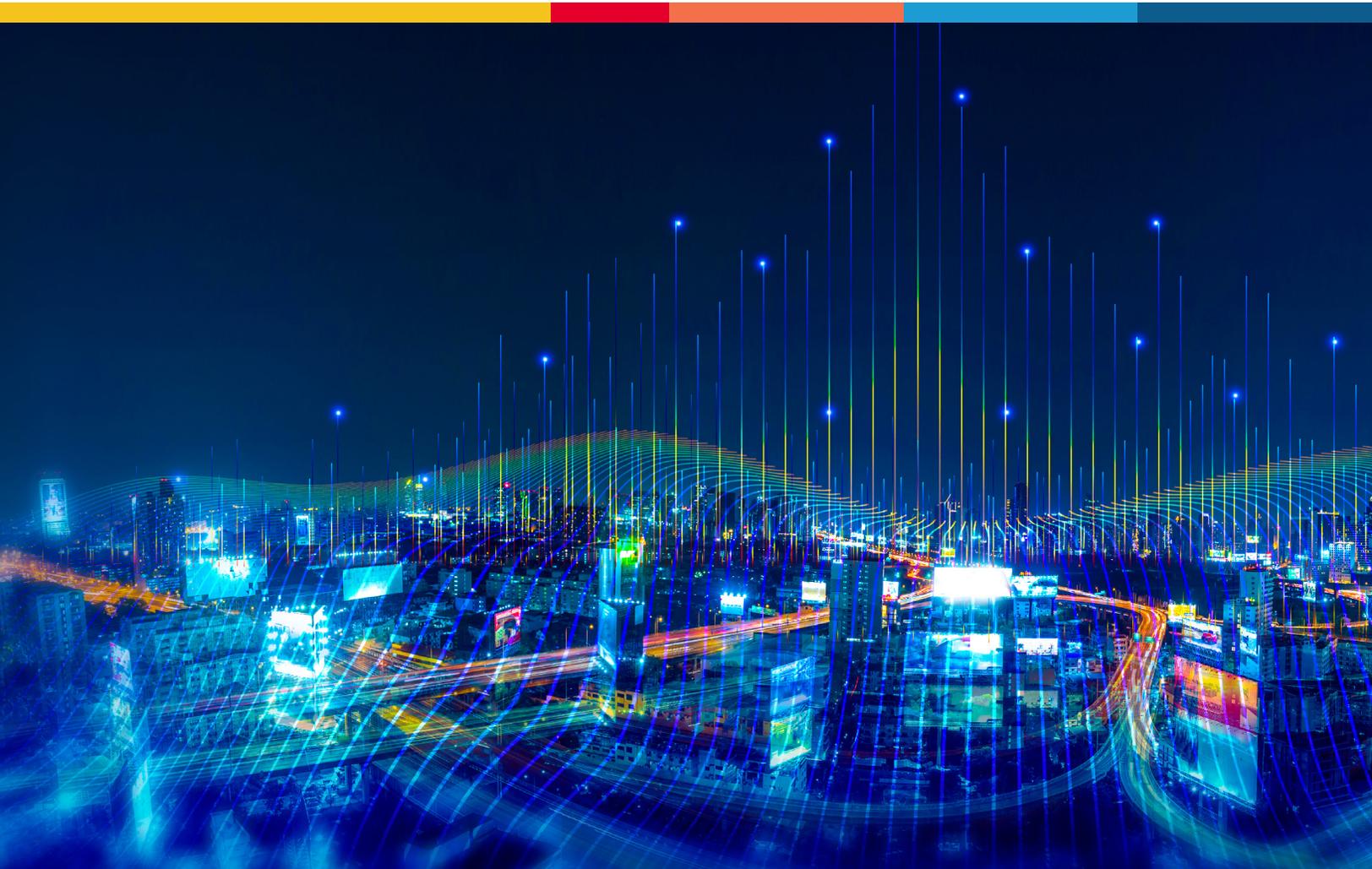




How to 'Cloudify' and Modernize Your Private Data Center

F5 Distributed Cloud Services help enterprises effectively transform their private data centers to private cloud environments, even if they must keep everything on-premises. F5 facilitates the move to microservices-based infrastructure and enables IT teams to provide DevOps with self-service clusters and fully automated application deployment, saving money and gaining flexibility and agility.



KEY BENEFITS

Significantly reduce infrastructure costs

Optimize costs and increase productivity gains with built-in automation assistance, lifecycle management, end-to-end visibility, and enhanced collaboration.

