How F5 Aids Digital Transformation for Retail

Application, network, and security solutions from F5 Distributed Cloud Services help retailers respond to changing customer demands and deliver improved customer experiences with in-store and e-commerce innovations.

Reduce the Complexity and Increase the Agility of E-Commerce and In-Store Retail Technologies

Global e-commerce sales have surged since the start of the COVID-19 pandemic and are estimated to top $4.2 trillion in 2021, according to the Adobe Digital Economy Index. As a result, retail enterprises are accelerating their digital transformation initiatives and IT investments. The guidance from retail industry experts has been clear—though the pandemic drove much of the shift to online shopping, consumer buying habits have permanently changed, with little to no turning back.

But retail experts also emphasize that in-store shopping is not going away and will remain essential to consumers, even if its percentage of overall sales declines. For most retailers, e-commerce and in-store shopping both must succeed. Physical retail infrastructure must continue to adjust to changing shopper behaviors and expectations brought about by e-commerce being a convenient alternative. In-store capabilities must be expanded to include curbside pickup and drive-through lanes as well as self-checkout and self-serve ordering, the latter to offset an expected shortage of retail workers. Last but not least, merchants must adopt in-store digital security devices to prevent theft.

This digital transformation is not the end goal for retailers; it is how they will get to where they need to be, sooner rather than later. Automation and orchestration, as well as retail application services, are the drivers to fulfill the expectations of today's customers. These expectations include touchless technology, enhanced mobile options, and personalized shopping offering seamless experiences between e-commerce and brick-and-mortar store purchases.

F5 Distributed Cloud Mesh
Provides a single, distributed network and application services stack, creating a connectivity fabric across any site that embeds security and critical services such as load balancing, WAF, DDoS mitigation, API gateway protection, etc.

F5 Distributed Cloud App Stack
Delivers a virtual Kubernetes platform to automate the deployment, security, and operations of containerized applications and clusters across diverse environments.

F5 Distributed Cloud Console
A SaaS-based, multi-tenant operations and observability portal to oversee infrastructure, services, and apps, which provides centralized management by consolidating all telemetry, configuration, and management across business units or functional teams.

AUTOMATION AND ORCHESTRATION, AS WELL AS RETAIL APPLICATION SERVICES, ARE THE DRIVERS TO FULFILL THE EXPECTATIONS OF TODAY'S CUSTOMERS.

Early technology adopters are already influencing customer preferences with advanced new digital and retail storefronts. The rest—the majority—must play catch-up. However, most traditional retail software, systems, and infrastructure are not built to accommodate the necessary transformations.

THUS, MANY RETAIL ENTERPRISES WILL FACE THESE COMMON CHALLENGES:

- Technology sprawl with siloed or patchworked systems and environments that lack connectivity.

- Unplanned additional spending and support required to deploy and oversee a growing library of disparate applications and systems.

- Limited on-site personnel for managing brick-and-mortar operations, making it difficult to monitor, safeguard, and manage in-store apps and infrastructure.

- The complexity of distributed compute environments and infrastructure across multi-cloud, hybrid cloud, data center, and/or edge systems; these are essential to manage increased processing at physical stores and distribution hubs.

- Growing compute and network demands, due to escalating online traffic and transactions.

- A required shift to modern app development, including containerization and new DevOps methodologies supporting rapid innovation.

