Cisco Nexus 9300 Switches

Product Overview

Organizations everywhere recognize that changing application environments are creating new demands for the IT infrastructure that supports them. Application workloads are deployed across a mix of virtualized and nonvirtualized server and storage infrastructure, requiring a network infrastructure that provides consistent connectivity, security, and visibility across a range of bare-metal, virtualized, and cloud computing environments:

- Application instances are created dynamically. As a result, the provisioning, modification, and removal of application network connectivity needs to be dynamic as well.
- Business units demand accelerated application deployments. IT departments have to provide shared IT infrastructure to address time-to-market needs and to increase their return on investment (ROI).
- With organizations deploying a mix of custom, open source, and off-the-shelf commercial applications, IT departments must manage both security and quality of service (QoS) for environments that support multitenancy.
- Applications have been transitioning over time to a less monolithic, scale-out, multinode model. IT infrastructure that supports this model must scale with the speed of business and support both 10 and 40 Gigabit Ethernet connectivity.

The Cisco Nexus® 9000 Series Switches include both modular and fixed-port switches that are designed to overcome these challenges with a flexible, agile, low-cost, application centric infrastructure (ACI).

The Cisco Nexus 9300 platform is composed of fixed-port switches designed for top-of-rack (ToR) and middle-of-row (MoR) deployment in data centers that support enterprise applications, service provider hosting, and cloud computing environments. Cisco Nexus 9300 Series Switches are Layer 2 and 3 nonblocking 10 and 40 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE)-capable switches with up to 1.28 terabits per second (Tbps) of internal bandwidth.

The Cisco Nexus 9396PX Switch is a two-rack-unit (RU) switch that supports 960 Gbps of bandwidth across 48 fixed 10-Gbps SFP+ ports and 12 fixed 40-Gbps QSFP+ ports (Figure 1). The 40-Gbps ports are provided on an uplink module that can be serviced and replaced by the user.

Figure 1. Cisco Nexus 9396PX Switch

The Cisco Nexus 93128TX Switch is a 3RU switch that supports 1.28 Tbps across 96 fixed 1/10GBASE-T ports and 8 fixed 40-Gbps QSFP ports (Figure 2). The 40-Gbps ports are provided on an uplink module that can be serviced and replaced by the user. The uplink module is the same for both switches. If used with the Cisco Nexus 93128TX 8 out of the 12 40Gbps QSFP+ ports are available.

Figure 2. Cisco Nexus 93128TX Switch

With the Cisco Nexus 9000 Series, organizations can quickly and easily upgrade existing data centers through advanced optics that enable the use of existing 10 Gigabit Ethernet fiber (a pair of multimode fiber strands) to carry 40 Gigabit Ethernet to the aggregation layer or to the spine (in a leaf-and-spine configuration). Additionally, the series can be deployed in MoR or end-of-row (EoR) configurations to meet the 10 Gigabit Ethernet connectivity requirements of multiple racks or pods.

Used with Cisco Nexus 2000 Series Fabric Extenders, the switches can support even more servers in a collapsed access- and aggregation-layer design that supports 1 and 10 Gigabit Ethernet connectivity across multiple racks.

Cisco provides two modes of operation for the Cisco Nexus 9000 Series. Organizations can use Cisco® NX-OS Software to deploy the Cisco Nexus 9000 Series in standard Cisco Nexus switch environments. Organizations also can use the ACI-ready hardware infrastructure to take full advantage of an automated, policy-based, systems management approach.

Cisco Nexus 9300 Platform Features and Benefits

The Cisco Nexus 9300 platform switches are high-density, nonblocking, low-power-consuming switches designed for ToR, MoR, or EoR deployment in enterprise data centers, service provider facilities, and large virtualized and cloud computing environments.

The platform offers industry-leading density and performance with flexible port configurations that can support existing copper and fiber cabling (Table 1). With 1/10GBASE-T support, the platform can deliver 10 Gigabit Ethernet over existing copper, enabling a low-cost upgrade from Cisco Catalyst® 6500 Series Switches when used in an MoR or EoR configuration.

Table 1. Cisco Nexus 9300 Platform Configuration Options

Configuration Option	Cisco Nexus 9396PX	Cisco Nexus 93128TX	Benefit
48 fixed SPF+ ports	Yes		• Flexibility to support 1 and 10 Gigabit Ethernet optical and fiber connectivity, including low-latency, low-cost Twinax cabling • Support for 1 Gigabit Ethernet SFP+
96 fixed 1/10GBASE-T ports		Yes	• Easy to upgrade existing MoR and EoR switches using existing cabling; straightforward migration path to 10 Gigabit Ethernet • Support for 100 Megabit Ethernet, 1 Gigabit Ethernet, and 10 Gigabit Ethernet speeds
12-port 40 Gigabit Ethernet uplink module (required)	12 QFSP+ ports active	8 QSFP+ ports active	• Provides 40 Gigabit Ethernet connectivity for uplinks to aggregation or spine switches; advanced QSFP+ optics enable connectivity using existing 10 Gigabit Ethernet fiber • Provides 40 MB additional packet buffer space shared with all ports for more resilient operation
Power supplies (up to 2)	650 watts (W)	1200W	80 Plus Platinum-rated power supplies that provide at least 90% efficiency with 20% utilization
Fan trays	3	3	Hot-swappable, redundant fan trays with a choice of airflow direction