Adopt innovative apps and services

Run new, advanced apps and services such as network, AI, analytics, and more, and scale seamlessly across the globe without significant additional costs.

Enhance security

Get robust multi-layered security services (L3-L7), including access controls across multiple environments.

Reduce IT burden

Let F5's fully managed container platform take care of the heavy lifting while you focus on your applications and services.

Improve time to service

Accelerate cloud migration and adoption without losing your existing infrastructure investments and securely connect your data center to SaaS or cloud environments.

Upgrade the end-user experience

Adopt a cloud-native model to improve application availability and performance and extend rich application services to customers.

Many Companies Remain Stuck in Both Old and New IT Worlds

While aspiring to digitally transform, many companies take a step into the new world of cloud-native microservices-based apps but leave their other foot stuck in a dependency on legacy apps with monolithic or three-tier architectures. Moving forward often requires stitching together old and new environments to create application paths from newer deployments all the way back to the data center.

Most growing companies with traditionally built infrastructure based on virtual machines (VMs) and monolithic systems are struggling to increase flexibility and control in their workload deployments.

Despite dynamic allocation and oversubscription in VM farms, many companies are running out of space to deploy more VMs, even though server monitoring shows that CPU and memory resource usage levels are low. The lack of space is surprising, given how few workloads are actively running. Monolithic architectures simply don't scale efficiently and can quickly consume a single resource type—like being I/O bound—leaving the other resources reserved but idle.

Many more resources can be made available for workloads by increasing flexibility with a container-based microservices architecture. This enables a significant increase in workload capacity without requiring additional compute capability. However, these improvements require cloud-style services to be added to the compute infrastructure before workloads can take advantage of cloud-native innovations in a company's private environment.

In its [2022 State of Application Strategy Report](#), F5 surveyed 1,500 IT professionals worldwide and found that 88% of respondents are currently operating both legacy and modern application architectures at the same time. Furthermore, application containerization has become the norm for new apps among developers, enabling organizations to capture benefits related to app deployment flexibility, portability, performance, and data availability—but is still dependent on time-tested business-critical apps.

While this complicated transitional process of “cloudifying” the data center is becoming commonplace, managing the mix of old and new is a significant challenge. If old systems must be maintained while new systems are coming online, expanding to provide secure data connections between old and new, the burden on IT teams can become unsustainable.

IN ITS 2022 STATE OF APPLICATION STRATEGY REPORT, WHERE 1,500 IT PROFESSIONALS WERE SURVEYED WORLDWIDE, F5 FOUND THAT 88% OF RESPONDENTS CURRENTLY OPERATE BOTH LEGACY AND MODERN APPLICATION ARCHITECTURES.

Why a Multinational Telco Company Chose F5 Distributed Cloud Services Over Name-Brand Competitors

One of the world's largest and most influential companies recently selected F5® Distributed Cloud Services over two well-established, name-brand competitors to “cloud-nativize” and protect its on-premises data center.

The chosen F5 Distributed Cloud solution includes:

- **F5 Distributed Cloud Mesh:** Integrated networking and security services, including routing, east-west VPN (virtual private network), distributed denial-of-service (DDoS) protection, network-layer and web application firewalls (WAF), application programming interface (API) gateway, and application delivery controller.
- **F5 Distributed Cloud App Stack:** Application platform services, including a Kubernetes compute platform, Kubernetes cluster management, service discovery and cross-cluster advertisement, identity management, and zero-knowledge secrets management.
- **F5 Distributed Cloud Console:** A SaaS-based portal that centralizes global orchestration and operations, providing unified controls, analytics, machine learning-based (ML) anomaly detection, and full-stack end-to-end observability.
- **F5 global app-to-app network:** A multi-Tbps carrier-grade network, optimized for app-to-app connections, directly peered with every major public cloud and SaaS provider. The network features more than 20 points of presence (PoPs) worldwide for compute offload, global distributed ingress/egress, and private peering.

The multinational telecommunications conglomerate determined that it needed to improve the low resource utilization and other inefficiencies of its legacy private virtualized infrastructure.

But this global company had a predicament—its security requirements mandated on-premises deployment only, and a complete bypass of the Internet to its remote locations, with an option for potential future public-cloud capabilities. It sought a way to bring the effectiveness of cloud-native microservices and containers to its private data center.

To address such a significant IT infrastructure challenge, the company technically validated multiple solutions before short-listing only three: two well-known private cloud platform providers, plus F5 Distributed Cloud Services.

