Adding value to Cisco HyperFlex

Together, simplifying applications for hybrid cloud environments

Bringing cloud agility and economics to the enterprise datacenter

Enterprises are adopting cloud-native architectures and introducing containerized applications to accelerate the pace of innovation, reduce technology overhead, and simplify portability. Many organizations are implementing private cloud environments to maximize the control and performance of containerized applications. In fact, IDC projects container instances in private cloud environments to grow at a 72.4% compound annual growth rate (CAGR) from 2020 to 2025.[1]

Building a private cloud environment that delivers the pay-as-you-grow economics, operational simplicity, and service agility of a public cloud environment can be a challenge. Traditional enterprise datacenter architectures with distinct compute, storage, and networking platforms can be inefficient and require more effort to provision and scale. Each technology platform might have its own administrative and application programming interfaces (APIs) and might be configured and managed independently of the others—a manually intensive, time-consuming, error-prone approach. In some cases, it can take days or even weeks to stand up legacy infrastructure to support new applications and services.

Introducing Cisco HyperFlex with Red Hat OpenShift Container Platform

Cisco and Red Hat have teamed up to help organizations streamline cloud-native application development, delivery, and operations and eliminate inefficiencies, while ensuring high availability and robust security for business-critical workloads. Cisco HyperFlexTM with Red Hat® OpenShift® Container Platform is an enterprise-class platform that lets you build, deploy, scale, and protect containerized applications in on-premise datacenters timely and cost-effectively.

Cisco HyperFlex Systems

Cisco HyperFlex is a high-performance, low-latency hyperconverged infrastructure (HCI) solution that adapts to support applications, from the network core to the edge. Cisco HyperFlex Systems are based on Cisco Unified Computing System™ (Cisco UCS®) hardware and include innovative software-defined storage and software-defined networking technology from Cisco and leading hypervisor software from VMware.

Cisco HyperFlex is a fully integrated virtualization platform with an integral networking fabric and a scale-out design that eliminates overprovisioning and optimizes costs. It combines cloud agility, scalability, and economics with enterprise-grade security, availability, and reliability and is an ideal environment for hosting Red Hat OpenShift Container Platform. User-friendly to deploy, Cisco HyperFlex delivers a preintegrated cluster that is up and running in an hour or less.

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1   IDC Special Study. "Container Infrastructure Software Market Assessment: Container Deployment Forecast, 2022–2025," Doc # US48670722, January 2022.
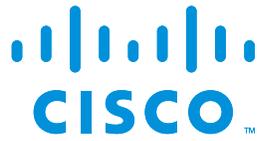
Red Hat OpenShift Container Platform

Red Hat OpenShift Container Platform is the leading enterprise Kubernetes platform for building, deploying, and managing containerized applications. The solution accelerates the development and delivery of cloud-native applications with full-stack automated operations and self-service provisioning, offering a consistent experience for DevOps professionals across both private and public cloud environments.

Ideal for powering business-critical applications and services, Red Hat OpenShift Container Platform includes a hardened, tested, and fully supported version of Kubernetes containing hundreds of fixes for upstream Kubernetes performance and security issues and software defects. Red Hat OpenShift Container Platform also includes advanced capabilities such as Red Hat OpenShift Service Mesh for smoothly connecting and managing microservices-based applications, Red Hat OpenShift Serverless for building serverless apps, and Red Hat OpenShift Pipelines for creating cloud-native continuous integration and continuous delivery (CI/CD) pipelines.

Better together: Cisco HyperFlex with Red Hat OpenShift Container Platform

Together, Cisco HyperFlex and Red Hat OpenShift Container Platform bring cloud speed, scalability, operational simplicity, and cost savings to the enterprise datacenter, while ensuring high reliability and availability, and strong security. Red Hat OpenShift Container Platform provides an enterprise-ready cloud-native application development and delivery platform with a full set of life cycle management tools. And Cisco HyperFlex provides an adaptable, economical, and resilient foundation for running containerized workloads.

