Why OpenStack Network Functions Virtualization
Is the way to success for telecom companies

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Main benefits:

- Network flexibility via programmatic provisioning.
- Full choice of modular drivers and plug-ins.
- Accessibility via API, enabling faster time to market for new capabilities.
- Lower costs by replacing with Commercial off-the-shelf (COTS) hardware, better price/performance.
- Reduced power consumption and space utilization.
- Operational efficiency across datacenters via orchestration: managing thousands of devices from one console.
- Visibility: automated monitoring, troubleshooting and actions across physical and virtual networks and devices.
- On a business level, NFV users gain agility and efficiency alongside CapEx, OpEx, power and space reductions, and also gain the potential for additional service revenues.

Overview

Expensive, proprietary and inflexible. These were some of the pain points with traditional networking.

It prompted a consortium of network operators to develop something new: Network Functions Virtualization, in short: NFV. NFV allows telecom and enterprise network operators to control their networking functions (physical, virtual and functional domains) using open source software and commercial off-the-shelf hardware. using a single control pane for management and orchestration.

NFV on top of OpenStack offers an agile, scalable cloud platform that disrupts the markets of telecommunications providers, network providers and large enterprises.

What is Network Functions Virtualization?

Simply put, it's a way to define, create, and manage networks not with specialized and dedicated (and thus: expensive) network appliances but with generic hardware, software and automation. It continues the IT mindshift away from physical hardware that's inflexible, proprietary, and expensive. Now you can run a virtual machine with NFV software, to handle specific network functions. From bare metal, in a container, or directly on top of the physical networking infrastructure.

Costs stay low using commodity hardware (general purpose servers and switches) and flexibility high with open APIs. With a wide range of networking capabilities dynamically and adaptively. In general, the aim of NFV is to offer agility, flexibility, and simplicity.

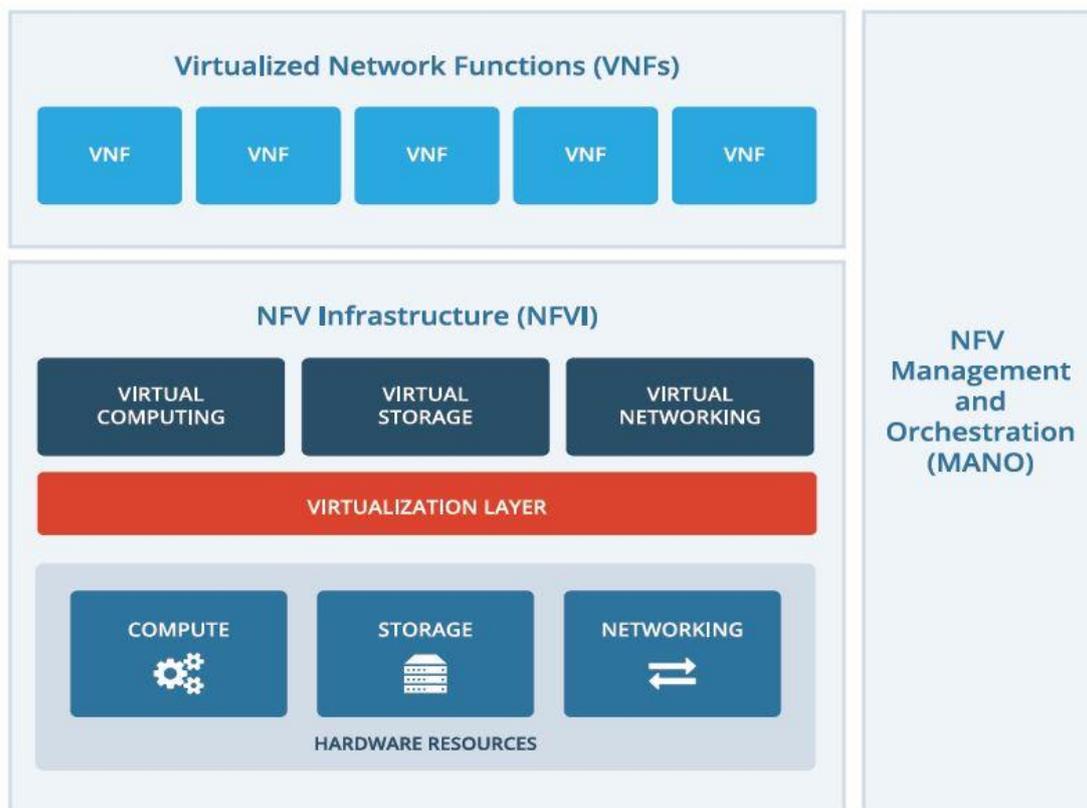**Fairbanks.**
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Is NFV the same as software-defined networking (SDN)?

NFV and SDN complement each other, but solve different problems in different environments across different domains. SDN makes network devices programmable and controllable from a central element where NFV accelerates service innovation and provisioning because it enables you to use standard IT virtualization technologies. Where SDN requires new interfaces, control modules, and applications, NFV typically involves moving networking applications to virtual machines or containers and run commodity hardware. NFV is highly complementary to SDN, but not dependent on it (or vice-versa), although the two concepts and solutions can be combined and potentially greater value accrued.

NFV Functional Overview

In the simplified overview below you can see the virtualized network functions on top of the OpenStack infrastructure.

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Why OpenStack and NFV?

The OpenStack platform provides the foundation for the NFV architecture by deploying, orchestrating and managing the virtualized or containerized network functions. OpenStack enables management of virtual networks over multiple datacenters from a single pane of glass, complete with common security, identity services, APIs, and user interfaces. The open, modular and interoperable framework of an OpenStack platform, empowers telecom operators and enterprises to design the network management of their choosing, without unnecessary expensive or restrictive components.

With OpenStack as cloud infrastructure for NFV you have:

- Standardized interfaces between NFV elements and infrastructure.
- Proven architecture for largest clouds, which are available to masses on commodity hardware.
- Proven telecom and enterprise implementations NFV features in every OpenStack release since 2013.
- Network/element deployment automation, rollout efficiency.
- Broad industry support.

Summary

As indicated by major telecommunications companies and large enterprise network providers, OpenStack is the best fit infrastructure for NFV implementations. With support, requirements and community collaboration from all relevant sources, and its open source nature, ongoing rapid innovation for NFV users is guaranteed. Whether you choose to implement a vendor specific solution, build it in-house based on the community specifications, or choose a fully managed solution, OpenStack is at the heart of the options.

Want to know more?

OpenStack is the world's leading open cloud platform, and provides all the components needed to build and deploy an operational cloud. From compute, storage and network components to a management dashboard and a fully integrated usage metering engine. It meets cloud provider requirements for service automation, seamless scalability and high-availability computing.

Do you want to know more about OpenStack or about how these service models can add value to your business, contact our expert and support center via info@fairbanks.nl, http://www.fairbanks.nl/ or by phone 0031-33-450-8585.