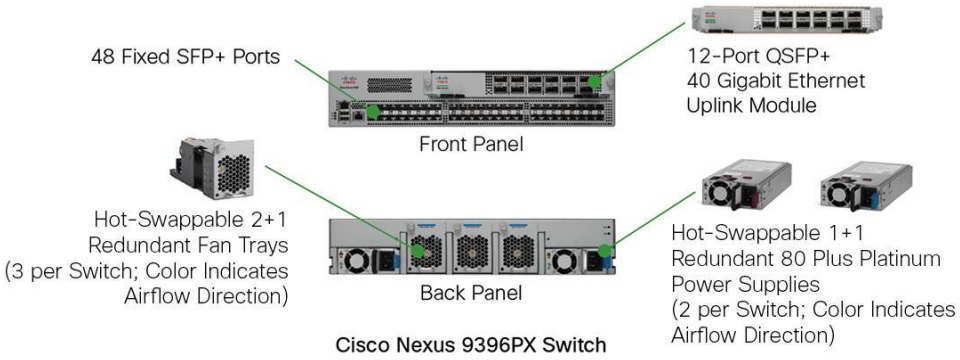
The Cisco Nexus 9300 platform delivers the capabilities described in Table 2.

Table 2. Cisco Nexus 9300 Platform Capabilities

Capability	Benefit
Predictable high performance	Latency of 1 to 2 microseconds with up to 1.28 Tbps of bandwidth enables customers to build a robust switch fabric scaling from as few as 200 10-Gbps server ports to more than 200,000 10-Gbps server ports.
Increased integrated buffer space	Total of 50 MB of integrated shared buffer space to better manage speed mismatch between access and uplink ports.
Designed for availability	Hot-swappable, redundant power supplies and fan trays increase availability.
Flexible airflow configuration	Support for both front-to-back and back-to-front airflow configurations.
Power efficiency	All Cisco Nexus 9000 Series power supplies are 80 Plus Platinum rated.
Advanced optics	Cisco offers a pluggable 40 Gigabit Ethernet QSFP+ transceiver that enables customers to use existing 10 Gigabit Ethernet data center cabling to support 40 Gigabit Ethernet connectivity. This technology facilitates adoption of 40 Gigabit Ethernet with no cable infrastructure upgrade cost.

The Cisco Nexus 9300 platform is constructed with the components shown in Figure 3 and described in the following sections. The Cisco Nexus 9396PX Switch is shown; other switches in the series have similar components and configurable options.

Figure 3. Cisco Nexus 9300 Platform Components (Cisco Nexus 9396PX Shown)



Power and Cooling

The switches are designed to adapt to any data center hot-aisle and cold-aisle configuration. The switches can be installed with ports facing the rear, simplifying cabling of server racks by putting the ports closest to the servers they support. The switches can be installed with the ports facing the front, simplifying the upgrade of existing racks of switches in which network cables are wired to the front of the rack. The two deployment modes support front-to-back cooling through a choice of power supplies and fan trays designed with opposite airflow directions, denoted by red and blue tabs (see Figure 3).

To enhance availability, the platform supports 1+1 redundant hot-swappable 80 Plus Platinum-certified power supplies and hot swappable 2+1 redundant fan trays.

Cisco Nexus 9300 Series Uplink Module

The Cisco Nexus 9300 platform requires an uplink module to be installed for normal switch operation. The Cisco Nexus M12PQ uplink module provides up to 12 QSFP+ ports for 40 Gigabit Ethernet connectivity to servers or aggregation-layer switches (Figure 4). As specified in Table 1, the uplink module provides 8 active ports when installed in the Cisco Nexus 93128TX, and 12 active ports when installed in the Cisco Nexus 9396PX.

Figure 4. Cisco Nexus M12PQ 12-Port QSFP+ Uplink Card

Deployment Scenarios

The Cisco Nexus 9300 platform is a versatile data center switching platform with switches that can operate as ToR data center switches, as MoR/EoR access-layer switches deployed with or without Cisco fabric extender technology, and as leaf switches in horizontally scaled leaf-and-spine architectures. In the context of Cisco ACI, the Cisco Nexus 9300 platform is designed for a leaf role.

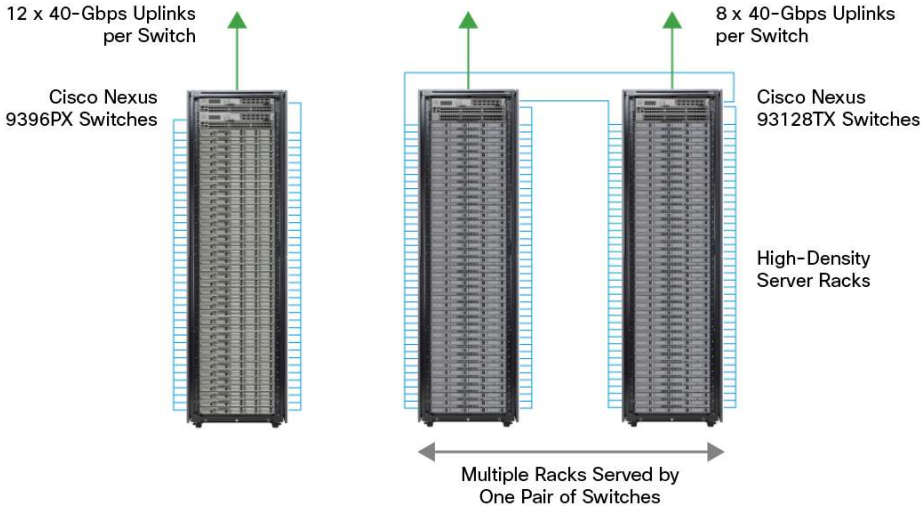
Top-of-Rack Data Center Switch

The Cisco Nexus 9300 platform is designed with the port density, increased integrated buffer space, and performance that make it particularly well suited as a ToR switch.

