Managed Kubernetes on the F5 Distributed Cloud Platform

High-Performance Provisioning and Management of Kubernetes Clusters

F5 Distributed Cloud Services relieve you of the heavy lifting involved in Kubernetes projects. Focus on your applications and data (and the rest of your business) while we manage your Kubernetes.

Kubernetes is a complex technology. But it is increasingly necessary today for enterprises with cloud-native applications—or for companies seeking to improve flexibility and efficiency by migrating to containers and away from virtual machines (VMs). An open-source container-orchestration system, Kubernetes is significantly more efficient than VMs for deploying and managing applications in multi-cloud, edge, and data center environments. It streamlines organizing, scheduling, and scaling your apps across a fleet of machines and minimizes concerns surrounding app locations, storage limits, and security and compliance.

Managed Kubernetes is a capability offered by F5® Distributed Cloud Services that effectively simplifies the management and operations of Kubernetes projects. Distributed Cloud Services are SaaS-based security, networking, and application management services that can be deployed across multi-cloud, on-premises, and edge locations. They provide simple installation, orchestration, and operation of Kubernetes clusters.

Deploying F5 Distributed Cloud App Stack provides you the quickest and most straightforward path to Kubernetes. You can focus on application deployment and data without the administrative overhead of managing Kubernetes clusters.

Managed Kubernetes is included with Distributed Cloud App Stack and is a turnkey solution enabling you to configure and deploy clusters anywhere—public or private cloud, edge locations, or on premises—within minutes. You leverage pre-built, cloud-native services and infrastructure plug-ins, paired with the support and expertise from F5.

Distributed Cloud Services manages the lifecycle of the containerized application infrastructure, including updates, security, and more. You can easily scale your workloads up or down geographically using replicas, without any resource constraints.

What's Included

Managed Kubernetes from F5 enables you to consolidate multiple services across distributed application clusters. Among the capabilities are:

F5 DISTRIBUTED CLOUD
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OFFERINGS THAT PROVIDE
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QUICKEST AND MOST
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- Zero-touch provisioning of infrastructure nodes, platform services, and apps on the cloud, on-premises, or at the edge.
- A distributed control plane with Kubernetes APIs to manage a large fleet of app clusters.
- Fully integrated, persistent storage solutions for stateful apps
- Universal identity, secrets, AWS Key Management Service (KMS), and service mesh for securing apps and data across multiple clusters.
- Self-service and collaboration across teams—developers, DevOps, NetOps, and SecOps.
- A high-performance global network that can connect and run apps across distributed clusters.
- 24x7 site reliability engineering (SRE) and Security Operations Center (SOC) service that ensures uptime and availability.

Benefits of Managed Kubernetes

1. Accelerate containerized application development: Easily define, deploy, debug, and upgrade even the most complex Kubernetes applications, and automatically containerize applications. An integrated CI/CD pipeline automates routine tasks and reduces app deployment time.

2. Leverage F5 cluster monitoring and provisioning: Distributed Cloud App Stack automatically places workloads on nodes within a cluster based on their resource requirements and other constraints. It restarts workloads that fail, replaces and reschedules workloads when nodes die, kills unhealthy loads, and checks for readiness before making workloads available to serve.

3. Simplify Day0 and Day2 operations: You get 99.99% platform uptime and automatic upgrades and elasticity supported by certified Kubernetes administrators.

4. Scale quickly and seamlessly: Globally distributed control plane — with resource orchestration across a fleet of distributed clusters—enables massive scale.

5. Gain visibility into your environments: F5 offers single-pane-of-glass management for consistency in deployment and operations via the administrative console, F5 Distributed Cloud Console. It enables you to configure storage, security, and networking services and provides dashboards to monitor clusters.

6. Manage multiple tenants with custom policies: Application developers can specify resource requirements, such as CPU and memory limits. Distributed Cloud App Stack ensures the quality of service across multiple tenants and namespaces by evicting workloads if their consumption exceeds these predefined limits.

