

About Cisco Enterprise NFVIS

Cisco Enterprise Network Function Virtualization Infrastructure Software (Cisco Enterprise NFVIS) is a Linux-based infrastructure software designed to help service providers and enterprises to design, deploy and manage network services. Cisco Enterprise NFVIS helps dynamically deploy virtualized network functions, such as a virtual router, firewall, and WAN accelerator on supported Cisco devices. Such virtualized deployments of VNFs also leads to device consolidation. You no longer need separate devices. Automated provisioning and centralized management also eliminates costly truck rolls.

Cisco Enterprise NFVIS provides a Linux-based virtualization layer to the Cisco Enterprise Network Function Virtualization (ENFV) solution.

Cisco ENFV Solution Overview

The Cisco ENFV solution helps convert your critical network functions into a software which can deploy network services across dispersed locations in minutes. It provides a fully integrated platform that can run on top of a diverse network of both virtual and physical devices with the following primary components:

- Cisco Enterprise NFVIS
- VNFs
- Unified Computing System (UCS) and Enterprise Network Compute System (ENCS) hardware platforms
- Digital Network Architecture Center (DNAC)

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Benefits of Cisco Enterprise NFVIS

- Consolidates multiple physical network appliances into a single server running multiple virtual network functions.
- Deploys services quickly and in a timely manner.
- Cloud based VM life cycle management and provisioning.
- Life cycle management to deploy and chain VMs dynamically on the platform.

- Programmable APIs.

Supported Hardware Platforms

Depending on your requirement, you can install Cisco Enterprise NFVIS on the following Cisco hardware platforms:

- Cisco 5100 Series Enterprise Network Compute System (Cisco ENCS)
- Cisco 5400 Series Enterprise Network Compute System (Cisco ENCS)
- Cisco Catalyst 8200 Series Edge Universal CPE
- Cisco Catalyst 8300 Series Edge Universal CPE
- Cisco UCS C220 M4 Rack Server
- Cisco UCS C220 M5Rack Server
- Cisco UCS C M6 Rack Servers (UCSC-C220-M6S, UCSC-C240-M6SX, and UCSC-C240-M6S)
- Cisco Cloud Services Platform 2100 (CSP 2100)
- Cisco Cloud Services Platform 5228 (CSP-5228), 5436 (CSP-5436) and 5444 (CSP-5444 Beta)
- Cisco ISR4331 with UCS-E140S-M2/K9
- Cisco ISR4351 with UCS-E160D-M2/K9
- Cisco ISR4451-X with UCS-E180D-M2/K9
- Cisco UCS-E160S-M3/K9 Server
- Cisco UCS-E180D-M3/K9
- Cisco UCS-E1120D-M3/K9

Cisco ENCS

The Cisco 5100 and 5400 Series Enterprise Network Compute System combines routing, switching, storage, processing, and a host of other computing and networking activities into a compact one Rack Unit (RU) box. This high-performance unit achieves this goal by providing the infrastructure to deploy virtualized network functions and acting as a server that addresses processing, workload, and storage challenges.

Cisco Catalyst 8200 Series Edge Universal CPE

The Cisco Catalyst 8200 Edge uCPE is the next generation of Cisco Enterprise Network Compute System 5100 Series that combines routing, switching and application hosting into a compact one rack unit device for the small and Medium Virtualized Branch. These platforms are designed to allow customers to run virtualized network functions and other applications as virtual machines on the same hardware platform powered by Cisco NFVIS hypervisor software. These devices are 8 Core x86 CPUs with HW Acceleration for IPSec crypto traffic with higher number of WAN ports. They have a NIM slot and a PIM slot to choose different WAN, LAN and LTE/5G modules for the Branch.

Cisco Catalyst 8300 Series Edge Universal CPE

The Cisco Catalyst 8300 Series Edge Universal Customer Premises Equipment (uCPE) is a purpose-built x86 platform that is designed for branch virtualization. It enables device consolidation across network and security functions, improves operational flexibility and service agility, simplifies network operations, and results in reduced deployment times and fewer truck rolls for delivery of add-on services.

Cisco UCS C220 M4/M5 Rack Server

The Cisco UCS C220 M4 Rack Server is a high-density, general-purpose enterprise infrastructure and application server that delivers world class performance for a wide range of enterprise workloads, including virtualization, collaboration, and bare-metal applications.

Cisco UCS C M6 Rack Server

The Cisco UCS C220 M6 Rack Server is the most versatile general-purpose infrastructure and application server in the industry. This high-density, 1RU, 2-socket rack server delivers industry-leading performance and efficiency for a wide range of workloads, including virtualization, collaboration, and bare-metal applications.

Cisco CSP 2100-X1, 5228, 5436 and 5444 (Beta)

Cisco Cloud Services Platform is a software and hardware platform for data center network functions virtualization. This open kernel virtual machine (KVM) platform is designed to host networking virtual services. Cisco Cloud Services Platform devices enables network, security, and load balancer teams to quickly deploy any Cisco or third-party network virtual service.

Note CSP 5000 series devices support ixgbe drivers.

Caution If CSP platforms are running NFVIS, Return Material Authorization (RMA) is not supported.

Cisco UCS E-Series Server Modules

The Cisco UCS E-Series Servers (E-Series Servers) are the next generation of Cisco UCS Express servers. E-Series Servers are a family of size, weight, and power efficient blade servers that are housed within the Generation 2 Cisco Integrated Services Routers (ISR G2), Cisco 4400, and Cisco 4300 Series Integrated Services Routers. These servers provide a general-purpose compute platform for branch office applications deployed either as bare metal on operating systems, such as Microsoft Windows or Linux; or as virtual machines on hypervisors.

Supported VMs

Currently, Cisco Enterprise NFVIS supports the following Cisco VMs and third-party VMs:

- Cisco Catalyst 8000V Edge Software
- Cisco Integrated Services Virtual (ISRv)
- Cisco Adaptive Security Virtual Appliance (ASAv)

- Cisco Virtual Wide Area Application Services (vWAAS)
- Linux Server VM
- Windows Server 2012 VM
- Cisco Firepower Next-Generation Firewall Virtual (NGFWv)
- Cisco vEdge
- Cisco XE SD-WAN
- Cisco Catalyst 9800 Series Wireless Controller
- ThousandEyes
- Fortinet
- Palo Alto
- CTERA
- InfoVista

Key Tasks You can Perform Using Cisco Enterprise NFVIS

- Perform VM image registration and deployment
- Create new networks and bridges, and assign ports to bridges
- Perform service chaining of VMs
- Perform VM operations
- Verify system information including CPU, port, memory, and disk statistics
- SR-IOV support on all interfaces of all platforms, with the exception of UCS-E backplane interface

The APIs for performing these tasks are explained in the API Reference for Cisco Enterprise NFVIS.

Note NFVIS can be configured through Netconf interface, REST APIs and command-line interface as all the configurations are exposed through YANG models.

From a Cisco Enterprise NFVIS command-line interface, you can connect to another server and VMs remotely using the SSH client.