With its 48 fixed ports, the Cisco Nexus 9396PQ has enough ports to support the densest 1RU server configurations. A pair of these switches can support redundant connectivity to each server in a rack with ports to spare. In the configuration shown in Figure 5, the 480 Gbps of uplink capacity from each switch is sufficient to provide full 10-Gbps bandwidth to each server with no oversubscription.

The Cisco Nexus 9300 platform can support multiple racks (or pods) of dense 1RU servers. For example, the 96-port Cisco Nexus 93128TX can provide 10 Gigabit Ethernet connectivity to all servers across two racks, with a pair of these switches providing full redundancy. In less dense configurations with 2RU servers, the Cisco Nexus 9300 platform can support even more racks of servers in a MoR configuration.

Figure 5. Cisco Nexus 9300 Platform in ToR Configurations



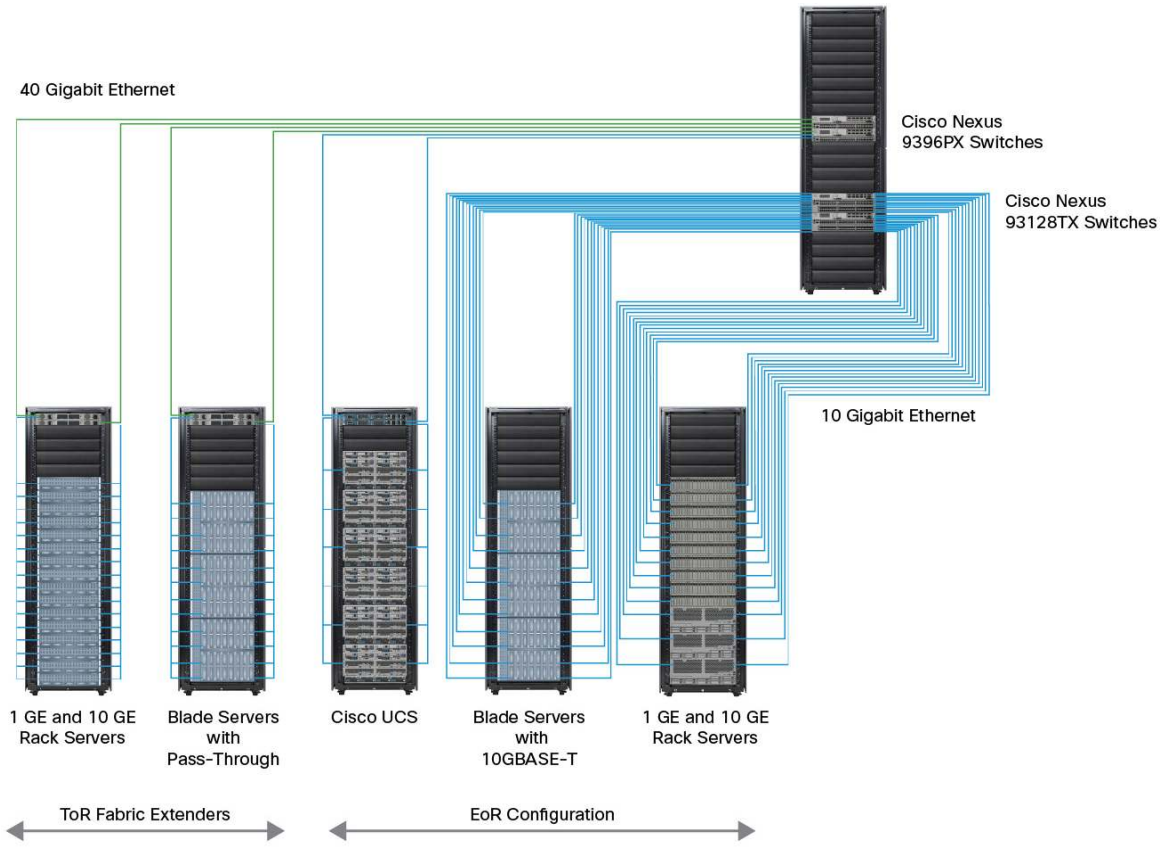
End-of-Row Access-Layer Switch

In addition to being an excellent ToR switch, Cisco Nexus 9300 platform switches can be configured as MoR/EoR access-layer switches. They can connect to almost any blade or rack server through 1 and 10 Gigabit Ethernet connections including the following (Figure 6):

- Third-party and standalone Cisco Unified Computing System™ (Cisco UCS®) rack servers
- Third-party blade server chassis with chassis-resident switches or pass-through devices
- Cisco UCS

The Cisco Nexus 9396PX can be used to connect both 10 and 40 Gigabit Ethernet-equipped fabric extenders, Cisco Nexus B22 Blade Fabric Extenders in Dell and HP blade chassis (not shown), and 10 Gigabit Ethernet-equipped servers and systems such as Cisco UCS. The Cisco Nexus 93128TX provides excellent connectivity for large numbers 10 Gigabit Ethernet-equipped blade or rack servers equipped with 10GBASE-T ports.

