

# Cisco Nexus 1000V Series Virtual Switch

## Product Overview

Cisco Nexus® 1000V Series Switches provide a comprehensive and extensible architectural platform for virtual machine (VM) and cloud networking. The switches are designed to accelerate server virtualization and multitenant cloud deployments in a secure and operationally transparent manner.

## Key Use Cases

- Cloud Security – Nexus 1000v address 3 aspects of Enterprise grade cloud security
  - Role based access control through Cisco Trusted Security (CTS) framework
  - Micro segmentation and control over East-West traffic using Virtual Security Gateway (VSG) firewall and
  - Advanced firewall capabilities for North-South traffic with virtual Adaptive Security Appliance (vASA)
- Automation, Self-Service catalog and Multi-tenant cloud
  - Through integration with VACS solution, Nexus 1000v offers Self-Service catalog with automated deployment and configuration of integrated virtual networking functions such as switching, routing, firewall & load balancer with Multi-Tenant support
- Operations ready converged infrastructure through integration with
  - vBlock – Converged Infrastructure from VMware, Cisco & EMC allows customers to select preconfigured and integrated solutions
  - Flexpod – Integrated computing, networking, and storage solution developed by Cisco and NetApp.
  - Cloud Services Platform (CSP) 2100 - The CSP 2100 is a Network Functions Virtualization (NFV) turn-key & open x86 Linux Kernel-based Virtual Machine (KVM) software and hardware platform to run both Cisco and 3<sup>rd</sup> party virtual network services. The CSP 2100 bridges network, server, and security teams by offering several ways to manage and operate the platform
  - UCSO – Cisco UCS Infrastructure with Red Hat Enterprise Linux OpenStack Platform gives you Validated Designs and Reference Architecture which reduces the time and risk of deploying cloud infrastructure

## Product Architecture

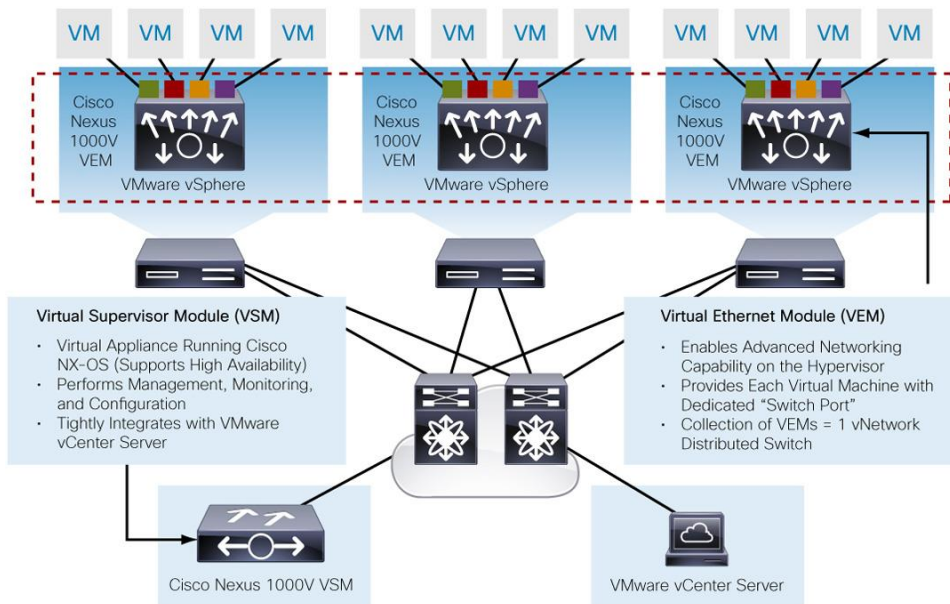
The Cisco Nexus 1000V Series Switch has two major components (Figure 1): the virtual Ethernet module (VEM), which runs inside the hypervisor, and the virtual supervisor module (VSM), which manages the VEMs.

### Virtual Supervisor Module

The Cisco Nexus 1000V Series VSM controls multiple VEMs as one logical modular distributed virtual switch. Configuration is performed through the VSM and is automatically propagated to the VEMs.

The VSM is also integrated with Cloud management and orchestration tools such that the virtualization administrator can take advantage of the network configuration in the Cisco Nexus 1000V Series switch.

**Figure 1.** Cisco Nexus 1000V Series Architecture



## Virtual Ethernet Module

The Cisco Nexus 1000V Series VEM runs as part of the hypervisor software. The VEM takes configuration information from the VSM and performs Layer 2 switching and advanced networking functions.

In the event of loss of communication with the VSM, the VEM has Nonstop Forwarding (NSF) capability to continue to switch traffic based on the last known configuration.

## Key Benefits

- Rich feature mix addresses common requirements and offers wide choice to meet additional custom needs.
  - Familiar building blocks of security offered through ACL's, AAA, DHCP snooping/DAI/IPSG, PVLAN, Port-Sec.
  - Resource preference to business critical applications with Classification, Marking, Policing and Weighted Fair Queuing.
  - Simplified Network operations by supporting SPAN/ERSPAN, Netflow, vTracker, SNMP, Syslog.
  - Virtualized network extension capability by abstraction of underlying hardware with features like VxLAN, SXP & Mac-Distribution.
- Mixed Mode Upgrade which enables ongoing VSM (**control plane**) only upgrade and limits the need to upgrade VEM's (**data plane**) only when using new VEM dependent features
- Multi Hypervisor support for VMware vSphere, Microsoft Hyper-V and RHEL KVM Openstack provides consistent network configuration, management and control across multiple virtualization platforms.
- Manual/Automated configuration and management options through NXOS Cli, REST API, XML API support.