Ultimately, the F5 solution was chosen for many reasons. The company determined F5 would best improve the resource usage rate and overall efficiency of its private infrastructure, and

KEY FEATURES

Modern, cloud-native apps

Run modern microservices-based apps for automated orchestration and more efficient resource usage, with consistent security and end-to-end policy and visibility.

Networking, security, and apps in a lightweight stack

Orchestrate your networking, security, and app lifecycle management, for comprehensive observability with less effort and overhead than most app-only solutions.

Multi-cloud compatible networking and services

Get turnkey multi-cloud networking and security on a software stack that provides an identical platform to deploy apps in the data center, public cloud, and edge.

Multi-tenancy and self-service

Self-service with a separation of duties enable developers, DevOps, NetOps, and SecOps to openly collaborate.

Integration with CI/CD workflows

Streamline workloads by integrating with CI/CD pipelines to eliminate the need for developers to wait for their apps to be deployed.

Single-pane-of-glass management

Simplify operations by having unified policies, lifecycle management, and comprehensive, multi-layer end-to-end observability.

said it expects to achieve low latency and high security in both the application and network layers within and between clusters by deploying F5 Distributed Cloud Services.

Other key values the company identified in F5 Distributed Cloud Services include:

- Lightweight microservices-oriented container-based architecture
- Integrated networking and security with app-specific configurability to protect containers and workloads
- Multi-tenancy that separates app namespaces and network failure domains
- Self-service with role-based access control and top-down policy overlays to balance corporate stability and security compliance with the agility of business partners
- Comprehensive, centralized monitoring and management capabilities covering all network, security, and applications for true observability
- Intent-based policies that can span multiple applications, networks, and public clouds. Plus, the ability to visualize and execute those policies in network layers 3-7 with granular API and identity specificity

As part of its decision, the company also identified several differences between F5 Distributed Cloud Services and the other two finalists:

- The solutions all had rich application management, but the F5 Distributed Cloud Platform was significantly more efficient than the other two in both computing resources and administrator and developer effort.
- The design for the other two solutions appeared to focus on administration and consumption within a single organization and did not include the multi-tenant features in F5 Distributed Cloud Services. These allow the conglomerate's many entities to share data center resources while continuing to operate as separate businesses.
- While all the final candidates supported namespace isolation in workloads, F5 Distributed Cloud Services was unique in automatically extending that isolation to include networking and security.
- Rather than a collection of multiple administrative utilities, F5 Distributed Cloud Services offer centralized SaaS-based management with control and visibility of networking and security services per deployed application, simplifying deployment effort and significantly enhancing application observability.
- For future expansion, F5 Distributed Cloud Services natively includes multi-site orchestration, secure multi-cloud networking, and uniform app lifecycle management and observability across multiple data centers and public clouds.

Read the full report in this [F5 case study](#).

REDUCE COMPLEXITY AND COST WITH CLOUD-BASED OPERATIONS ACROSS HETEROGENEOUS INFRASTRUCTURES.