Figure 6. Cisco Nexus 9300 Platform Switches as an EoR Access-Layer Switches With and Without Cisco Fabric Extender Technology

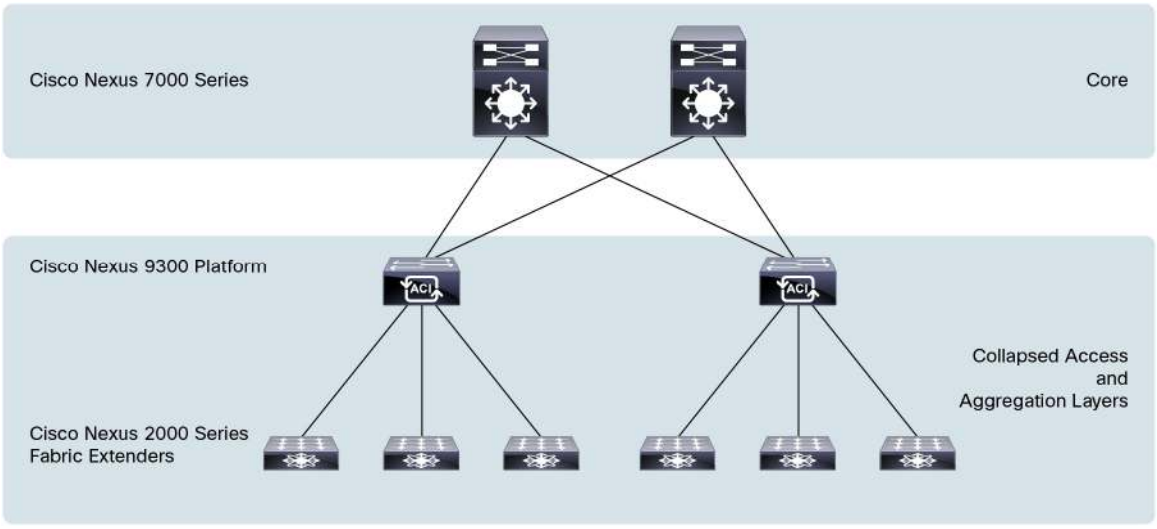


Collapsed Access and Aggregation Layers

Figure 7 shows how the Cisco Nexus 9300 platform can combine with Cisco Nexus 2000 Series Fabric Extenders to establish a centrally managed yet physically distributed collapsed access- and aggregation-layer switch. Although each fabric extender resides physically at the top of each rack or within each blade server chassis, each device is handled as a remote line card of the Cisco Nexus 9300 platform chassis, yielding massive scalability through flexible bandwidth oversubscription but with only a single point of management.

Using Cisco Nexus 2000 Series Fabric Extenders at the top of each rack reduces the cabling complexity, overall power consumption, and number of management points. This approach facilitates a “rack and roll” deployment model in which individual server racks can be prewired using ToR fabric extenders, with the only connections required to bring them into the data center being network uplink and power connections.

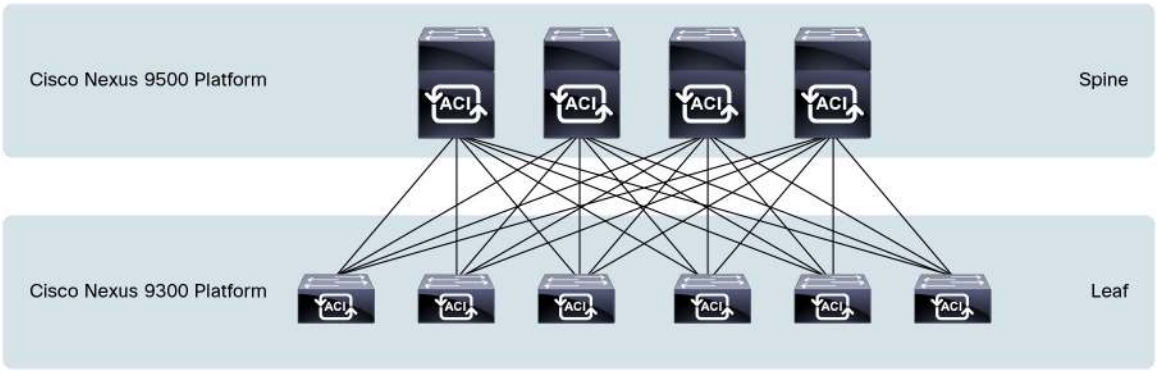
Figure 7. Collapsed Access and Aggregation Layers with Cisco Fabric Extenders



Leaf-and-Spine Architecture

Cisco Nexus 9300 platform switches are excellent choices for leaf switches in a leaf-and-spine architecture (Figure 8). The Layer 3 capabilities established by both the Cisco Nexus 9500 and 9300 platforms enable the two to be used with Equal-Cost Multipath (ECMP) routing to accelerate the flow of traffic and reduce reconvergence time in the event of a failure. The degree of redundancy in leaf-and-spine architectures delivers increased availability with a high level of flexibility in workload placement.

