



Hewlett Packard Enterprise

FUTURE-PROOF YOUR NETWORK WITH NFV CORE AND EDGE INFRASTRUCTURE

Prepare your Telco network for 5G and the next-generation evolution with the HPE Telco Core and Edge Blueprints



Key benefits

HPE Telco Blueprints showcase Hewlett Packard Enterprise's expertise in architecting NFV Infrastructure (NFVI) solutions based on open industry standards (Redfish API). HPE Telco Blueprints reduce complexity and risk while increasing CSPs ability to compete in the digital era.

- **Simple:** Simple to deploy, operate, support, scale, manage, and maintain.
- **Leading design:** Built on HPE's proven global expertise with NFVI deployments, the HPE Telco Blueprints leverage HPE's breadth of compute, storage, networking, and HPE InfoSight (predictive analytic) portfolios.
- **Accelerated time to market:** NFVI stack configurations are validated in collaboration with leading VIM and SDN partners, and automated with HPE toolkits. These configurations can be customized by HPE Pointnext Services or our Systems Integrator (SI) partners as required.
- **Open ecosystem:** HPE's rich ecosystem of SIs, independent software vendors (ISVs), and network equipment providers (NEPs) provides CSPs with choices to avoid vendor lock-in.

Top use cases

1. Virtual Evolved Packet Core (vEPC)
2. Virtualized IP Multimedia Subsystem (vIMS)/Voice over LTE (VoLTE)/5G
3. Virtualized radio access network (vRAN)
4. Internet of Things (IoT)
5. Multi-Access Edge Computing (MEC)

Supported virtual infrastructure manager

Red Hat® OpenStack, VMware vCloud® NFV™ OpenStack, and Red Hat OpenShift

Supported network acceleration

Data Plane Development Kit (DPDK), PCI pass-through, and single root I/O virtualization (SR-IOV)

HPE NETWORK FUNCTIONS VIRTUALIZATION

NFVI challenges faced by Telcos

Innovation is now about moving away from closed and rigid, monolithic, purpose-built solutions to more open and flexible solutions built on a cloud paradigm for Telco networks.

Communications service providers (CSPs) now have an opportunity to move to a more open, agile, cloudified model that allows for much faster innovation.

As CSPs refocus their efforts from maintaining network stability to driving innovation, Hewlett Packard Enterprise helps take their core through a [digital transformation for 5G](#).

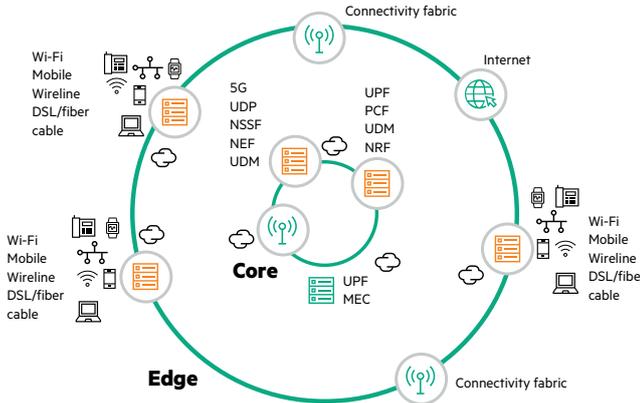


FIGURE 1. Supporting NFV from core to edge

HPE Network Functions Virtualization (NFV) offers a new way for CSPs to design, deploy, and manage services in their network. By decoupling the network functions from proprietary hardware appliances and embracing virtualization and cloud technologies and techniques, CSPs can accelerate the introduction of new, compelling core services quickly and cost-effectively. HPE enables CSPs to reset the cost base of their network operations and create the flexible service delivery environments they need to innovate more quickly and drive revenue.

HPE TELCO BLUEPRINT ARCHITECTURE

[HPE Telco Blueprints](#) are reference designs validated by our telecommunications experts leveraging infrastructure as code principles and HPE NFV best practices. HPE Telco Blueprints come with an optional NFV Platform Software (NPS) toolkit designed to simplify NFVI stack deployment and configuration on

HPE infrastructure. The NPS toolkit leverages open industry standards to accelerate deployments and help eliminate human error.

Select HPE Telco Blueprints are available with an optional HPE Resource Aggregator for Open Distributed Infrastructure Management™ software component that enables management of distributed, multi-vendor, heterogeneous infrastructure using a standard DMTF Redfish® data model.

Designed to enhance every layer of the NFVI stack, HPE Telco Blueprints enable scalability via modularity, reliability with no single point of failure and accelerated performance. All system components can be network equipment building systems (NEBS) level 3 certified, tuned with optimal BIOS and NIC configurations for carrier-grade performance and incorporate open industry standards such as Redfish API. HPE Telco Blueprints are optimally designed and validated with close technical collaboration from leading VIM and SDN partners, and are offered with end-to-end support.

