Alcatel-Lucent and F5
Partnership Overview for Service Providers

Automating management and orchestration to achieve dynamic application delivery control

Service providers are evolving their networks toward a virtualized architecture with network functions virtualization (NFV). By migrating various network functions—load balancing, firewall, DNS, policy management—from running on purpose-built hardware to commercial off-the-shelf (COTS) servers, service providers initially aimed to reduce costs. However, simply virtualizing and running network functions on COTS servers, while an important first step, does not provide the true benefit and value of NFV. To realize this value, you need a solution that fully automates and orchestrates the network, so you can deliver new services faster to market, dynamically respond to real-time network requirements, and achieve high availability to meet your subscribers' high expectations.

F5 and Alcatel-Lucent have partnered to enable service providers to deploy a wide range of virtual network functions (VNFs), coupled with complete management and orchestration (MANO). F5 has a breadth of VNFs, including virtual Application Delivery Controllers, virtual firewall, virtual DNS, virtual policy management, and virtual CGNAT, that service providers can deploy in core strategic areas within the network, including the Gi LAN and IMS. With a fully integrated solution, service providers can automate the network and use streamlined operational processes to deploy new applications and services faster and more flexibly. In addition, the solution's MANO component gives service providers the ability to manage the full lifecycle of VNF instances, including deployment, monitoring, scaling, healing, and software upgrade processes. This results in a more efficient, automated network that's less susceptible to human error.

Automation of virtualized application delivery services

The growth in subscribers' data usage has placed significant strain on service provider networks. Service providers are investing in more network resources to manage this growth, resulting in increased CapEx and OpEx and adding more complexity to an already complicated network. In addition, service provider networks must be highly available, which requires Application Delivery Controllers (ADCs) to scale and manage physical and virtual network services. Using physical devices to deploy and manage this complex network is a difficult task.

F5 and Alcatel-Lucent enable you to reduce network complexity and automate the deployment of virtualized services, specifically the deployment of virtual ADCs. F5's virtual Application Delivery Controller (deployed as BIG-IP® Local Traffic Manager™ Virtual Edition) provides all the functionality of the BIG-IP purpose-built hardware platform, including optimizing network resources, improving network resiliency, and maximizing throughput. This is achieved as both the BIG-IP Virtual Edition and purpose-built hardware platform are built on top of the F5® TMOS® operating system, ensuring all features are available regardless of deployment models, including hybrid virtual and physical deployment models.

Alcatel-Lucent CloudBand automates the deployment of both physical and virtual BIG-IP appliances, allowing a zero-touch operational model, so you can accelerate your time to market and reduce the service provisioning cycle time from months to minutes. In addition, F5 and Alcatel-Lucent provide virtualized services that are as highly available as those delivered via traditional physical network functions. Alcatel-Lucent's CloudBand MANO solution collects status information and alarms for F5 VNFs and network services, and determines the root cause of network failure. CloudBand also restores service applications faster by automating deployment of services.

Virtual CPE and dynamic service chaining

Within traditional network implementations, service providers have deployed static physical network equipment such as load balancers, firewalls, CGNAT devices, and VAS platforms. Launching new services or adding and removing network services in this static, inflexible model is a very long and costly process, as well as prone to human and network errors. As you evolve your network architecture to a virtualized environment, including virtualizing customer premises equipment (CPE) and the Gi-LAN, you gain the flexibility to deploy new services faster to market while streamlining network operations and processes.

As you offer more value to enterprises, including managing mobility and network services such as managed FWaaS, VPNaaS, and LBaaS, you can cost-effectively and efficiently offer these services with faster time to market. F5 and Alcatel-Lucent help automate, orchestrate, and optimize the delivery of virtual CPE, allowing enterprises to automatically provision and provide elastic scaling of services according to their requirements.

F5 and Alcatel-Lucent give you the ability to service chain multiple VNFs together, such as firewalls, policy management, and VAS services, to offer new innovative services that can be customized based on subscriber usage and preferences. The full portfolio of F5 VNFs, together with the Alcatel-Lucent CloudBand management and orchestration system, gives you complete flexibility to dynamically spin services up and down in response to peak network utilization. You also gain greater agility and velocity in delivering innovative new applications and services to improve subscriber QoE.

With F5 and Alcatel-Lucent, you can create an agile, responsive, and dynamic virtual environment that scales based on events and configuration updates. You can deploy and stich together network functions by creating templates that include rules for scaling, upgrading, and healing, and that provides a seamless process for delivering applications and services to subscribers. As a result, you can lower the total cost of ownership on deployed services both in terms of CapEx and OpEx.

Migrate to NFV with a hybrid model

Evolving to a virtualized environment requires a phased approach; this means many strategic points in the network will continue to reside on legacy hardware. To avoid service interruption for your subscribers while migrating to a virtualized network, your new NFV-based virtualized infrastructure must be able to co-exist with legacy infrastructure and maintain the same high quality of service.