Figure 8. Cisco Nexus 9300 and 9500 Platforms in a Leaf-and-Spine Architecture



Cisco NX-OS Software Overview

Cisco NX-OS is a data center purpose-built operating system designed for performance, resiliency, scalability, manageability, and programmability at its foundation. Cisco NX-OS provides a robust and comprehensive feature set that meets the demanding requirements of virtualization and automation in present and future data centers.

The Cisco Nexus 9000 Series uses an enhanced version of Cisco NX-OS Software with a single binary image that supports every switch in the series, simplifying image management. The operating system is modular, with a dedicated process for each routing protocol, a design that isolates faults while increasing availability. In the event of a process failure, the process can be restarted without losing state. The operating system supports In-Service Software Upgrade (ISSU), hot and cold patching, and online diagnostics. In the event of a supervisor module failure (Cisco Nexus 9500 platform only), the software supports stateful switchover with continuous availability.

Main switch features include the following:

- Power-On Auto Provisioning (POAP) automates the process of upgrading software images and installing configuration files on Cisco Nexus switches that are being deployed in the network for the first time.
- Intelligent Application Programming Interface (iAPI) provides operators with a way to manage the switch through remote procedure calls (RPCs; JavaScript Object Notation [JSON] or XML) over HTTP/HTTPS infrastructure.
- Patching allows the Cisco NX-OS software to be upgraded and patched without any interruption in switch operations.
- Line-rate overlay support provides Virtual Extensible LAN (VXLAN) bridging and routing at full line rate, facilitating and accelerating communication between virtual and physical servers as well as between multiple data centers in a campus environment.

Cisco NX-OS Features and Benefits

The software packaging for the Cisco Nexus 9000 Series offers flexibility and a comprehensive feature set while being consistent with Cisco Nexus access switches. The default system software has a comprehensive Layer 2 security and management feature set and base level Layer 3 feature set. To enable advanced Layer 3 IP Unicast and IP Multicast routing functions, you must install additional licenses. Table 3 lists the software packaging and licensing available to enable advanced features.

Table 3. Software Packaging and Licensing

Packaging	Chassis Based	Part Number	Supported Features
Cisco Nexus 9300 Enhanced Layer 3 license	Chassis	N93-LAN1K9	Layer 3 including full OSPF, Enhanced Interior Gateway Routing Protocol (EIGRP), Border Gateway Protocol (BGP), and VXLAN
Cisco Data Center Network Manager (DCNM) license	Chassis	DCNM-LAN-N93-K9	Cisco DCNM license for Cisco Nexus 9300 platform

Software Requirements

The Cisco Nexus 9000 Series supports Cisco NX-OS Software Release 6.1 and later. Cisco NX-OS interoperates with any networking operating system, including Cisco IOS® Software, that conforms to the networking standards described in this data sheet.

The Cisco Nexus 9000 Series runs Cisco NX-OS on a 64-bit Linux kernel (Release 3.4.10) with a single binary image that supports both modular (Cisco Nexus 9500 platform) and fixed-port (Cisco Nexus 9300 platform) switches. The software image is based on Cisco-NX-OS Software Release 6.1(2). The single image incorporates both the Linux kernel and Cisco NX-OS so that the switch can be booted through a standard Linux kickstart process.

For the latest software release information and recommendations, please refer to the product bulletin at http://www.cisco.com/go/nexus6000.

Specifications

Table 4 lists the specifications for the Cisco Nexus 9300 platform switches. (Please check software release notes for feature support information.)

Performance and Scalability

Table 4. Product Specifications

Item	Cisco Nexus 9300 Platform
Maximum number of longest prefix match (LPM) routes	16,000
Maximum number of IP host entries	88,000
Maximum number of MAC address entries	160,000
Number of multicast routes	• 32k (without virtual PortChannel [vPC]) • 32k (with vPC)
Number of Interior Gateway Management Protocol (IGMP) snooping groups	• 32k (without vPC) • 32k (with vPC)
Maximum number of Cisco Nexus 2000 Series Fabric Extenders per switch	16
Number of access control list (ACL) entries	• 4000 egress • 1000 ingress
Maximum number of VLANs	4096
Maximum number of Virtual Routing and Forwarding (VRF) instances	1000
Maximum number of links in a PortChannel	32
Maximum number of ECMP paths	64
Maximum number of PortChannels	528
Number of active Switched Port Analyzer (SPAN) sessions	4
Maximum number of Rapid per-VLAN Spanning Tree (RPVST) instances	507
Maximum number of Hot Standby Router Protocol (HSRP) groups	490
Maximum number of Multiple Spanning Tree (MST) instances	64
Maximum number of tunnel endpoints (VTEP) and VXLAN physical servers (per VLAN)	10,000

Features

This section summarizes the Cisco Nexus 9300 platform features.