WHAT IS IN AN HPE TELCO CORE BLUEPRINT?

The HPE Telco Core Blueprints are designed to support CSP NFV use cases within the core of their networks. The components of the HPE Telco Core Blueprint include:

- High-performance (100G) top-of-rack **networking nodes**—HPE FlexFabric 59XX/HPE 69XX ONIE Switches and Cumulus NOS Switch Series
- **Control nodes** in high availability configuration using HPE ProLiant DL360/DL380 Gen10 servers
- **Storage nodes** for shared storage with Ceph on HPE ProLiant DL380/DL385 Gen10 servers or HPE Nimble Storage or HPE 3PAR Gen5
- **VMware vSAN™** on HPE ProLiant DL380 Gen10 servers
- **Compute nodes** with carrier-grade performance on HPE ProLiant DL360/DL380/DL385 Gen10 servers or HPE Synergy 480 Gen10 Compute Modules
- Optional Storage and Compute nodes running as a Hyperconverged Infrastructure (HCI), running OpenStack and Ceph deployment on HPE ProLiant DL380/DL385 Gen10 servers

START INNOVATING NOW!

There's no need to wait. Contact your authorized HPE Telco sales representative to find out how you can start.



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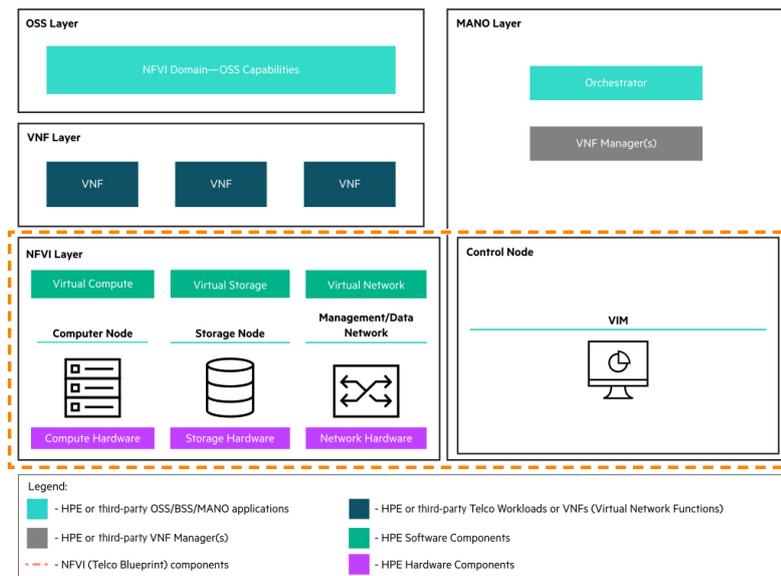


FIGURE 2. HPE Telco Blueprint Architecture

- Choice of Red Hat OpenStack Platform 10/13 or VMware vCloud NFV OpenStack Edition 3.1 or Red Hat OpenShift 4, as virtual infrastructure manager (VIM)
- SDN enabled with HPE Data Center Networking (DCN)
- AC or DC/NEBS options available

WHAT IS IN AN HPE TELCO EDGE BLUEPRINT?

Multi-access Edge Computing (MEC)—Next-gen architectures like 5G can only be exploited by extending compute closer to the edge. Edge computing is an essential pillar for 5G architectures to reach maturity, enabling carriers to exploit the physical distribution of their infrastructure.

The HPE Telco Edge Blueprints are stable platforms that enable CSP business agility with open and optimized infrastructure for NFVI workloads at the network edge. The components of the HPE Telco Edge Blueprint include:

- High-performance (100G) top-of-rack **networking nodes**—HPE FlexFabric 59XX/HPE 69XX ONIE Switches and Cumulus NOS Switch Series
- **Control nodes** in high availability configuration consolidated on a 1U HPE Edgeline EL4000 Converged Edge System

- **Storage nodes** as Hyperconverged Infrastructure (HCI), running OpenStack and Ceph deployment on HPE ProLiant DL380 Gen10 servers, HPE Edgeline EL8000 Converged Edge System or HPE Nimble Storage
- **Compute nodes** as HCI, running OpenStack and Ceph deployment on HPE ProLiant DL380 Gen10 servers, HPE Edgeline EL8000 Converged Edge System or stand-alone HPE ProLiant DL380 Gen10 servers
- Red Hat OpenStack Platform 13 as virtual infrastructure manager (VIM)
- AC or DC/NEBS options available

HPE TELCO LEADERSHIP

HPE Telco-focused solutions and services

HPE helps CSPs transform the way they do business and grow in a fast-changing market. Through our portfolio of [Telco-focused solutions](#) and [HPE Pointnext Services](#), HPE enables CSPs to increase network agility, enhance operations efficiency, and leverage customer insights to successfully pursue new opportunities and embrace new business models.

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