redhat

DEPLOY SERVICES FASTER WITH NETWORK FUNCTIONS VIRTUALIZATION

SOLUTION BRIEF

95%
of communications operators view open source as a positive attribute of any network functions virtualization solution.[1]

NETWORK FUNCTIONS VIRTUALIZATION INFRASTRUCTURE COMPONENTS

- Commercial off-the-shelf (COTS) hardware

- Cloud platform

- Guest operating system

- Virtualization hypervisor

- Open vSwitch

- Data Plane Development Kit (DPDK)

- Storage

- Containers (in development)

- Operations support systems (OSS) and business support systems (BSS)

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IMPROVE AGILITY WITH NETWORK FUNCTIONS VIRTUALIZATION

As demand for information and communications technologies (ICT) services grows, so does competition. Network functions virtualization (NFV) can help communications service providers (CSPs) deliver new services faster and operate more efficiently and flexibly. NFV implements network functions as virtual machines (VMs) on a massively scalable, cloud-based infrastructure, rather than as dedicated physical hardware with proprietary components.

Using open source and standards-based NFV technologies, CSPs can dynamically expand network infrastructure to meet demand, create and deploy new services faster, and reduce costs—all while ensuring long-term interoperability, rapid innovation, and greater flexibility. As a result, 83% of CSPs demand or prefer to use open systems within their networks, and 95% see open sources as a positive attribute of any NFV solution deployment.[1]

VIRTUALIZE YOUR COMMUNICATIONS INFRASTRUCTURE WITH RED HAT

Red Hat is the only open technology vendor that delivers the complete software stack needed for production-grade NFV infrastructure. This modular, cloud-native solution is based exclusively on leading open source projects and close collaboration with key telecommunications communities and industry forums. Red Hat's integrated software stack offers proven performance, security, interoperability, stability, standards compliance, and operational simplicity. A comprehensive ecosystem of NFV partners gives you access to management and orchestration platforms (MANO), virtual network functions (VNFs), and infrastructure add-ons to customize your NFV environment.

- **Red Hat® OpenStack® Platform:** An open, production-ready cloud foundation that delivers performance, scalability, and security for NFV environments. Integration with Data Plane Development Kit (DPDK)-accelerated Open vSwitch (OVS) provides near wire-line network throughput. An integrated director simplifies installation, speeds capacity provisioning, and offers live system upgrades and updates, giving you faster, easier access to new features and functionality.

- **Red Hat Ceph Storage:** An open, software-defined storage platform that delivers massive scalability across physical, virtual, and cloud resources running on standard servers and disks. Red Hat Ceph Storage provides block, object, and file storage in a flexible, self-healing, self-managing platform with no single point of failure.

- **Red Hat CloudForms:** A hybrid cloud management tool that simplifies and unifies management and operations across virtual, private, public, and hybrid environments. Red Hat CloudForms provides a user portal, service catalog, and chargeback capabilities to streamline operations.

- **Red Hat Enterprise Linux®:** A stable, flexible, secure platform for your network infrastructure and virtual network function (VNF) workloads. Red Hat Enterprise Linux includes the Kernel-based Virtual Machine (KVM) hypervisor for high-performance virtualization.

- **Red Hat Satellite:** A complete, life-cycle and system management console that centralizes and simplifies infrastructure administration operations.

1 *Doyle Research, "Open Networking Drive NFV Innovation for the Telecom Industry," December 2014.*

"For NFV we need to avoid closed and non-interoperable environments, which would hamper its widespread adoption. For that purpose, we have launched the Network Functions Virtualization Reference Lab, where Telefónica, along with key players from the industry, is working to enhance baseline virtualization technologies from the open source community and contributing them back to the upstream community to avoid technological fragmentation."

– **ENRIQUE ALGABA**, NETWORK INNOVATION AND VIRTUALIZATION DIRECTOR- TELEFÓNICA I+D-GLOBAL CTO

Telefónica is working with Red Hat to create a virtual infrastructure management (VIM) platform for the company's NFV Reference Lab, which will help Telefónica's ecosystem of partners and network equipment providers (NEPs) test and develop virtual network functions and upper service orchestration layers.

"Working with Red Hat, the major contributor to OpenStack, gives us both the visibility and ability to provide input to OpenStack upstream projects in order to highlight specific stringent requirements networks demand. The insight that both Alcatel-Lucent and Red Hat bring—from ETSI NFV to OpenStack—and the CloudBand NFV platform is essential to drive the telecommunications industry forward."

– **DOR SKULER**, VICE PRESIDENT AND GENERAL MANAGER, CLOUDBAND BUSINESS UNIT, ALCATEL-LUCENT
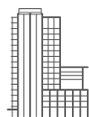
Alcatel-Lucent chose Red Hat OpenStack Platform as the platform foundation for the company's CloudBand NFV solution, which offers a flexible network infrastructure for moving complex applications and services to cloud environments.

"Red Hat is an open source and OpenStack leader, and its enterprise-class cloud solutions are widely used in the market. We have cooperated with Red Hat since 2004 and are excited about the expanded relationship, as it strongly supports our strategy to smoothly transition proven carrier-grade core software applications to NFV OpenStack cloud environments."

– **MICHAEL CLEVER**, SENIOR VICE PRESIDENT OF CORE, NOKIA NETWORKS

Nokia Networks includes Red Hat OpenStack Platform with its carrier-grade virtualized core applications and cloud application management products, ensuring hardware independence for the company's Liquid Core application suite.

ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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