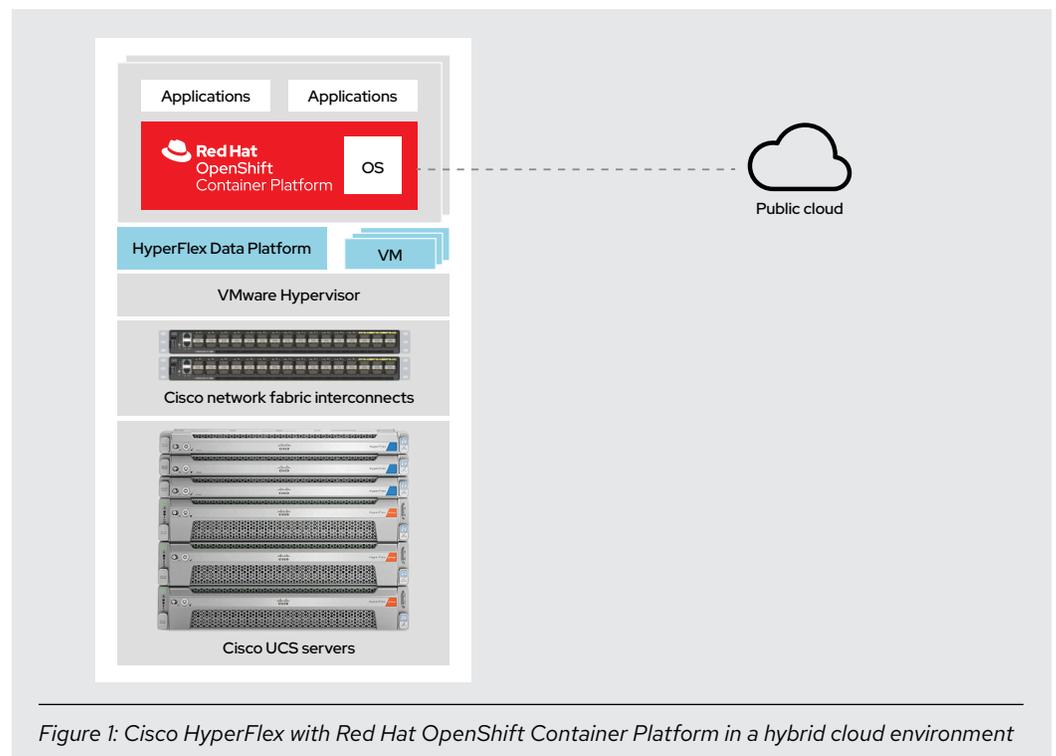**Cisco HyperFlex with Red Hat OpenShift Container Platform layer diagram**

Figure 1: Cisco HyperFlex with Red Hat OpenShift Container Platform in a hybrid cloud environment

Overview   Adding value to Cisco HyperFlex

Providing persistent storage for containerized applications and microservices

While many containerized applications are short-lived and stateless, others are durable and require persistent storage. Providing persistent storage for cloud-native workloads can be a challenge. Conventional enterprise storage platforms, designed to support traditional applications and IT operations models, may not meet the increased agility requirements of cloud computing.

Cisco HyperFlex with Red Hat OpenShift Container Platform was conceived with programmability and stateful applications in mind. The integrated solution provides efficient and cost-effective persistent storage for cloud-native workloads via a certified Container Storage Interface (CSI) plugin. The Cisco HyperFlex CSI plugin for Red Hat OpenShift Container Platform eliminates the need for expensive and complex external storage arrays. Containerized applications and microservices can dynamically request, provision, and use Cisco HyperFlex storage volumes via the standard Internet Small Computer System Interface (iSCSI) protocol.