The Answer: F5 for Retailers

F5® Distributed Cloud Services can help. Its application, network, and security solutions are designed to handle challenges borne out of the increased complexity and risk prompted by retail digital transformation. By creating a "logical cloud" across hybrid, multi-cloud, and other disparate environments, Distributed Cloud Services help simplify and standardize your application services stack and streamline the app deployment and management process across all your sites (including edge sites) and cloud providers. Through this platform, Distributed Cloud Services embed robust application and API (application program interface) security into the fabric across all your IT environments, from the data center to the cloud and to the edge. This enables organizations to increase the velocity of new services and drive overall innovation at the edge, supporting online growth and the evolution of in-store systems. You can scale to meet heightened demands for network and compute resources with increasing traffic volumes and transactions. Best of all, Distributed Cloud Services help you optimize costs at both the core or hub and remote sites.
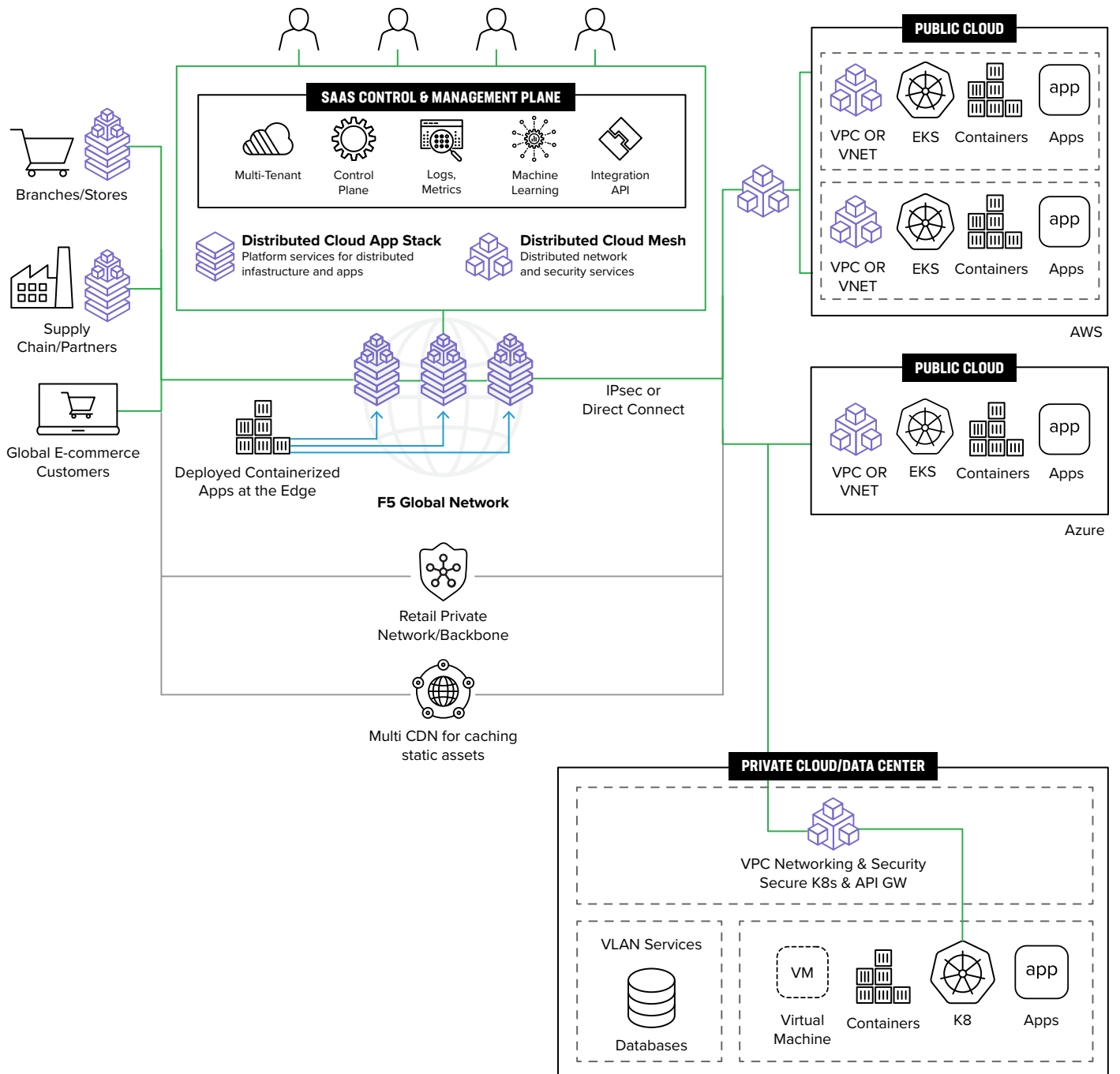
Figure 1: A typical retail IT environment with F5 Distributed Cloud Services creating a robust service mesh connecting all sites, including multiple clouds, with a standard set of app and networking services, edge workloads deployed locally, and centralized control and visibility.

