

Introduction to Cisco and Intel NFV Quick Start



Accelerate your virtualization adoption and get help with your innovation through this unique environment delivered through the Cisco, Intel, and Red Hat partnership on NFV

Reduce the time for trials and proofs of concept tests from weeks to days.

Choose between Cisco to host the activities or host them yourself.

Cisco Intel NFV Quick Start.

Simplify Virtualization, Encourage Innovation for Service Providers

Introduction

Customer expectations for network services have evolved markedly. Customers want a frictionless experience characterized by easy ordering, self-service, on-demand capacity, and payment based on consumption. Satisfying these needs means becoming more agile in service delivery, changing business models, and interacting with your customers in new ways.

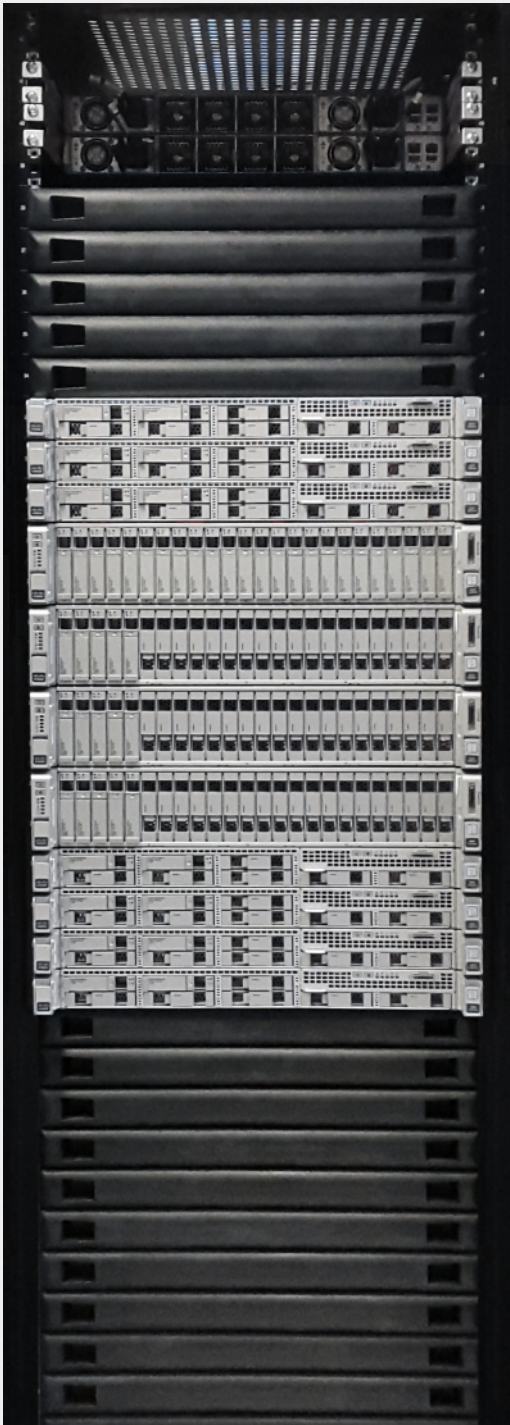
Rapid innovation is critical to staying competitive. Innovation is needed to drive greater speed and efficiency in operations. It is also needed to stay ahead of the changing needs for new services and personalized experiences.

Cisco® NFV Infrastructure. Cisco developed a fully open, preintegrated, validated system that provides modular building blocks for creating reliable, repeatable, and high-performance network function virtualization (NFV) deployments. Cisco NFV Infrastructure is supported through a single point of contact and addresses the complexity, deployment, and operational challenges of NFV across multiple technology providers. Cisco NFV Infrastructure is based on the industry-leading partnership of Cisco, Intel, and Red Hat.

Cisco and Intel® NFV Quick Start. To help speed the adoption of NFV services through demonstrations and proofs of concept (PoC) tests, the partnership has deployed labs globally. These labs are equipped with the Cisco NFV Infrastructure comprising a comprehensive set of Cisco equipment, Intel technologies, and Red Hat software. These labs are available to our mutual customers to use.

NFV PoC Ready Use Cases. Each of the labs also offers a suite of preconfigured NFV use cases to help automate and streamline your demonstrations, PoCs, and trials

Introduction to Cisco and Intel NFV Quick Start lab



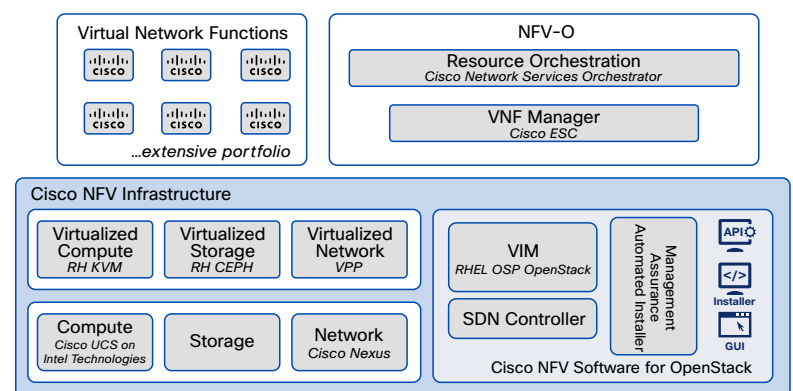
Cisco NFV Infrastructure

The Cisco NFV Infrastructure is a fully validated and tested system. It comprises the Red Hat Enterprise Linux OpenStack Platform, the Cisco Unified Computing System™ (Cisco UCS®) server powered by Intel technology, and the market-leading Cisco Nexus® family of networking equipment.

