

Cisco Enterprise Network Functions Virtualization (NFV) Infrastructure Software

Cisco® Enterprise NFV Infrastructure Software is a lightweight virtualization platform that integrates full VM lifecycle management, monitoring, device programmability, and service chaining in a single, installable package.

Product Overview

NFV Infrastructure Software extends Linux by packaging additional functions for virtual network functions (VNF) that support lifecycle management, monitoring, device programmability, service chaining, and hardware acceleration. The components and functionality delivered by NFV Infrastructure Software are:

- OS kernel: Drives the underlying hardware platforms (for example, Cisco UCS® servers, Cisco UCS E-Series Servers, or x86 enhanced network elements) and hosts the virtualization layer for VNFs, virtual switching APIs, and management.
- Virtualization support: The hypervisor for virtualization is based on a kernel-based virtual machine (KVM), and includes Quick Emulator (QEMU), Libvirt, and other associated processes.
- Virtual switching: Enables multiple VNFs to share physical interface resources and allows for traffic to be passed within the x86 host between VNFs.
- VM lifecycle management: Supports bringing up VNFs dynamically, as well as controlling their liveness (ESC-lite).
- Plug and Play (PnP) client: Automates the bringing up of any NFV Infrastructure Software-based host. The PnP client can then communicate with a PnP server running in the Cisco Digital Network Architecture controller, and be loaded with the right host configuration.
- Orchestration API: Supports various open APIs in the controller and orchestration systems. Representational state transfer (REST), command-line interface (CLI), and NETCONF/YANG are supported.
- Web server: Enables connectivity into NFV Infrastructure Software through HTTPS, which is particularly used to support local management tools and orchestration APIs.
- Device management: Includes a resource manager and other tools to support device management.
- Statistics: Includes syslogd, snmpd, collectd, and other tools to assist in statistics collection and reporting.

NFV Infrastructure Software also supports a web-based management device portal. From this portal, the user can upload VNF packages, implement full lifecycle management, turn services up and down, connect to VNF consoles, and monitor critical parameters. Figure 1 shows the device portal homepage. The homepage contains dashboards that show the platform resource utilization and VNF service status.

Figure 1. NFV Infrastructure Software Device Portal



Features and Benefits

Table 1 lists the features and benefits of NFV Infrastructure Software.

Table 1. Features and Benefits

Feature	Benefit
Network hypervisor	Embeds KVM to abstract the underlying hardware components.
Embedded Plug and Play client	Facilitates zero-touch deployment of branch virtualization infrastructure, including VNFs, resulting in reduced OpEx when deploying new branch sites.
VM lifecycle management	Enables all VNF lifecycle management, such as creating and deleting VNFs and adding CPU, memory, and storage. Lifecycle management monitors the status of the VNFs and supports failure and recovery monitoring, and stop and restart of services.
Service chaining	A built-in virtual switch enables communication between the different VNFs. This switch can enable Layer 2 service chaining of VNFs. Multiple independent service paths can be created based on applications or user profiles.
Local web UI	A full-function, built-in GUI is used to manage NFV Infrastructure Software. This powerful UI can be used to upload VNFs, deploy VNFs, service-chain VNFs, change VNF resources, and monitor VNFs and hardware platforms, avoiding the need for complex commands.
Open, programmable APIs	Programmable APIs are provided for service orchestration. These can be used to integrate all the functionality that NFV Infrastructure Software provides with orchestration tools of your choice. Includes options for both REST and NETCONF APIs.

Platform Support/Compatibility

Table 2 lists platforms supported by NFV Infrastructure Software.

Table 2. Platform Support

Product Family	Platforms Supported (by SKU numbers)
Cisco UCS E-Series	Cisco UCS-E140S-M2/K9 Cisco UCS-E160D-M2/K9 Cisco UCS-E180D-M2/K9 Cisco UCS-E160S-M3/K9

Product Family	Platforms Supported (by SKU numbers)
Cisco UCS C-Series	Cisco UCS-C220 M4
Cisco 5400 Enterprise Network Computer System	ENCS5406/K9 ENCS5408/K9 and ENCS5408P/K9 ENCS5412/K9 and ENCS5412P/K9

Product Specifications

Table 3 lists product specifications for NFV Infrastructure Software, and Table 4 lists system requirements.

Table 3. Specifications

NFV Infrastructure Software components	Version 3.5.1
Linux distribution	CentOS 7.1
Kernel version	3.10.0-327.el7.x86_64
LibVirt version	1.2.17
OVS version	2.3.2
QEMU version	1.5.3

System Requirements

Table 4. System Requirements

CPU	1 vCPU
Memory	4 GB
Disk space	10 GB

Ordering Information

NFV Infrastructure Software is the primary operating system for the Enterprise Network Computer System. It is a mandatory solution component that must be selected.

Table 5 lists the part numbers for NFV Infrastructure Software images.

Table 5. Ordering Information

Part Number	Product Description
SW-NFVIS-3.0-K9	C1 Enterprise NFV Infrastructure Software License

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For More Information

For more information on Cisco Enterprise Network Functions Virtualization (NFV), visit <http://www.cisco.com/c/en/us/solutions/enterprise-networks/enterprise-network-functions-virtualization-nfv/index.html>.




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