Securely Connect Kubernetes and Red Hat OpenShift Service on AWS

Simplify Kubernetes management with a turnkey application platform and secure networking betweenclusters, apps, and clouds. F5, Red Hat, and AWS help you increase efficiency and focus on innovation.

Key Benefits

Secure and reliable connectivity
Network cloud and hybrid environments easily with native security and end-to-end visibility.

Lower TCO
Reduce the number of skilled resources required to manage your Kubernetes deployments and streamline payments through a single AWS bill.

Increase efficiency
Streamline the provisioning, operations, and orchestration of Kubernetes clusters and cloudnative network tooling.

Improve business agility
Accelerate time to market with self-service DevOps tools, automation, and AWS integrations backed by a 99.95% SLA.

Run Apps and Services Using Kubernetes with Less Effort

Kubernetes has become the defacto platform for apps and microservices, but provisioning and managing clusters throughout their lifecycle can be complicated—and that complexity increases with scale. Using Kubernetes provides control plane management to schedule containers, store cluster data, and manage application availability, but it doesn't include infrastructure management or integrated operational tools. A pure upstream Kubernetes service alone requires significant management time and effort from your site reliability engineering (SRE) team.

Red Hat® OpenShift Service on AWS (ROSA) is a fully managed turnkey application platform and native AWS service. Much more than just a Kubernetes service, ROSA brings together integrated developer and operational tools, valuable AWS service integrations, familiar and consistent interfaces and APIs, and fully managed infrastructure to create a production-ready application development platform.

ROSA provides the tools and services needed to quickly build, deploy, manage, and scale cloud-native applications with the consistent foundation of Red Hat OpenShift across your hybrid cloud environment. It can be easily accessed from the AWS console and offers both joint billing and support from Red Hat and AWS.

The fully managed nature of ROSA requires less effort from your SRE team, allowing these highly valuable resources to focus on strategic initiatives. Automated deployment and management streamline operations, and the service is backed by Red Hat's global SRE team.

If ROSA sounds like the right solution for some or all of your containers, then the next step is creating a bridge between ROSA and your current Kubernetes clusters. On premise and in the cloud. As a partner of both AWS and Red Hat, F5 can help create a secure connection between environments.

Key Features

Centralized management
Consolidate multiple services to simplify app management, security, and network connectivity while reducing vendor and infrastructure sprawl.

Built-in scalable security
Deploy a full suite of industry leading security and application service policies and leverage a private networking backbone.

Self-service tools
Enable faster app deployment with self-service automation.

AWS integration
Ensure interoperability and streamline procurement through AWS.

F5 Provides Secure Connectivity for Red Hat and AWS

F5® Distributed Cloud Multicloud Networking seamlessly connects public clouds, edge sites, data centers, apps, and microservices, including Red Hat OpenShift environments and Kubernetes clusters. It provides fast and secure networking across public and hybrid clouds with built-in security, rapid troubleshooting, and automated provisioning to simplify operations.

The multicloud networking solution consists of two parts:

- F5® Distributed Cloud App Connect, a distributed application delivery controller fabric that enables app-to-app communication
- F5® Distributed Cloud Network Connect, an L3 VPN fabric that creates a secure network mesh between sites
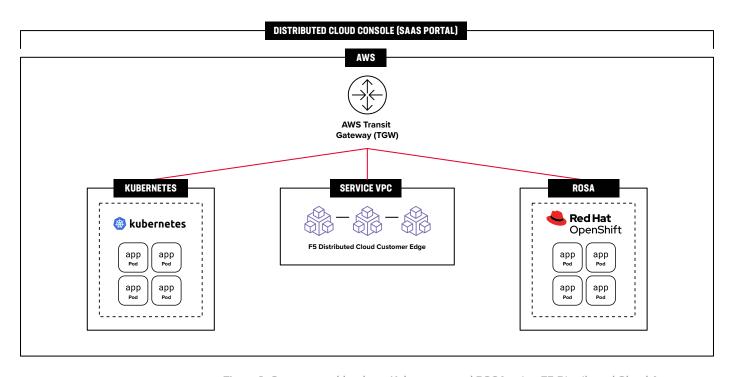
By abstracting complex networking constructs into an orchestration solution that requires minimal configuration, you can easily move workloads between environments or create a hybrid environment without disruption.

Secure both the connections between apps and services as well as the apps themselves. Native security, API discovery, and control over data ingress and egress keep apps safe. End-to-end TLS encryption and the F5 Global Network also protect workloads in transit.

The F5® Distributed Cloud Console provides unified management for all F5® Distributed Cloud Services, including multicloud networking, security, and application delivery, to enable operations teams to easily monitor health and manage the end-to-end lifecycle for distributed workloads.

Use Case: Connect workloads on Kubernetes and ROSA

Distributed Cloud App Connect creates a multi-cluster Kubernetes app mesh between Kubernetes and ROSA on your AWS instance. Use F5 Distributed Cloud Console to create an Distributed Cloud Services Amazon Web Services (AWS) Transit Gateway (TGW) site.This allows you to move pods between Kubernetes and ROSA while ensuring security policies are maintained.

Figure 1: Connect workloads on Kubernetes and ROSA using F5 Distributed Cloud App Connect and AWS Transit Gateway.

Use Case: Create a hybrid app environment

To run a mix of distributed apps and services in both Kubernetes and ROSA, you can use Distributed Cloud App Connect to link apps, microservices, and users anywhere. Connections between sites are self-maintaining, redundant, and fully automated, which reduces the need for administrative tasks such as establishing VPNs and routing.

Distributed Cloud App Connect not only enables communication between apps and microservices, but it also provides load balancing, security, observability, and automated deployments using infrastructure as code (IaC). Manage connections as well as unified app security and centralized observability from the Distributed Cloud Console for consistent policies and end-to-end visibility.
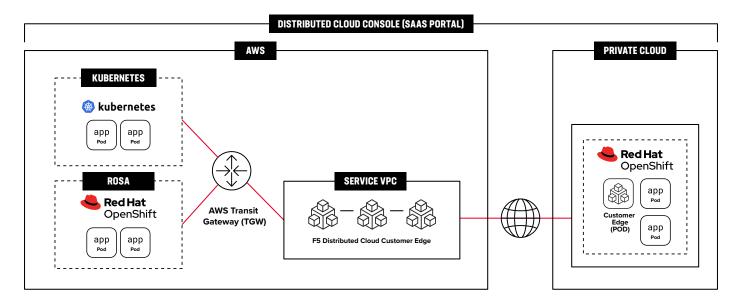

Figure 2: Operate a distributed hybrid environment using F5 Distributed Cloud App Connect.

Benefits of F5 Distributed Cloud Multicloud Networking and ROSA

Together, F5, Red Hat, and AWS reduce the complexity of securing, deploying, scaling, andmanaging Kubernetes applications so you can spend less time and resources managing your distributed multicloud application infrastructure. Optimize costs and maximize business value by standardizing tools and policies across your environments.

Deploy and connect secure apps faster across distributed cloud environments with fewer standalone services to support and less time spent to design and troubleshoot. Both F5 Distributed Cloud Multicloud Networking and ROSA offer a fast time to value through simplified operations, and interoperability with AWS ensures compatibility with your existing services.

Learn more about F5 and Red Hat's partnership at f5.com/redhat