Layer 2 Features
VLANs • 4096 • Reserved range remapping Private VLANs (PVLANs)* • Isolated ports and promiscuous ports • PVLAN on PortChannels and vPCs PVLANs: Fabric extenders* • Isolated ports vPC Spanning Tree Protocol • IEEE 802.1w Rapid Spanning Tree (Rapid PVST+) • IEEE 802.1s Multiple Spanning Tree (MST) • Edge port and edge port trunk • Extensions: Bridge Protocol Data Unit (BPDU) guard, BPDU filtering, bridge assurance, loop guard, and root guard VLAN Trunk Protocol (VTP) Versions 1 and 2 (v1 and v2): Transparent mode MAC addresses: Static • Unicast and multicast IEEE 802.3x Flow Control IEEE 802.1AB Link Layer Discovery Protocol (LLDP) User-configurable interface maximum transmission unit (MTU) and jumbo frames Automatic medium-dependent-interface crossover (auto-MDIX) Unidirectional Link Detection (UDLD)
Layer 3 Features
IPv4 • Static routes • BGP, EIGRP, OSPFv2, and Intermediate System to Intermediate System (ISIS) • VRF-Lite and VRF route leaking • HSRPv1 and v2 • Virtual Router Redundancy Protocol (VRRP) • Bidirectional Forwarding Detection (BFD) • Dynamic Host Configuration Protocol (DHCP) relay IPv6 • Static routes • BGP and OSPFv3 • VRF-Lite and VRF route leaking • HSRPv6 • VRRPv3 • DHCP relay BGP enhancements • **disable-peer-as-check**: Routes learned from one node in one autonomous system (**as**) will be advertised to another node in the same autonomous system. • **allow-as in**: Allow routes having their own autonomous systems in the autonomous system path (**as-path**) to be installed in the BGP routing information base (BRIB). • **best-as-path-relax**: Allow paths received from different autonomous systems to be handled as multipath if their **as-path** lengths are the same and other multipath conditions are met. • **best-as-path-relax**: Allow paths received from different autonomous systems to be handled as multipath if their **as-path** lengths are the same and other multipath conditions are met. • **transport connection-mode passive**: Allow a passive connection setup only. • **remove private-as enhancements [no | default]: remove-private-as [all] [replace-as].** • MD5 authentication for prefix-based neighbors: Allow authentication for prefix-based neighbors. • E-BGP next-hop is unchanged. • IPv6 route updates over IPv4 peering.

• E-BGP scales to 192 peers with BFD. 64-way ECMP User-configurable MAC addresses (16) on routed interfaces
Multicast Features
IGMPv1, v2, and v3 IGMP snooping Protocol-Independent Multicast (PIM) sparse mode (PIM-SM) and Any Source Multicast (ASM) Anycast Routing Protocol (Anycast RP) Multicast Source Discovery Protocol (MSDP)
Availability Features
Single binary image across Nexus 9300 and Nexus 9500 Switches Fault isolation per process Process patching Stateless process restart
Comprehensive Monitoring Features
Cisco Generic Online Diagnostics (GOLD) • Minimum, complete, bypass, on-demand, and health checks Onboard fault logging (OBFL) Cisco Embedded Event Manager (EEM): Scheduler, monitor, and event manager Integrated packet capture and analysis with Wireshark Default SSD (chassis supervisor and ToR) for logging and data capture SPAN • Source and destination on switch ERSPAN • Source on switch and fabric extender • Ingress ACL filtering
Virtualization Support Features
VXLAN gateway* VXLAN bridging* VXLAN routing*
Security Features
Ingress and egress ACLs using Layer 2, 3, and 4 fields • Extended ACLs, MAC addresses, port ACL (PACL), VLAN ACL (VACL), and routed ACL (RACL) • Flexible ACL carving ACL counters Storm control • Broadcast, multicast, and unknown unicast User-configurable Control-Plane Policing (CoPP) Authentication, authorization, and accounting (AAA) • Challenge Handshake Authentication Protocol (CHAP), Password Authentication Protocol (PAP), Microsoft MS-CHAP, and MS-CHAPv2 • Capability to disable role-based access control (RBAC) and use AAA server authentication • RBAC integration to replace privilege levels • Logging • Test parameters • VRF context support • LDAP support RADIUS RBAC TACACS+

Interface Types
Layer 2 switch port • Access and trunk (VLAN list and native VLAN tagged and untagged) Layer 3 routed Loopback interface Switched virtual interface (SVI) PortChannel • Static mode • IEEE 802.3ad LACP • Load balancing • Member link ping • Minimum number of links Fabric extender port*
QoS Features
Up to 4 queues per port Modular QoS command-line interface (CLI; MQC) ACL-based classification Queuing • Strict priority and strict priority fabric extender • Weighted Round-Robin (WRR) and WRR fabric extender Marking and classification • Differentiated services code point (DSCP) on switch • Class of service (CoS) • CoS preservation for Remote Direct Memory Access (RDMA) over Converged Enhanced Ethernet (RoCEE) Policing • Ingress Explicit congestion notification (ECN) Weighted Random Early Detection (WRED) Priority flow control (PFC) with support for up to 3 PFC classes
Device Management Features
POAP Configuration rollback Configuration session manager FTP, SFTP, and TFTP client Network Time Protocol (NTP) • Client, peer, server, ACL, and authentication Remote copy (RCP) and secure copy (SCP) client Remote monitor (RMON) Cisco Smart Call Home Simple Network Management Protocol (SNMP) v1, v2, and v3 Syslog Virtual terminal (vty) XML (Netconf) Secure Shell (SSH) v2 (client and server) Telnet (client and server) USB port 100/1000-Gbps management port RS-232 serial console port Support for **copy <file> start** Locator LED (beacon) for line cards (chassis) and uplink modules (Nexus 9300) Supported in Cisco DCNM LAN and Cisco Prime™ Infrastructure Supported in Cisco networking plug-in for OpenStack