- Offers high scale numbers and key scale friendly features such as
  - Enhanced VxLAN
  - BGP Control plane for VxLAN extension across multiple Nexus 1000v switches
  - Live Migration of Virtual Machine across Datacenters.
- AVS – Application Virtual Switch for ACI, provides cross-consistency in features, management, control and allows for intelligent policy enforcement and optimal traffic steering for virtual applications

## Feature List

Complete feature list and scale capacity can be found at

[http://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus1000/nexus1000v\\_feature\\_matrix/Cisco\\_Nexus\\_1000V\\_Features\\_Scalability\\_Info.html](http://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus1000/nexus1000v_feature_matrix/Cisco_Nexus_1000V_Features_Scalability_Info.html)

## License and Ordering Info

The Cisco Nexus 1000V Series is licensed based on the number of physical CPUs on the server on which the VEM is running. All Nexus1000V licenses are multi-hypervisor licenses and also include Virtual Security Gateway. Starting from Ver 5.2(1)SV3(1.1), the product will adhere to version specific licensing. License version prior to 5.2(1)SV3(1.1) is version 1.0 and post is version 3.0. Customers using a previous release and having valid support can get the license for free from Product Upgrade Tool ([PUT](#)), else they need to buy an upgrade license. Customers have the option of not upgrading to license version 3.0. However, in this case, we will not be able to unlock the advanced edition features. The upgrade license needs to be used in conjunction with an previous full-version license in order to unlock the full features. Table 1 presents ordering formation for the Cisco Nexus 1000V Series.

**Table 1.** Cisco Nexus 1000V Series Ordering Information

Part Number	Description
<b>N1K-VLCPU-01=</b>	Nexus 1000V Paper CPU License Qty 1-Pack
<b>N1K-VLCPU-04=</b>	Nexus 1000V Paper CPU License Qty 4-Pack
<b>N1K-VLCPU-16=</b>	Nexus 1000V Paper CPU License Qty 16-Pack
<b>N1K-VLCPU-32=</b>	Nexus 1000V Paper CPU License Qty 32-Pack
<b>N1K-VLCPU-64=</b>	Nexus 1000V Paper CPU License Qty 64-Pack
<b>N1K-VLCPU-128=</b>	Nexus 1000V Paper CPU License Qty 128-Pack
<b>L-N1K-VLCPU-01=</b>	Nexus 1000V eDelivery CPU License Qty 1-Pack
<b>L-N1K-VLCPU-04=</b>	Nexus 1000V eDelivery CPU License Qty 4-Pack
<b>L-N1K-VLCPU-16=</b>	Nexus 1000V eDelivery CPU License Qty 16-Pack
<b>L-N1K-VLCPU-32=</b>	Nexus 1000V eDelivery CPU License Qty 32-Pack
<b>L-N1K-VLCPU-64=</b>	Nexus 1000V eDelivery CPU License Qty 64-Pack
<b>L-N1K-VLCPU-128=</b>	Nexus 1000V eDelivery CPU License Qty 128-Pack
<b>L-N1K-CPU-V3UP-01=</b>	Nexus 1000V3 eDelivery Multi-Hypervisor Upgrade License for Version 5.2(1)SV3(1.1) train

For obtaining version 3.x licensing, select the N1K-CPU-V3-01 sub-level PID and N1KV-VLCPU-01 sub-level PID for previous versions

## Warranty

The Cisco Nexus 1000V Series has a 90-day limited software warranty. For more information about the Cisco Nexus 1000V Series warranty, see [http://www.cisco.com/en/US/docs/general/warranty/English/EU1KEN\\_.html](http://www.cisco.com/en/US/docs/general/warranty/English/EU1KEN_.html).

---

## Service and Support

Cisco Software Application Support plus Upgrades (SAU) is a comprehensive support service that helps you maintain and enhance the availability, security, and performance of your business-critical applications. Cisco SAU includes the following resources:

- Software updates and upgrades: The Cisco SAU service provides timely, uninterrupted access to software updates and upgrades to help you keep existing systems stable and network release levels current. Update releases, including major upgrade releases that may include significant architectural changes and new capabilities for your licensed feature set, are available by software download from Cisco.com or by CD-ROM shipment. Upgrade license for the next major version can be obtained from the Product Upgrade Tool ([PUT](#)).
- Cisco TAC: Cisco TAC engineers provide accurate, rapid diagnosis and resolution of software application problems to help you reduce outages and performance degradation. These specialized software application experts are trained to support the Cisco Nexus 1000V Series. Their expertise is available to you 24 hours a day, 365 days a year, by telephone, fax, email, or the Internet.

Online support: Cisco SAU provides access to a wide range of online tools and communities to help you resolve problems quickly, support business continuity, and improve competitiveness.

## Cisco Capital

### Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. [Learn more.](#)

## For More Information

For more information about the Cisco Nexus 1000V Series, please visit

<http://www.cisco.com/c/en/us/products/switches/virtual-networking/index.html#~Products>



---

Americas Headquarters  
Cisco Systems, Inc.  
San Jose, CA

Asia Pacific Headquarters  
Cisco Systems (USA) Pte. Ltd.  
Singapore

Europe Headquarters  
Cisco Systems International BV Amsterdam,  
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks). Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)