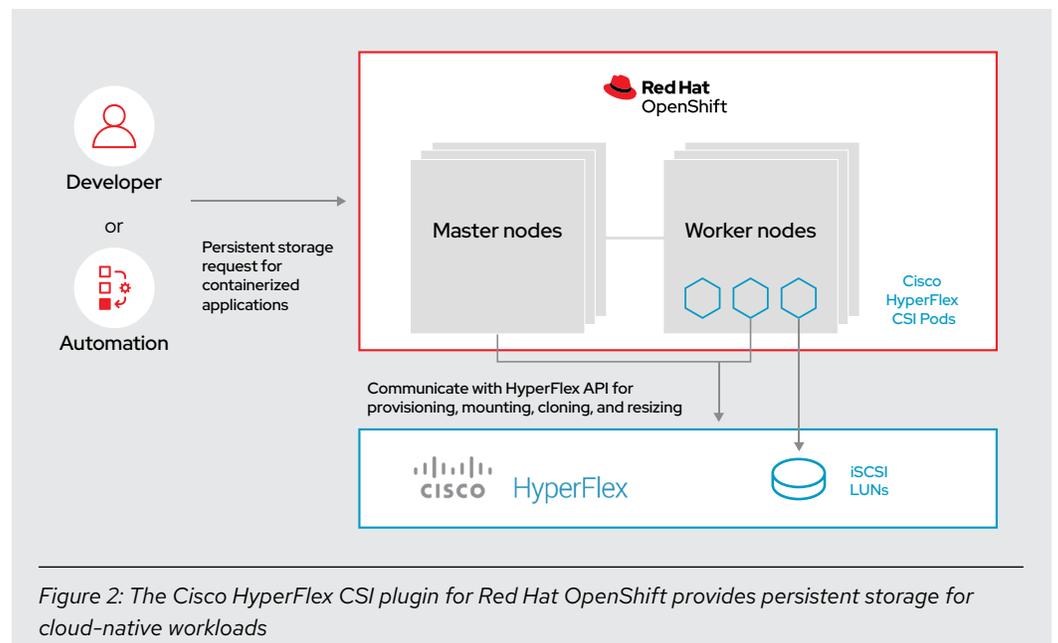### Cisco HyperFlex CSI plugin overview

Potential workloads:

▸ Databases

▸ Data analytics

▸ Artificial intelligence and machine learning (AI/ML)

▸ Logging and monitoring services

▸ Message broker services

▸ Web and application servers

Figure 2: The Cisco HyperFlex CSI plugin for Red Hat OpenShift provides persistent storage for cloud-native workloads

Accelerating time to value and reducing risk

HyperFlex with Red Hat OpenShift Container Platform gives you the peace of mind that comes with a fully verified and fully supported offering. The integrated solution is a Cisco Validated Design (CVD), engineered, tested, and documented by Cisco to ensure fast, reliable, and predictable deployment. In addition, the Cisco HyperFlex CSI plugin for Red Hat OpenShift Container Platform is a [Red Hat Certified OpenShift Operator](), verified on Red Hat OpenShift Container Platform and backed by Red Hat.

Cisco serves as the first line of support for the integrated HyperFlex with Red Hat OpenShift Container Platform and all its components (Cisco hardware and software, Red Hat OpenShift Container Platform, and VMware vSphere), simplifying problem reporting and resolution.

Streamlining digital transformation and boosting business agility

Cisco HyperFlex with Red Hat OpenShift Container Platform lets you efficiently build, deploy, run, and scale containerized applications in a private cloud environment. Ideal for business-critical workloads, the integrated solution is thoroughly validated, fully supported, and provides reliability, availability, and hardened security. A certified CSI plugin delivers cost-effective, simple-to-provision, and persistent storage for cloud-native workloads and microservices.

Cisco HyperFlex with Red Hat OpenShift Container Platform is less complicated to install and operate. It features a scale-out design that lets you minimize upfront capital equipment investments and closely align ongoing expenses with evolving capacity requirements. The solution helps you accelerate time to value, improve business agility, reduce risk, and streamline digital transformation.

Learn more

Read more about the partnership between Red Hat and Cisco

Review the Cisco validated design (CVD):

Cisco HyperFlex with Red Hat OpenShift Container Platform and CSI

Read more about Cisco Hyperflex visit www.cisco.com/go/hyperflex

Read more about Red Hat OpenShift, visit www.openshift.com

About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. A trusted adviser to the Fortune 500, Red Hat provides award-winning support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

North America	Europe, Middle East, and Africa	Asia Pacific	Latin America
1 888 REDHAT1	00800 7334 2835	+65 6490 4200	+54 11 4329 7300
www.redhat.com	europe@redhat.com	apac@redhat.com	info-latam@redhat.com