HERE ARE THE THREE COMPONENTS OF THE F5 RETAIL SOLUTION:

1. F5 Distributed Cloud Mesh, a common connectivity and security stack that scales horizontally across your application portfolio. Distributed Cloud Mesh provides a single, distributed network and application services stack to create a connectivity fabric that embeds security and critical services such as load balancing, web application firewall (WAF), distributed denial-of-service (DDoS) mitigation, and API gateway protection. Within this environment, it delivers distributed networking and security services based on Software as a Service (SaaS) to connect, secure, and observe applications across multiple clouds and edge sites.

2. Standardized application services with F5 Distributed Cloud App Stack. With F5's application deployment model, retailers can utilize locations where compute, network, and storage already exist to push applications out, closer to where critical interactions are taking place. Distributed Cloud App Stack provides a virtual Kubernetes platform to automate the deployment, security, and operations of containerized applications and clusters across diverse environments. It scales to many clusters and locations with centralized orchestration, observability, and operations to simplify managing a fleet of distributed clusters, reducing dependencies on cloud-hosted origins.

3. Centralized management with F5 Distributed Cloud Console. A central controller that consolidates all telemetry, configuration, and management across business units or functional teams, Distributed Cloud Console is a SaaS-based, multi-tenant operations and observability portal to oversee infrastructure, services, and apps of the F5 e-commerce tech stack. Users can easily monitor health and manage the end-to-end lifecycle for distributed workloads on Distributed Cloud Mesh and Distributed Cloud App Stack with efficient operations via role-based access control. Decisions regarding capabilities and access can be made at the system or project levels or shared across operating teams, easing the management burden of distributed services and workloads.

With this single platform and set of application, network, and security services from F5, e-commerce and retail organizations can connect their data and application workloads across multiple clouds, data centers, corporate locations, fulfillment centers, and partner sites with brick-and-mortar store locations. In case of mergers, acquisitions, or integrations, organizations now have a streamlined path for unification of their compute and application resources. Linking workloads across companies and business units reduces infrastructure compatibility concerns and establishes core services for new businesses swiftly and securely. Retailers can also take advantage of distributed edge computing, including running microservice-based apps wherever needed and load-balancing workloads based on store or location to support growing compute and data demands at local store levels.

F5 DISTRIBUTED CLOUD SERVICES REDUCE COMPLEXITY AND OPERATIONAL BURDEN, RATHER THAN AUGMENTING YOUR CURRENT ENVIRONMENT WITH NEW TOOLS, SYSTEMS, AND COMPLICATIONS.

Summary: Digital Transformation Ensures Resiliency for Retailers

As retailers modernize, they must unify data sources and improve agility throughout the enterprise (and ecosystem) to be able to respond to changing customer demands—especially with the increase in omnichannel experiences and evolving customer relationships.

Digitally transformed enterprises can move faster and with more data-driven insights to accommodate changes and innovate to adapt to new demands. They are more resilient, can weather the unexpected, and adapt more gracefully to changing customer requests and requirements.

F5 Distributed Cloud Services can help you transform by:

- Breaking through application and infrastructure silos, consolidating apps at the edge onto a common infrastructure solution.
- Centralizing site-level application and infrastructure lifecycle management.
- Consolidating application and networking functions with integrated network and security, reducing reliance on a patchwork of point solutions—such as Domain Name System (DNS), API security, WAF, load balancing, and more.

Distributed Cloud Services reduce complexity and operational burden, rather than augmenting your current environment with new tools, systems, and complications. Your operations, as a result, will deliver an improved customer experience and benefit from increased efficiencies, stronger security and compliance, less downtime, and a lower total cost of ownership.

About F5 Distributed Cloud Services

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.

To learn more, contact an F5 Distributed Cloud Technical Sales representative at sales@f5.com, or visit f5.com.