Extensibility and Programmability Features
Linux tools • Bash shell access • Broadcom shell access Python shell NX-API Extensible Messaging and Presence Protocol (XMPP) client*
Standards Compliance
IEEE 802.1D Bridging and Spanning Tree IEEE 802.1p QoS/CoS IEEE 802.1Q VLAN Tagging IEEE 802.1w Rapid Spanning Tree IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1AB Link Layer Discovery Protocol IEEE 802.3ad Link Aggregation with LACP IEEE 802.3x Flow Control IEEE 802.3ab 1000BASE-T IEEE 802.3z Gigabit Ethernet IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3ba 40 Gigabit Ethernet RFC 2460 IPv6 RFC 2461 Neighbor Discovery for IPv6 RFC 2462 IPv6 Stateless Address Autoconfiguration RFC 2463 ICMPv6
SNMP MIBs
Cisco NX-OS Software Release 6.2 equivalent * Support post FCS via software upgrade

Power Supply

Table 5 lists the power supply properties of the Cisco Nexus 9300 platform switches.

Table 5. Power Supply Properties

AC Power Supply Properties	Cisco Nexus 9396PX	Cisco Nexus 93128TX
Power	650W AC	1200W AC
Input voltage	100-240V	100-120V (max output 800W), 200-240V (max output 1200W)
Frequency	50-60Hz	47-63Hz
Efficiency	90% or greater (20 to 100% load)	
RoHS compliance	Yes	
Hot swappable	Yes	
Front-to-back and back-to-front options	Yes	

Environment

Table 6 lists the environmental properties of the Cisco Nexus 9300 platform switches.

Table 6. Environmental Properties

Property	Cisco Nexus 9300 Platform
Physical (H x W x D)	• Cisco Nexus 9396PX: 3.5 x 17.5 x 22.5 in. (8.9 x 44.5 x 57.1 cm) • Cisco Nexus 93128TX: 5.3 x 17.5 x 22.5 in. (13.3 x 44.5 x 57.1 cm)
Operating temperature	32 to 104℉ (0 to 40℃)
Nonoperating (storage) temperature	-40 to 158℉ (-40 to 70℃)
Humidity	5 to 95% (noncondensing)
Altitude	0 to 13,123 ft (0 to 4000m)

Weight and Typical Power

Table 7 lists the weight and typical power consumption of the Cisco Nexus 9300 platform switches.

Table 7. Weight and Power Consumption

Component	Weight
Cisco Nexus 9396PX without power supplies, fans, uplink module	22.45 lb (10.2 kg)
650W AC power supply (2 maximum)	2.42 lb (1.1kg)
Fan tray 1	0.92 lb (0.4kg)
Cisco Nexus 93128TX without power supplies, fans, uplink module	32.56 lb (14.8 kg)
1200W AC power supply (2 maximum)	2.64 lb (1.2kg)
Fan tray 2	1.14 lb (0.5kg)
Cisco Nexus M12PQ uplink module (1 per switch)	3.12 lb (1.4kg)

Component	Typical Power	Maximum Power
Cisco Nexus 9396PX (incl. 2 PS, 3 Fans)	204 W	455 W
Cisco Nexus 93128TX (incl. 2 PS, 3 Fans)		
1G mode	432 W	739 W
10G mode	568 W	853 W

Regulatory Standards Compliance

Table 8 summarizes regulatory standards compliance for the Cisco Nexus 9300 platform.

Table 8. Regulatory Standards Compliance: Safety and EMC

Specification	Description
Regulatory compliance	Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC
Safety	• UL 60950-1 Second Edition • CAN/CSA-C22.2 No. 60950-1 Second Edition • EN 60950-1 Second Edition • IEC 60950-1 Second Edition • AS/NZS 60950-1 • GB4943

Specification	Description
EMC: Emissions	• 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR22 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • KN22 Class A • CNS13438 Class A
EMC: Immunity	• EN55024 • CISPR24 • EN300386 • KN 61000-4 series
RoHS	The product is RoHS-6 compliant with exceptions for leaded-ball grid-array (BGA) balls and lead press-fit connectors

Ordering Information

Table 9 presents ordering information for the Cisco Nexus 9300 platform. Note that you can order the Cisco Nexus 2200 platform fabric extenders either separately or along with the Cisco Nexus 9300 platform.

