Solutions Overview

VMware vCloud NFV™ is a Network Functions Virtualization (NFV) services delivery, operations and management platform, developed for Communications Service Providers (CSPs) looking to reduce CapEx and OpEx costs, improve operational agility, and decrease time to market for new NFV services. vCloud NFV is a hardened, carrier grade platform that has been proven in production deployment in over 45 Communications Service Provider (CSP) networks globally.

VMware vCloud NFV™ offers a common, modular ETSI conforming NFV platform optimized for delivering converged multi-vendor and multi-domain NFV services. Extensive tooling for NFV service delivery, operations and service management, combined with industry leading security and resource management capabilities, make vCloud NFV an ideal platform for CSPs looking to deliver carrier grade NFV services today with proven performance and scale. vCloud NFV is a future-proof platform that offers a seamless migration path toward converging IT (PaaS) and Operator (IaaS) services, while enabling evolution to a unified cloud native, container based application delivery environment.

vCloud NFV helps CSPs leverage VMware leadership and innovation to effectively meet their business goals.

Game Changing: vCloud NFV Common Platform

In order for CSPs to successfully achieve their business goals, a new, innovative approach to NFV service delivery, operations and management is needed; an approach that gives CSPs the ability to converge multiple service domains and deploy a rich selection of multivendor VNFs onto a single common platform. Such a platform increases operational agility and efficiency while enabling rich service monetization opportunities and a rapid time to market. vCloud NFV was specifically designed to help Service Providers truly change the game and finally achieve their business goals.

A recent report by AGC Research (ACG Research: Business Case for a Common NFV Platform. August 2015) studied the TCO of the three available deployment models available to CSPs today: Appliance-based, Custom Stack and Common Platform. The report concluded that the common platform approach is the only approach uniquely able to help CSPs achieve a long term sustainable business model. Appliance and Custom Stack based models both fail to deliver comparable economies of scale and significantly increase application vendor leverage resulting in higher platform and application costs.

VMware vCloud NFV™ Platform Capabilities

Proven in Production

VMware is the most widely used production NFV platform in the world, with over 45 Communication Service Provider deployments ranging from single-VNF instances to large, multi-tenant NFV clouds, delivering production services to over 30 million subscribers globally.
By adopting VMware vCloud NFV today, CSPs can leverage an industry proven cloud platform and quickly begin delivering rich NFV services, confident in the knowledge that they are running on the industry leading virtualization and cloud infrastructure platform, with a fully proven and integrated set of NFV service delivery, operations and management capabilities.

Carrier Grade

Performance

vCloud NFV is a true Carrier Grade platform optimized for predictable feature enabled performance for the widest range of virtual network functions traffic profiles and requirements. vCloud NFV is meeting virtualized mobile core and wireline services production performance requirements in over 45 CSPs today.

Operations

vCloud NFV is a mature, well integrated platform that offers superior platform and service manageability through an extensive suite of vRealize Operations tools. A robust API, rich service dashboards and logging and analytics tools combine to provide robust FCAPS management capabilities, essential for delivering production services.

Security

Advanced platform security capabilities such as host level firewalling protects VNF resources, while secure logging, auditing and active directory integration provide strong administrative access control. The microsegmentation capabilities of VMware NSX® help to isolate virtual machines with a fine level of granularity that would otherwise require complex policies to implement.

Availability

Industry-leading reliability and high availability capabilities including, VMware vSphere vMotion® VM migrations, vSphere HA, memory fault isolation, resource affinity policy, component protection, admission control and controller clustering, all help to provide a level of platform and service reliability and available that is unsurpassed in the industry today.
Modular ETSI Conforming Deployment

vCloud NFV offers a common, modular ETSI conforming NFV platform. By taking a true platform-based approach to the deployment of NFV services, vCloud NFV™ allows CSPs to deploy only the technology components necessary to meet service delivery requirements while providing open and defined points of demarcation that allow a full NFV stack to be incrementally built from best in class 3rd party vendor solutions.

This ability to operationalize NFV incrementally, starting with the NFVI/VIM and the base set VNFs necessary to deploy an initial service, not only returns a better business case but also ensures the CSP can minimize the need for the introduction of new operational skills and process; providing a more manageable on-ramp to NFV-based service deployment.

The vCloud NFV platform integrates seamlessly with Orchestration and Virtual Network Function Managers, allowing Service Providers to ‘roll their own’ service stack to meet their service delivery needs.

Multi-Vendor and Multi-Domain

vCloud NFV is capable of converging mobility and wireline domain services onto a common platform with a migration path to converging both operator IaaS Services and IT PaaS Services. With support for more than 40 virtual network functions, Service Orchestration, service assurance platforms, and VNF managers, CSPs can roll their own custom stack based on their service delivery needs.

Open Platform Evolution

vCloud NFV is the only platform in the industry today that gives Communications Service Providers the ability to immediately deploy the rich, production ready virtualization infrastructure management (VIM) capabilities with VMware’s open vCloud Director® SP, while also enabling the freedom and flexibility to move toward adopting open source community development projects such as OpenStack.
vCloud NFV offers VMware Integrated OpenStack (VIO) with community release feature parity in a hardened, easy to deploy OpenStack distribution built and supported by VMware.