7. Power your apps with GPU as a Service: Built-in GPU enablement and automations allow you to accelerate AI and machine learning workloads, deep learning models, and application deployments, and gain insights and analysis by processing data in real time.

8. Minimize infrastructure management: F5 technology oversees many aspects of your systems, storage, and network management, reducing operational costs and overhead.

9. Get native platform security: Reduce the burden of meeting security and compliance requirements when integrating multiple network services. At the application level, the innovative F5 Blindfold™ and identity management systems ensure the security of all secrets and keys.

10. Lower your total cost of ownership: Deliver up to 70% reduction in CapEx and OpEx by removing the need to integrate multiple cloud or software services. A global private network offers the flexibility to deploy applications in new geographies without the need to build and operate your own capacity and infrastructure.

SOME USE CASES

Application delivery network	Offload apps from public or private clouds to a global private application delivery network. App logic can be executed closer to users to reduce network costs and improve latency/throughput without requiring changes to existing CI/CD tools.
"Edge cloud" application management	Deliver a unified "edge cloud" using a rich set of platform services to provision and operate distributed infrastructure and apps. Simplify operations and secure connectivity across distributed edge and cloud locations.
Distributed storage	Run stateful applications by deploying container-native, software-defined storage or attach cloud provider storage solutions with Kubernetes PVCs.
Native application security	Best-in-class security for applications and Kubernetes clusters with F5 Distributed Cloud Mesh.
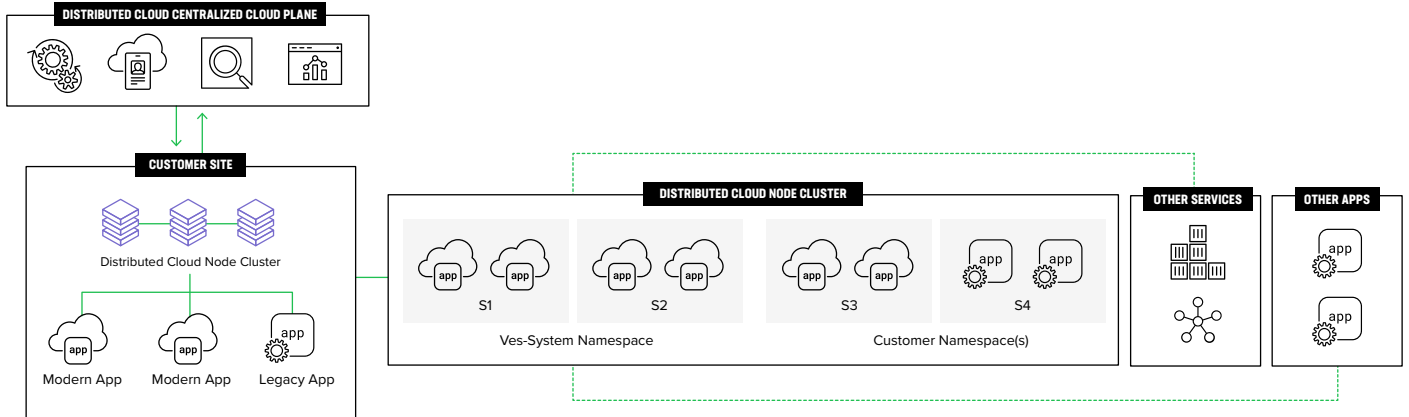
Figure 1: F5 Distributed Cloud App Stack offers a uniform application runtime and scheduling layer, with a consistent workflow to deploy distributed applications across heterogeneous sites.

Get Started

F5 Distributed Cloud Services are SaaS-based security, networking, and application management services that can be deployed across multi-cloud, on-premises, and edge locations.

For more information about Managed Kubernetes on the F5 Distributed Cloud Platform, visit the Distributed Cloud App Stack page at f5.com.

Wherever you are in your digital transformation journey, F5 can help you accelerate and simplify operations. Contact sales@f5.com for more information or to schedule a demo.