Table 9. Ordering Information

Part Number	Product Description
Hardware	
N9K-C9396PX	Nexus 9300 with 48p 1/10G SFP+ and 12p 40G QSFP
N9K-C93128TX	Nexus 9300 with 96p 1/10G-T and 8p 40G QSFP
N9K-C9396PX-BA-L3	Nexus 9396, 960G switch, 12p 40G uplinks, cold air intake, Enh. L3 license
N9K-C9396PX-FA-L3	Nexus 9396, 960G switch, 12p 40G uplinks, hot air exhaust, Enh. L3 license
N9K-C93128TX-BA-L3	Nexus 93128, 1,280G switch, 8p 40G uplinks, cold air intake, Emh. L3 license
N9K-C93128TX-FA-L3	Nexus 93128, 1,280G switch, 8p 40G uplinks, hot air exhaust, Enh. L3 license
N9K-M12PQ	Uplink Module for Nexus 9300, 12p 40G QSFP
N9K-PAC-650W	Nexus 9300 650W AC PS, Hot Air Out (red)
N9K-PAC-650W-B	Nexus 9300 650W AC PS, Cold Air In (blue)
N9K-PAC-1200W	Nexus 9300 1200W AC PS, Hot Air Out (red)
N9K-PAC-1200W-B	Nexus 9300 1200W AC PS, Cold Air In (blue)
N9K-C9300-FAN1	Nexus 9300 Fan 1, Hot Air Out (red)
N9K-C9300-FAN1-B	Nexus 9300 Fan 1, Cold Air In (blue)
N9K-C9300-FAN2	Nexus 9300 Fan 2, Hot Air Out (red)
N9K-C9300-FAN2-B	Nexus 9300 Fan 2, Cold Air In (blue)
Software	
N93-LAN1K9	Enhanced L3 including full OSPF, EIGRP, BGP
DCNM-LAN-N93-K9	DCNM license for Nexus 9300 Series
Optics and Cables	
QSFP-40G-SR-BD	40GBASE-SR-BD QSFP module, LC connector (multi-mode fiber, MMF at 100m OM3)
QSFP-40G-SR4	40GBASE-SR4 QSFP module, MPO connector (multi-mode fiber, MMF at 100m OM3)
QSFP-40G-CSR4	40GBASE Extended CSR4 QSFP module, MPO connector (multi-mode fiber, MMF at 300m OM3)
QSFP-H40G-CU1M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 1-meter, passive

Part Number	Product Description
QSFP-H40G-CU3M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 3-meter, passive
QSFP-H40G-CU5M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 5-meter, passive
QSFP-H40G-ACU7M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 7-meter, active
QSFP-H40G-ACU10M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 10-meter, active
SFP-10G-SR	10GBASE-SR SFP+ Module
SFP-10G-LR	10GBASE-LR SFP+ Module
SFP-H10GB-CU1M	10GBASE-CU SFP+ Cable 1 Meter
SFP-H10GB-CU3M	10GBASE-CU SFP+ Cable 3 Meter
SFP-H10GB-CU5M	10GBASE-CU SFP+ Cable 5 Meter
SFP-H10GB-ACU7M	Active Twinax cable assembly, 7m
SFP-H10GB-ACU10M	Active Twinax cable assembly, 10m
GLC-T	1000BASE-T SFP
GLC-SX-MM	GE SFP, LC connector SX transceiver
GLC-LH-SM	GE SFP, LC connector LX/LH transceiver
Power Cords	
CAB-250V-10A-AR	AC Power Cord - 250V, 10A - Argentina (2.5 meter)
CAB-250V-10A-BR	AC Power Cord - 250V, 10A - Brazil(2.1 meter)
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC (2.5 meter)
CAB-250V-10A-ID	AC Power Cord - 250V, 10A, South Africa(2.5 meter)
CAB-250V-10A-IS	AC Power Cord - 250V, 10A - Israel (2.5 meter)
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia (2.5 meter)
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU (2.5 meter)
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy (2.5 meter)
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, SWITZ (2.5 meter)
CAB-9K10A-UK	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK (2.5 meter)
CAB-9K12A-NA	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America (2.5 meter)
CAB-AC-L620-C13	North America, NEMA L6-20-C13 (2.0 meter)
CAB-C13-C14-2M	Power Cord Jumper, C13-C14 Connectors, 2 Meter Length (2 meter)
CAB-C13-C14-AC	Power cord, C13 to C14 (recessed receptacle), 10A (3 meter)
CAB-C13-CBN	Cabinet Jumper Power Cord, 250 VAC 10A, C14-C13 Connectors (0.7 meter)
CAB-IND-10A	10A Power cable for India (2.5 meter)
CAB-N5K6A-NA	Power Cord, 200/240V 6A North America (2.5 meter)
Accessories	
N9K-C9300-ACK=	Nexus 9300 Accessory Kit
N9K-C9300-RMK=	Nexus 9300 Rack Mount Kit

Warranty

The Cisco Nexus 9300 platform has a 1-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a return materials authorization (RMA).

Service and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 9300 platform in your data center. The innovative Cisco Services offerings are delivered through a unique combination of people, processes, tools, and partners and are focused on helping you increase operation efficiency and improve your data center network. Cisco Advanced Services uses an architecture-led approach to help you align your data center infrastructure with your business goals and achieve long-term value. Cisco SMARTnet® Service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources.

With this service, you can take advantage of the Cisco Smart Call Home service capability, which offers proactive diagnostics and real-time alerts on your Cisco Nexus 9300 platform. Spanning the entire network lifecycle, Cisco Services offerings help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise.

For More Information

For more information about the Cisco Nexus 9000 platform, please visit http://www.cisco.com/go/nexus9000.

For the latest software release information and recommendations, please refer to the product bulletin at http://www.cisco.com/go/nexus9000.

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