The F5 BIG-IP platform gives you the flexibility to deploy application services in any environment, and it supports both physical and virtual devices. The BIG-IP platform can be deployed on purpose-built VIPRION® chassis or appliances or as virtual editions (VEs) on COTS hardware to support deployments of any size and scale. All BIG-IP solutions (ADC, Security, DNS) are built on the same underlying F5 TMOS operating system and programmability features, ensuring a seamless migration between legacy and evolving NFV environments.

Key benefits

· Automate management and network operations to reduce operational efforts.

· Service assurance with analytics and rapid fault isolation of VNFs.

· CapEx and OpEx predictability.

· Rapidly provision the network and deploy new services faster to market.

· Scale elastically to meet changing service demand without investing in hardware for true network agility.

· Flexible deployment of network functions at customer premises or in service provider data center (vCPE).
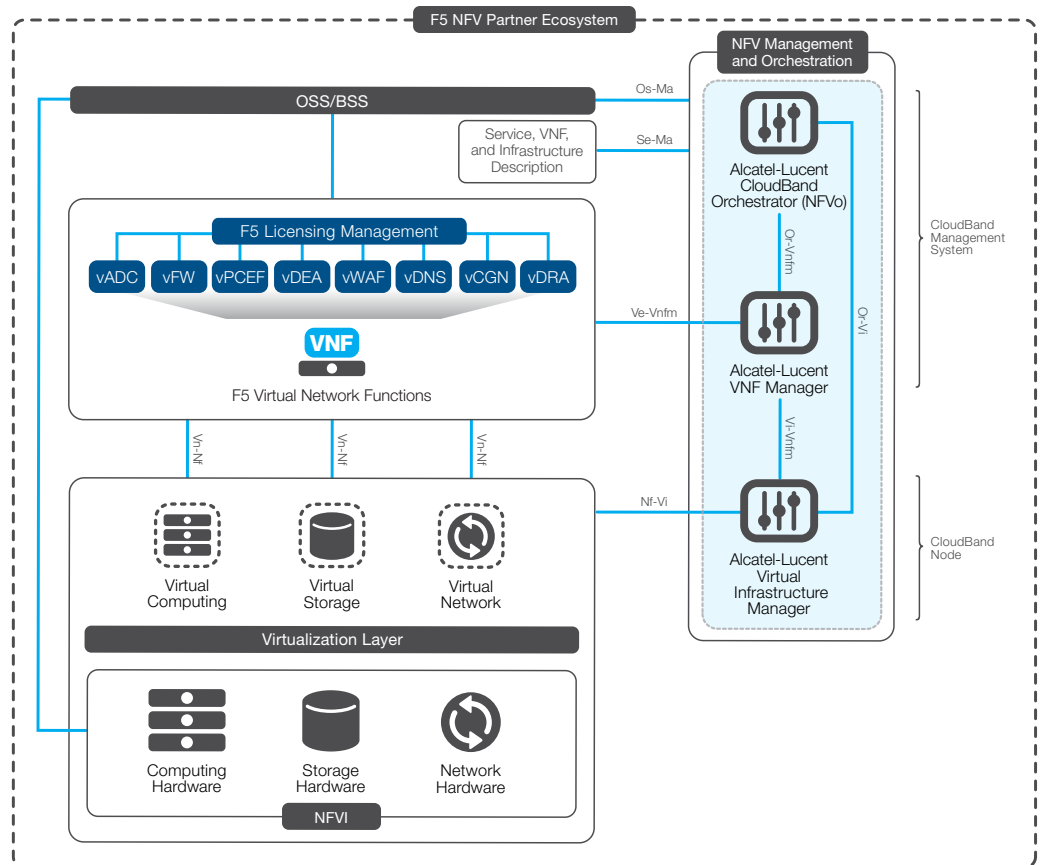
F5 provides a wide breadth of VNFs that can be deployed and managed with Alcatel Lucent's CloudBand Management System.

Ecosystem

F5 is a member of the CloudBand Ecosystem. The program has over 60 members, including service providers, NFV platform vendors, and NFV vendors, who share NFV knowledge, explore use cases, and create proofs of concept. By working together, the process of specifying and integrating all the pieces can be faster, accelerating the reality of the NFV.

Solution

With F5 and Alcatel-Lucent, you can automate and accelerate networking and application services to move your network forward:

· Support for a broad range of L4–L7 services available as a service, including ADC-, Security-, and DNS-as-a-service.

· Flexible deployment options with software running on COTS hardware or purpose-built hardware.

· Deliver new, innovative services such as virtual IMS vEPC, virtual Gi-LAN, vCPE, and dynamic service chaining based on deep network visibility.

· Reduce OpEx by orchestrating and automating the NFV application lifecycle, including onboarding, deployment, scaling, and healing.

· Manage and optimize server, storage, and network resources as a single pool.

· Highly available OpenStack environment with multi-layer service assurance as well as seamless in-service software upgrades.

Learn more at f5.com/serviceprovider and ecosystem.cloud-band.com.

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an application world.