenShift. Deployed, consumed, and managed through the Red Hat OpenShift administrator console, the platform includes Ceph petabyte-scale persistent cloud storage, the Rook Kubernetes storage operator, and Noobaa multicloud object gateway



technology. OpenShift Data Foundation runs anywhere Red Hat OpenShift does—on-premise or in hybrid cloud environments.

Red Hat OpenShift Platform Plus is the simplest way to deploy both Red Hat OpenShift Container Platform and OpenShift Data Foundation. Red Hat OpenShift Platform Plus includes Red Hat OpenShift Container Platform and the following products and services.

- ▶ [Red Hat Advanced Cluster Management for Kubernetes](#)
- ▶ [Red Hat Advanced Cluster Security for Kubernetes](#)
- ▶ [Red Hat OpenShift Data Foundation Essentials²](#)
- ▶ [Red Hat Quay](#)

Cisco UCS X-Series Modular System

The Cisco UCS X-Series with Cisco Intersight is a modular system managed from the cloud and suitable for a wide range of workloads. It can be configured and shaped to meet the needs of modern applications while improving operational efficiency, agility, and scale through an adaptable and future-ready modular design. Building on over a decade of success with Cisco UCS, the Cisco UCS X-Series Modular System provides the functionality of both blade and rack servers by offering compute density, storage capacity, and expandability in a single system. Components of the system include:

- ▶ [Cisco UCS X9508 chassis](#) with [Cisco UCS X-Series Intelligent Fabric Modules](#) and [Cisco UCS X-Fabric technology](#).
- ▶ [Cisco UCS X210c M6 compute nodes](#) with 3rd Gen Intel Xeon Scalable processors.
- ▶ [Cisco UCS X440p PCIe Nodes](#) that support adding graphical processing units (GPUs) with PCIe Gen 5 with the [Cisco UCS X9416 X-Fabric module](#).

Cisco Intersight is a cloud operations platform that delivers intelligent visualization, optimization, and orchestration for applications infrastructure across hybrid cloud environments. As a Software-as-a-Service (SaaS), hybrid-cloud operations platform, it offers intelligent automation, observability, and optimization for both traditional and cloud-native applications and infrastructure. Cisco Intersight combines with Red Hat OpenShift management capabilities to yield complete hardware and software control in hybrid cloud environments.

Learn more

Read more about the partnership between [Red Hat and Cisco](#). Read the Cisco Validated Design: [Red Hat OpenShift Container Platform with OpenShift Data Foundation on Cisco UCS X-Series](#).

² *The Cisco Certified Validated Design employed OpenShift Data Foundation Advanced edition to access an external Red Hat Ceph Storage Cluster. OpenShift Data Foundation Advanced Edition external-mode storage clusters decouple storage resources from compute resources, allowing the two to scale independently.*



About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with [award-winning](#) support, training, and consulting services.

[f](#) facebook.com/redhatinc
[t](#) @RedHat
[in](#) linkedin.com/company/red-hat

redhat.com
#F31658_0522

North America
1 888 REDHAT1
www.redhat.com

**Europe, Middle East,
and Africa**
00800 7334 2835
europe@redhat.com

Asia Pacific
+65 6490 4200
apac@redhat.com

Latin America
+54 11 4329 7300
info-latam@redhat.com