

VMware vCloud NFV and Dell NFV Platform

Transforming the Telecom Network through Virtualization

"Today's communication service providers are looking for ways to lower costs, differentiate services, and bring innovative solutions to market faster. As a result, the industry is evolving towards NFV to gain an advantage. The Dell NFV platform outfitted with VMware vCloud NFV software provides customers an open and agile virtualized infrastructure to help them build tomorrow's future-ready growth engine."

– Tom Burns
Vice President and General
Manager,
Dell Networking

Unleash innovation

In today's mobile and global marketplace, IT that keeps pace with the needs of the business is the differentiator that allows you to move faster, make smarter decisions, enable a more productive workforce, and surprise and delight customers at every turn. Together Dell and VMware provide innovation that delivers reliably, efficient technology that simply works, and scalable and flexible architectures that underpins today's IT environments...and tomorrow's.

Extending the Cloud to the Telecommunication Network

VMware, a global leader in cloud infrastructure and business mobility, and **Dell**, the largest privately-held enterprise computing company in the world, empower organizations to innovate and thrive by streamlining IT operations. By virtualizing infrastructure from the data center to the network to mobile devices we enable Communication Service Providers (CSPs) to transform their businesses.

VMware vCloud® NFV™ software and **Dell NFV Platform** helps CSPs reverse the trend of margin erosion to one of sustainable profitability by radically reducing operational costs and increasing service agility.

Dell NFV Platform comprises Dell's world class server, storage and networking portfolios coupled with element and fabric management software to form a fully converged, open platform for NFV applications. The Dell NFV Platform can easily scale up, down, or out to meet a wide the needs of a wide variety of use-cases and production environments.

The Promise of Network Functions Virtualization (NFV)

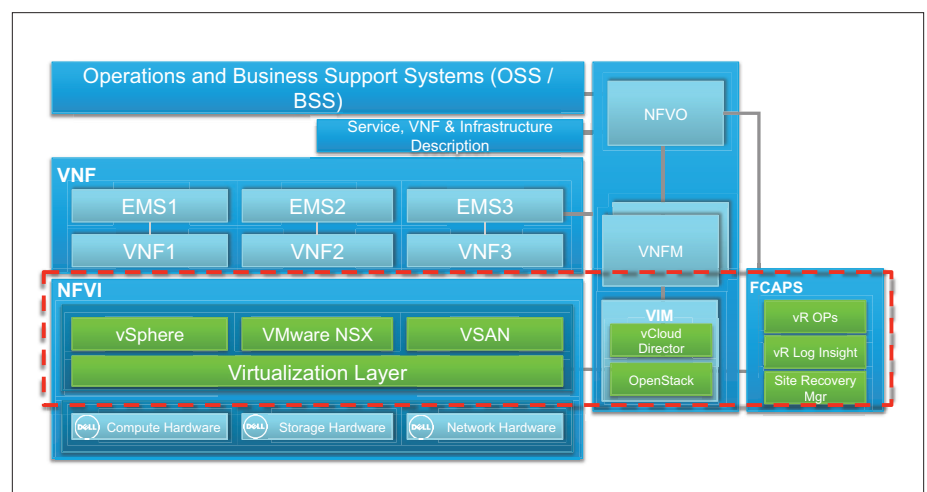
The telecommunications industry as a whole has suffered years of declining profitability and has already taken many incremental cost-cutting measures in an attempt to maintain margins against increasing price erosion of core services. CSPs are now looking toward NFV as a means to transform to a new and sustainable business model based on radically lowering costs and increasing the speed of innovation. The potential benefits of NFV are enormous, but to be successful the CSP will need to manage both a technical and organizational transformation. Based on many years experience helping customers transfer monolithic IT service silos into virtualized, cloud-based models, VMware has built a depth of knowledge of both the technical and operational aspects of such transformation.