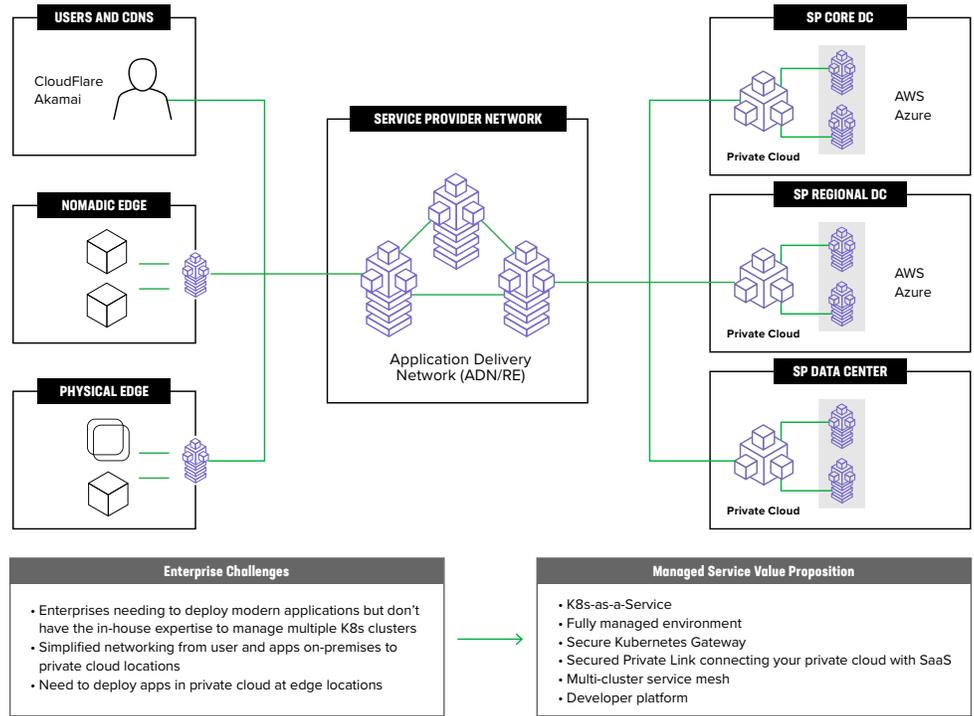


Figure 1: Enterprises must shift to modern apps, but most don't have the in-house expertise to manage multiple Kubernetes clusters.

Conclusion

The F5 Distributed Cloud Platform provides uniform cloud services for security, networking, and application management, bringing cloud flexibility and efficiency to data centers and simplifying the cloudification journey by extending those identical services across multiple sites, clouds, and on-premises edge computing.

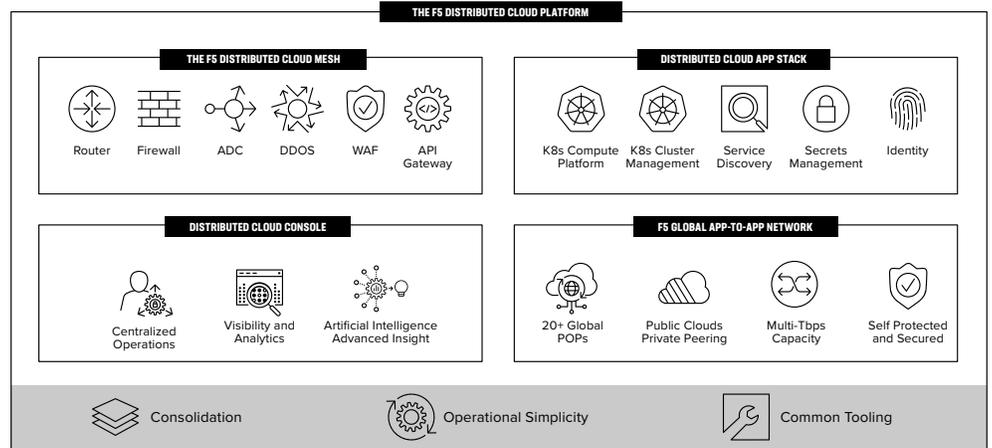


Figure 2: A look at the main components of the F5 Distributed Cloud Platform

F5 Distributed Cloud solutions can “cloudify” any data center and help your developer, DevOps, NetOps, and SecOps teams in the following ways:

F5 DISTRIBUTED CLOUD SERVICES “HAS DEMONSTRATED THAT IT SOLVES CRITICAL OPERATIONAL CHALLENGES WITHIN EXISTING TELCO SERVICE OFFERINGS, INCREASING OPERATOR EFFICIENCY AND REVENUE STREAMS.”

—SoftBank Corp.

No. 5 global telco company

1. REDUCE OPERATIONAL COMPLEXITY

- **Increase productivity gains and cost optimization:** An integrated stack to deploy workloads, add in-line security, and configure networking both east-west between sites and north-south for application delivery. All from a single vendor, to reduce administrative effort and simplify costs.
- **Single-pane-of-glass management:** Unified policies, lifecycle management, and end-to-end observability across every site, whether on-premises data center or public cloud.
- **Multi-tenancy and self-service:** Self-service with a separation of duties allows developers, DevOps, NetOps, and SecOps each to do their jobs without interfering with each other, and without sacrificing any situational awareness.

2. SIMPLIFY INFRASTRUCTURE AND OPERATIONS

- **Streamlined Kubernetes management:** Integrated managed Kubernetes controller and services for rapid installation, maintained as a service by F5 for hands-free stability.
- **Consistent platform:** Uniform operations across multiple sites and heterogeneous infrastructure, automatically connected by secure networking, to reduce complexity and cost.
- **Seamless scalability:** Logically centralized control plane with coordinated orchestration across distributed clouds and clusters, optionally connected by the F5 Global Network, to enable future growth, cloudification, and simple app deployment to edge.

