

Red Hat OpenShift Container Platform

A leading enterprise hybrid cloud Kubernetes application platform

Key benefits:

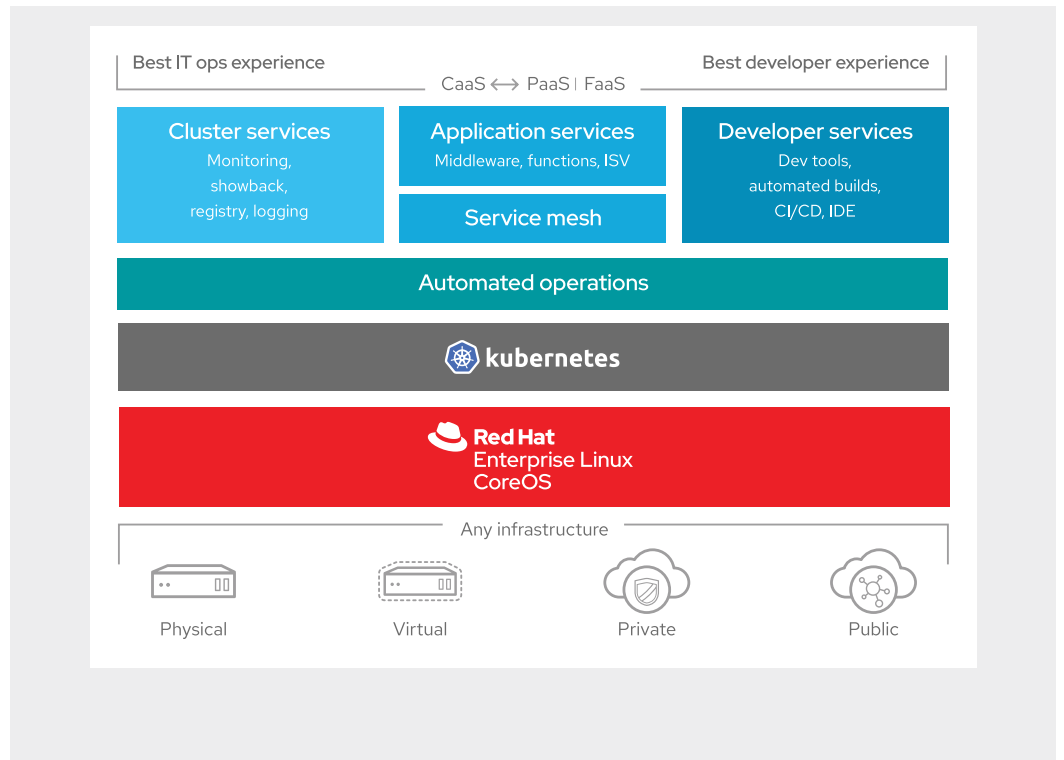
- Integrated platform including container host, Kubernetes, and application life-cycle management using your choice of infrastructure
- Greater value from operations and development teams throughout the application life cycle
- More secure, validated container content and services from a wide partner ecosystem
- Faster application development cycles and more frequent software deployments with simpler installations and upgrades
- Lower IT operations costs and application portability across hybrid cloud and multicloud footprints

Overview

Built by open source leaders, Red Hat® OpenShift® is a leading enterprise Kubernetes platform: a security-focused, consistent foundation to deliver applications anywhere, with streamlined developer workflows to get to market faster. With Red Hat OpenShift, innovators can focus on what matters most: staying competitive and continually exceeding customer expectations.

Red Hat OpenShift Container Platform

Red Hat OpenShift has everything needed for hybrid cloud, enterprise container, and Kubernetes development and deployments. It includes an enterprise-grade Linux® operating system, container runtime, networking, monitoring, container registry, authentication, and authorization solutions. These components are tested together for unified operations on a complete Kubernetes platform spanning every cloud.



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Figure 1. Red Hat OpenShift 4 architecture overview

Red Hat OpenShift Dedicated

Develop and manage containerized applications with your own OpenShift cluster, managed and operated by Red Hat.

Microsoft Azure Red Hat OpenShift

Azure Red Hat OpenShift is a fully managed OpenShift offering on Azure that is jointly engineered, operated, and supported by Microsoft and Red Hat. Deploy your business-critical apps with confidence and scale on demand while ensuring regulatory compliance across all environments.

Red Hat OpenShift Online

Quickly build, launch, and host applications in the public cloud, operated and supported by Red Hat. Sign up at no cost, check out the great features, and start coding and running applications at openshift.com.

Enterprise Kubernetes

Red Hat works with customers and partners to develop new features and functionalities not yet included in upstream Kubernetes, integrates them with additional services, and then spends months hardening these features before release.

Managing stateful applications, like databases, caches, and monitoring systems, might need additional effort to properly deploy in a production environment. These systems require application domain knowledge to correctly scale, upgrade, and reconfigure while protecting against data loss or unavailability. A Kubernetes Operator is software that encodes this domain knowledge and extends the Kubernetes API through the third-party resources mechanism, enabling users to create, configure, and manage applications. Red Hat OpenShift supports using Operators as a model to scale applications while reducing the overhead in maintaining operational consistency.