NFV is based on the concept of shared resources and cloud-based operations. By leveraging a shared infrastructure of commodity compute, storage and networking hardware across multiple network functions, CSPs can gain CapEx and, more significantly, OpEx savings. Functions successfully deployed include Evolved Packet Core (EPC), IP Multimedia Subsystem (IMS), Voice over LTE (VoLTE) and Virtual CPE (vCPE) functions such as Deep Packet Inspection (DPI), Application Acceleration and Security services.

By 'owning' the NFV platform, CSPs can host multiple network functions from multiple network equipment providers. Not only does this achieve a more favorable commercial environment for the CSP, the associated deployment of a cloud-based operating model creates a more agile service innovation environment where concepts such as 'fast fail' and personalized services provide for greater service differentiation and competitive advantage.

Building the Multi-Vendor NFV Platform

The NFV initiative, driven by the industry itself, is aligning around the output of the ETSI NFV ISG. (European Telecommunications Standards Agency NFV Industry Standards Group). ETSI's framework for NFV is illustrated below.



ETSI NFV Framework with VMware vCloud for NFV positioning highlighted

vCloud NFV addresses the NFV Infrastructure (NFVI) and Virtual Infrastructure Management (VIM) components of the framework, operating in conjunction with NFV partners to deliver an end to end orchestrated service.

vCloud NFV includes two cloud management Application Programming Interfaces (APIs). vCloud API provides the detailed resource allocation and isolation essential for the enforcement of service SLAs, allowing operators to put NFV-based service architectures into production today. VMware Integrated OpenStack is also included to ensure investment protection, openness and flexibility going forward.

With the VMware vCloud NFV and the Dell NFV platform, CSPs can leverage VMware's industry-leading cloud infrastructure and Dell's open and innovative hardware solutions for faster time to market of new and differentiated services while driving sustainable cost reductions through a cloud operations model.

Driving the Future in Partnership

With the telecommunications industry driving the move toward virtualized network infrastructures VMware and Dell are engaged with leading global service providers in the delivery of live NFV-based services today.

We have partnered with CSPs and eco-system Virtual Network Function (VNF) partners to deploy applications spanning vEPC, IMS and VoLTE for the mobile core and virtual CPE (vCPE) services.

As NFV transforms not only the telecommunications network but the telecommunications supply chain, VMware and Dell are at the forefront of the NFV deployment eco-system and is the preferred platform for services in production today.

The VMware and Dell Advantage

Two Industry Leaders

- 100 percent of Fortune 500 and Fortune Global 100 companies use VMware, as do over 250,000 other customers worldwide
- Dell is one of the largest and most successful IT companies in the world, delivering innovative technology and services that give you the power to do more
- Close Collaboration
- VMware and Dell have been working together for over a decade, and have tightly integrated engineering and testing efforts
- Dell operates one of the largest production installations of VMware in its own IT environment, with ~10K VMs, \$150M in cost savings, and application deployment reduced from 45 to 4 days

Complete Portfolio of Solutions

- VMware and Dell provide comprehensive virtualization solutions from the desktop to the datacenter for SMB to global enterprises
- Dell has the largest total number of vSphere certified solutions of any Tier 1 OEM
- Dell validated reference architectures for VMware, including the new Dell Engineered Solutions for VMware EVO: RAIL, enable fast time to value with reduced cost and risk

Global Service and Support

- Dell employs more than 800 VMware certified consultants worldwide who are experienced experts with the VMware product portfolio, and Software Defined Data Center strategies around computing, storage, network and security architectures. Utilizing cutting-edge VMware technologies and industry expertise, Dell is a proven leader in private/public/hybrid Cloud design, deployment, management and automation.
- Dell Managed Services provides customers with comprehensive VMware-based IT Outsourced solutions through Dell's global ITO datacenters and customer on-premise infrastructure management.
- Dell Support provides customers with award-winning, global, 24x7 support for VMware solutions on Dell infrastructure

For More Information

www.vmware.com/go/nfv

<https://solutionexchange.vmware.com/network-function-virtualization>

www.dell.com/nfv