The Cisco NFV Infrastructure builds a solid foundation that provides cost efficiency, improves service deployment speed, and enables new revenues.

Cisco NFV Infrastructure Technical Overview

Based on the standards created by the European Telecommunications Standards Institute (ETSI) Industry Specification Group for NFV, Cisco NFV Infrastructure provides defined capabilities as an integrated system fully supplied and supported by Cisco. It is a system optimized for network performance and is a validated solution offering carrier-grade availability. It is backed by a single support contract through Cisco. This approach addresses the complexity, deployment and support challenges of OpenStack in a service provider NFV environment.



The Cisco NFV Infrastructure features include:

- The physical infrastructure comprising Cisco UCS computing and storage, Cisco Nexus 9000 top-of-rack switches, and Cisco SDN controller Virtual Topology System (VTS)
- Red Hat OpenStack for the Virtualized Infrastructure Manager (VIM) with embedded Red Hat OpenStack, Red Hat Linux, RHEL Hypervisor, and Red Hat CEPH software defined storage

Introduction to Cisco and Intel NFV Quick Start lab



- A carrier-class container-based deployment of the OpenStack control plane minimizes any downtime due to updates and upgrades. It is based on open source Ansible and Kolla projects.
- A number of value-added tools, based on open-source projects, improve the overall operational efficiency:
 - » A container-based installer
 - » Unified monitoring and management, using Cisco UCS Director cloud automation. It automates end-to-end data center processes, abstracting the complexity of individual devices, hypervisors, and virtual machines
 - » Centralized logging provided through Elastic Stack with the Kibana dashboard for logs viewing and Elasticsearch for searching
 - » Health monitoring of the OpenStack environment using Cloudpulse to verify that different OpenStack services are responding
 - » Virtual machine throughput performance (VMTP) to perform ping connectivity, round-trip time measurement (latency), and TCP/UDP throughput measurements for any OpenStack deployment
- Performance optimization using Intel Enhanced Platform Awareness (EPA) contributions to the OpenStack cloud operating environment. This feature enables fine-grained matching of workload requirements to platform capabilities including NUMA awareness, Huge Pages, CPU pinning, PCI Passthrough and SR-IOV. To allow high-performance packet processing and forwarding, FD.io Virtual Packet Processing data plane with Intel DPDK fundamentals serves as the packet data path for the virtual machine.
- A highly available and scalable shared infrastructure with data center switching fabric and network gateways with no single point of failure. This allows computing nodes to be added without causing disruption in services
- Advanced lifecycle management through continuous integration/continuous delivery (CI/CD) of validated software updates and upgrades

Completing the Quick Start Lab, the Cisco Network Services Orchestrator (NSO) and Cisco Elastic Services Controller (ESC) provide model-driven service and virtual network function (VNF) lifecycle management for both physical and virtual environments.



Cisco Intel NFV Quick Start: Value Proposition

- Facilitates digitalization through network programmability and virtualization
- Minimizes NFV adoption risks by using a prevalidated, high performance, innovative system
- Reduces NFV PoC time from weeks to days
- Provides choice between Cisco hosted labs and hosting yourself, using our integrated PODs shipped to your location
- Encourages an environment for co-development and co-innovation
- Provides a professional environment for joint R&D and a fast track to adopt innovation

Labs Description and Locations

The map shows locations across the globe that are now available or being created

Cisco and Intel Joint Lab Locations



All labs can host demonstrations and PoCs, and support a service provider's network virtualization initiative. Labs provide a high-quality experience and tangible results from initial demonstrations through insertion into production. NFVI Point Of Deployment PODs can be reserved in labs across the world. Optionally, PODs can be delivered to a service provider's premises. Shipped PODs are protected in heavy-duty flight cases.

NFV Use Cases supported in Cisco Hosted and Customer Shipping PODs

The following use cases are currently supported, validated and documented in Cisco hosted and customer shipped PODs

- Mobility: Cisco Virtual Packet Core
- Cable: Cisco Virtual CMTS and R-PHY
- Video: Cisco Video Data Plane for Service Provider
- Orchestration: Orchestrated Cisco VNFs leveraging Cisco NSO and Cisco ESC

Additional scenarios are planned and use cases will evolve at the pace of the industry innovation.

Cisco and Intel NFV Quick Start in Summary

The Cisco, Intel, and Red Hat partnership on NFV provides a unique environment to fast-track virtualization adoption and facilitate innovation. The Cisco and Intel NFV Quick Start program reduces PoC time from weeks to days. Service providers can choose between Cisco and customer-hosted activities. Multiple hosting locations are available worldwide. Optionally, PODs can be shipped to a customer premises.

For more information, visit:
cisco.com/go/nfv

networkbuilders.intel.com/ecosystem/cisco-systems