- Operators are built into OpenShift, so Kubernetes and cluster services are always up to date.
- Embedded OperatorHub provides a discovery marketplace for independent software vendor (ISV) Operators, validated to run on OpenShift.

Built for the hybrid cloud

Red Hat OpenShift runs on any cloud, with advanced capabilities for hybrid cloud deployments. OpenShift Container Platform can be used across on-premise and public cloud infrastructures, enabling a hybrid approach to how applications can be deployed as a self-managed solution. All OpenShift platform variants are available to help accelerate developer productivity and deliver application portability on a consistent foundation across the hybrid cloud. Red Hat OpenShift provides:

- Choice of consumption models, self-managed or managed by Red Hat.
- Federation to support improved multicluster management.
- Integrated metering and chargeback capabilities.
- Application portability throughout the hybrid cloud.

Full-stack automated operations

Once the cluster and applications are deployed, life-cycle management for these components, consoles for operators and developers, and security throughout the entire life cycle become critical. Red Hat OpenShift offers automated installation, upgrades, and life-cycle management for every part of your container stack—the operating system, Kubernetes, and cluster services and applications. The result is a more secure, always-up-to-date Kubernetes application platform, without the headaches of manual and serial upgrades, or downtime.

Increased developer productivity

Red Hat OpenShift pushes the boundaries of what containers and Kubernetes can do for developers, driving innovation for stateful applications, serverless or event-driven applications, and machine learning. The platform integrates tightly with Jenkins and other standard continuous integration/continuous delivery (CI/CD) tools, or OpenShift's built-in workflows and tools, for security-focused application builds. Red Hat OpenShift helps you build with speed, agility, confidence, and choice so that developers can get back to doing work that matters. It provides:

- Automated workflows including source-to-image (S2I) process to get source code into ready-to-run container images.
- Integration with CI/CD pipelines.
- A connection to services from public cloud providers such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform through the OpenShift Service Catalog.

Advanced capabilities

The OpenShift Service Mesh is responsible for traffic management, observability, policy enforcement, and service identity and security so the developer is free to focus on business value. The developer no longer has to spend cycles integrating libraries into the application to perform these tasks.

Serverless is a service that simplifies the developer experience and helps developers be more productive when creating flexible, scalable, and robust cloud-native applications. Knative provides fundamental building blocks for serverless workloads in Kubernetes. With Knative supported in Red Hat OpenShift, developers can more easily deploy applications and functions that can scale to zero within the Kubernetes ecosystem without the overhead of server management.

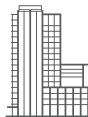
Power your journey with Red Hat OpenShift

Red Hat supports our customers' journeys to the cloud, with Red Hat OpenShift serving as a consistent hybrid cloud foundation for building and running containerized applications for long-term innovation. Power business transformation and unite your teams on a cost-effective, single platform to quickly deliver the exceptional experiences your customers expect, anywhere they are.

Features and benefits

Feature	Benefit
Platform	
Scalability	Applications running on OpenShift Container Platform can easily scale to thousands of instances across hundreds of nodes in a matter of seconds.
Container portability	Container images built on the Open Container Initiative (OCI) industry standard ensure portability between developer workstations and production OpenShift Container Platform environments.
Persistent storage	By providing support for persistent storage, OpenShift Container Platform allows users to run stateful applications and cloud-native stateless applications.
Open source standards	OpenShift Container Platform incorporates OCI/Docker-formatted containers and Cloud Native Computing Foundation (CNCF)-certified Kubernetes for container orchestration, in addition to other open source technologies.

Feature	Benefit
Developer productivity	
Self-service provisioning	Developers can quickly and easily create applications on demand from the tools they use most, while Operations retains full control over the entire environment.
Integrated CI/CD pipelines	OpenShift Container Platform lets developers reduce manual deployment work and deploy higher quality software for continuous integration and automated tests.
User interfaces	Developers have direct access to a rich set of command-line tools, a multidevice web console, and Eclipse-based integrated development environments (IDEs), such as Red Hat CodeReady Studio.
Source-to-image deployment	OpenShift Container Platform provides a toolkit and workflow for producing ready-to-run images by injecting source code into a container and letting the container prepare that source code for execution.
Enterprise operations	
Automated installation and upgrades	Services consumed from the OperatorHub can be deployed.
Installation and upgrades	Fully configured and upgradeable with a single operation.
Automation	Streamlined and automated container and application builds, deployments, scaling, health management, and more are standard with OpenShift Container Platform.
Robust ecosystem	An ever-expanding ecosystem of partners provides a wide variety of integrations. These third parties deliver additional storage and network providers, IDE and CI integrations, ISV solutions, and more for use with OpenShift Container Platform.



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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 integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.

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