3. IMPROVE TIME TO SERVICE

- **Rapid service delivery:** Increase organizational agility with cloud services to simplify deployments and lifecycle management, with centralized policy overlays to assure adherence to organizational standards.
- **Improved developer experience:** Deliver APIs without VPNs or complex firewall configurations. Get simple and secure access to backend services and apply policies such as providing dev/test with read-only access to production data to accelerate testing.
- **Automation that includes native support for developer tools:** Simplify and leverage Infrastructure as Code in deployments using familiar tools, such as Terraform and kubectl, to offer dev teams self-service capabilities. Users can continue using their existing CI/CD tools such as CircleCI, Spinnaker, and GitLab. There is even a Distributed Cloud API and a command line interface.

4. ENHANCE THE END-USER EXPERIENCE

- **Dramatically faster apps:** Start by deploying workloads in your own data center, with a uniform workflow to deploy in the public cloud, your remote sites, or edge locations, to minimize app latency for a more powerful user experience.
- **Maximum reliability and performance:** Your apps can be automatically deployed to your environment, leveraging built-in app security and intelligent traffic routing around failures—delivered with maximum uptime and resilience.
- **Increased uptime and reliability:** Delivering highly available services across clusters or clouds. You can opt to use the F5 Global Network to connect across clusters and expose services to the Internet. It provides you with built-in L3-L7 DDoS mitigation, WAF, DNS, and TLS certificate management with end-to-end encryption for compliance.

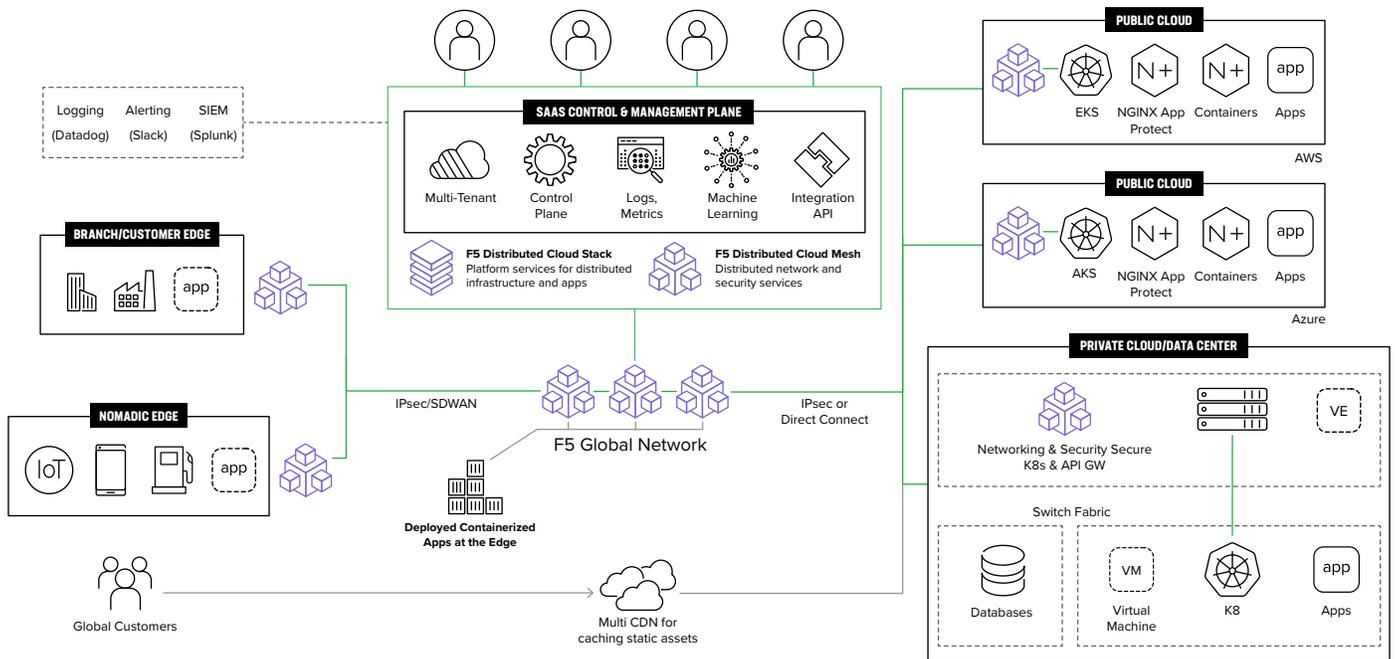


Figure 3: F5 Distributed Cloud Services enable organizations to run modern microservices-based apps wherever needed, closer to the point of interaction

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.