With vCloud Director-SP CSPs can achieve faster time to market with initial deployments while waiting for OpenStack to mature and achieve feature and functionality parity with what can be delivered today with a vCloud Director powered VMware stack.

vCloud NFV gives CSPs the power of choice, when seeking to optimize their VIM deployment options with their business objectives.

**Future-Proof**

vCloud NFV™ offers a clear migration path to delivering micro services. ESX® is an ideal environment for application deployment via containers and an agile DevOps approach helps CSPs quickly take VNF based services from conception to product quickly and easily. With the largest ecosystem of application and hardware vendor support, and continual evolution of platform interfaces to meet changing market requirements, VMware provides the CSP with a single platform capable of supporting all business functions today and for the future.

**VMware® vCloud NFV™ Platform Components**
vCloud NFV is a packaging of best-in-class VMware Cloud Management solutions that make up NFV Infrastructure as a Service and are validated in production deployments today.

The vCloud NFV platform comprises the following VMware product components.

- **VMware vsphere**—The foundation of any software defined data center deployment (SDDC) for Telco, vsphere is the most trusted and production proven hypervisor for running ANY Telco application today.
• **VMware vSphere with Operations Management™ and VMware vRealize® Operations Insight™**—VMware operations and management solutions deliver integrated performance, capacity, and configuration management capabilities for VMware vSphere and physical environments: automates operations management, manages performance and provides visibility across physical and virtual infrastructure.

VMware vSphere Operations Management delivers virtualization with consistent management, purpose-built to get the best performance, availability and efficiency from your infrastructure and applications from day one.

vRealize Operations Insight is a unified management solution that builds on vSphere with Operations Management for performance management, capacity optimization, and real-time log analytics, using predictive analytics leveraging both structured and unstructured data, for proactive issue avoidance and faster problem resolution.

VMware vRealize Operations™ has been proven to deliver the following customers benefits:
- Up to 53 percent reduction in operations costs
- Up to 30 percent reclaimed capacity through optimization
- Up to 2.4X return on investment
- Up to 50 percent reduction in time for root cause analysis
- Up to 67 percent gain in operations productivity from reduced manual effort and fewer incidents
- Up to 90 percent reduction in time spent reviewing logs

With VMware vSphere Operations Management and VMware vRealize Operations Insight, VMware empowers CSPs with a rich portfolio of fully integrated and unified operations tools to deliver ongoing service assurance for multi-tenant network functions. VMware cloud management solutions ensure Quality of Experience (QoE) equivalence of today’s service assurance solutions without the cost and complexity of silo solutions, while ensuring end subscriber stickiness and ultimately driving increased revenues and simplifying operational processes for the CSP.

• **VMware Virtual SAN™**—Customers trust Virtual SAN for their Carrier Grade data storage needs. With the only hypervisor-embedded software defined storage solution, Virtual SAN is the right storage solution for all Telco cloud deployments providing exceptional performance built on an optimized I/O data path in the hypervisor, resulting in much better performance than a virtual appliance or external device.

• **VMware vCloud Director for Service Providers**—the only true secure multi-tenant Virtual Infrastructure Management (VIM) platform available for Carrier Grade Telco NFV cloud deployments today. Tightly integrated with vSphere, Virtual SAN and NSX, vCloud Director for Service Providers supports VMware’s commitment to a single, horizontal, multivendor NFV cloud platform to run ANY Virtual Network Function at ANY stage of evolution.

• **VMware Integrated OpenStack**—As the open source community evolves toward formalizing an open source based VIM operations model, OpenStack is quickly gaining mindshare as the defacto standard for open source virtualized infrastructure management. VMware Integrated OpenStack offers a fully compliant OpenStack distribution optimized and hardened for vSphere, and supported by VMware.
• **VMware NSX**—the industry's leading network virtualization platform rounds out VMware's SDDC server and storage virtualization for vSphere-based cloud environments, providing critical L2/L3 software services and micro-segmentation. VMware NSX enables CSPs to realize the benefits of server virtualization for the entire data center / central office construct.

• **VMware Site Recovery Manager**—an industry-leading and proven disaster recovery and business continuity product with thousands of customers spanning all industries, geographies and segments, including Telco NFV. VMware Site Recovery Manager has been awarded 'best business continuity product' four years in a row.

**Vendor Certification: VMware Ready for NFV**

The VMware Ready for NFV program is a certification program that recognizes VNF partners that have made commitments to the vCloud NFV platform.

VMware Ready for NFV certified partners have completed a range of operability and interworking assessments in a dedicated accreditation facility and have access to VMware product roadmaps and solution development strategies in order to ensure their solutions continue to maximize the potential of the underlying vCloud NFV platform.

Customers can look to the VMware Ready for NFV certification program as proof of close VNF integration with the vCloud NFV platform.

**The Time is Now**

NFV is not a ‘what if’ technology. VMware has been working with leading CPS partners globally over a number of years to deliver NFV-based service platforms that are transforming operator businesses through significant reductions in costs and increases in service agility.

Proven in production, VMware customers have seen deployment times fall from years and months to weeks and days, even hours. The maturity of VMware's integrated virtualization platform, associated operational support capabilities and resource management is enabling CSP customers to rapidly adopt new ways of deploying service infrastructure and embracing a new era of telecommunications where the operator is empowered to succeed.

**Learn More**

For additional information on how VMware can help communication service providers accelerate the deployment of NFV services, visit [https://www.vmware.com/go/nfv](https://www.vmware.com/go/nfv).