Cisco Nexus 9500 Platform Common Equipment

Product Overview

Changing application environments are placing new demands on your IT infrastructure. With application workloads deployed across a mix of virtualized and nonvirtualized server and storage infrastructure, your network must provide constant connectivity, security, and visibility across bare-metal, virtualized, and cloud computing environments. For example:

- Application instances are created dynamically, so provisioning, modification, and removal of application network connectivity also need to be dynamic.
- With business units demanding accelerated application deployments, your IT department needs to provide a shared IT infrastructure that addresses time-to-market needs and an increased Return On Investment (ROI).
- When you deploy a mix of custom, open-source, and off-the-shelf commercial applications, your IT department must manage security and Quality of Service (QoS) for environments that support multitenancy.
- With applications transitioning to a less monolithic, scale-out, multinode model, your IT infrastructure must scale with the speed of business and provide support for 100 Megabit Ethernet connectivity and 1, 10, 25, 40, 50, and 100 Gigabit Ethernet connectivity.

The Cisco Nexus® 9000 Series Switches include modular and fixed-port switches that overcome these challenges with Cloudscale Technology enabled infrastructure that is flexible, agile, and programmable.

The Cisco Nexus 9500 platform, part of the Cisco Nexus 9000 Series (Figure 1), offers three modular options: the Cisco Nexus 9504 Switch with 4 slots, the Cisco Nexus 9508 Switch with 8 slots, and the Cisco Nexus 9516 Switch with 16 slots. All three switches use the same supervisor, system controller, power supplies, and line cards[1]. The Cisco Nexus 9500 platform consists of Layer 2 and 3 nonblocking Ethernet switches with backplane bandwidth of up to 172.8 Terabits per second (Tbps). The Cisco Nexus 9504, 9508, and 9516 Switches support 1, 10, 25, 40, 50, and 100 Gigabit Ethernet interfaces through a comprehensive selection of modular line cards. Configurable with up to 2304 x 10 Gigabit Ethernet ports, 2048 x 25 Gigabit Ethernet ports, 576 x 40 Gigabit Ethernet ports, 1024 x 50 Gigabit Ethernet ports, or 512 x 100 Gigabit Ethernet ports, they provide ample capacity for both access- and aggregation-layer deployments.

[1] The Cisco N9K-X9636PQ line card is not supported in 16-slot chassis.

Figure 1. Cisco Nexus 9000 Series Switches

The Cisco Nexus 9000 Series offers two modes of operation. Organizations can use Cisco® NX-OS Software with the Cisco Nexus 9000 Series in standard Cisco Nexus switch environments (NX-OS mode). They can also use ACI mode to take full advantage of an automated, policy-based, systems management approach using Cisco Application Centric Infrastructure (Cisco ACI™). This data sheet covers standard Cisco Nexus 9500 platform deployment scenarios using NX-OS mode.

Cisco Nexus 9500 Platform Features and Benefits

The Cisco Nexus 9500 platform is a modular chassis that supports up to 16 line cards, 2 supervisor modules, 2 chassis controllers, 3 fan trays, 6 fabric modules, and 10 power supplies. The switch supports comprehensive Layer 2 and 3 functions on nonblocking 1, 10, 25, 40, 50, and 100 Gigabit Ethernet ports (Table 1).

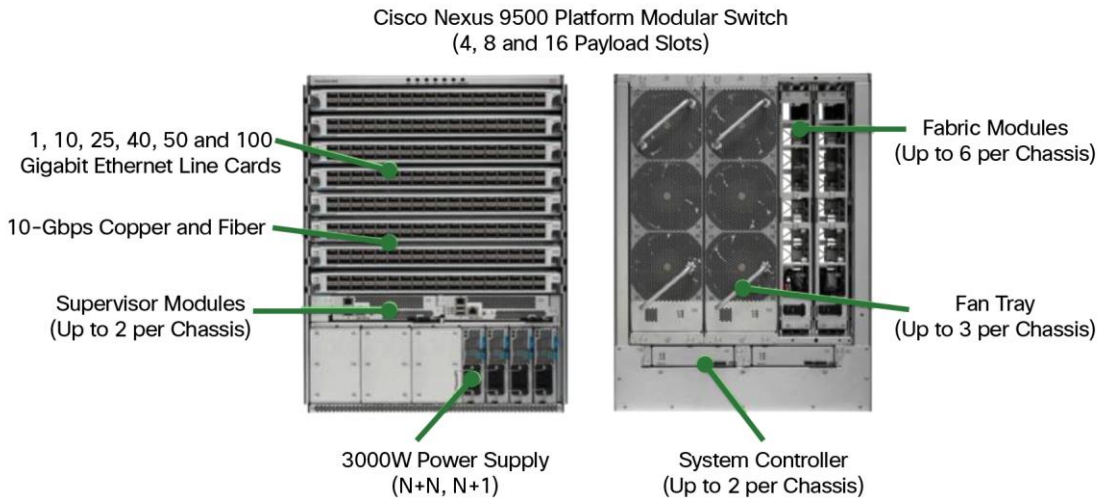
Table 1. Cisco Nexus 9500 Platform Features and Benefits

Capability	Benefit
Predictable high performance	The backplane delivers up to 172.8 Tbps of nonblocking performance with latency of less than 5 microseconds, enabling data center customers to build a robust network fabric that can scale from as few as 200 x 10 and 25 Gigabit Ethernet server ports to more than 200,000 x 10 and 25 Gigabit Ethernet server ports.
High-density 1, 10, 25, 40 and 50 Gigabit Ethernet access configuration	The Cisco Nexus 9500 platform helps organizations transition from existing 100 Megabit Ethernet and 1 Gigabit Ethernet server access designs using Cisco Catalyst® 6500 Series Switches to 1, 10, 25, 40 and 50 Gigabit Ethernet server access designs with the same port density.
High-density 10, 40 and 100 Gigabit Ethernet aggregation and spine configuration	The Cisco Nexus 9000 Series helps organizations transition from 1 and 10 Gigabit Ethernet infrastructure to 10, 40 and 100 Gigabit Ethernet infrastructure to support the increased bandwidth demands of scale-out, multinode application environments. 100 Gigabit Ethernet QSFP28 module form factor compatibility with 40 Gigabit Ethernet QSFP+ enables migration and co-existence of multispeed aggregation to access layer connectivity.
Highly available, scalable, and robust solution	All major components are redundant, including supervisors, system controllers, power supplies, and fan trays. All buffer memory is integrated into the forwarding ASICs, avoiding the need for a large number of external memory modules. All transceivers are pluggable to support the highest possible Mean Time Between Failure (MTBF) for the switch.
Chassis designed for 2 to 3 future generations of line cards	The flexible and efficient chassis design for future expansion, with the capability to support more bandwidth and cooling and twice the number of power supplies needed to support today's maximum configuration.
Power efficiency	The Cisco Nexus 9500 platform is the first switch chassis designed without a midplane. Line cards and fabric modules connect directly. This design approach provides optimal front-to-back airflow and helps the switch operate using less power. In addition, all Cisco Nexus 9000 Series power supplies are 80 Plus Platinum rated. The typical power consumption per 10 Gigabit Ethernet port is less than 3.5 watts (W). The typical power consumption of each 40 and 100 Gigabit Ethernet port is less than 14W and 22W respectively.

Cisco Nexus 9500 Platform Components

The Cisco Nexus 9500 platform is built using the components illustrated in Figure 2 and described in the following sections.

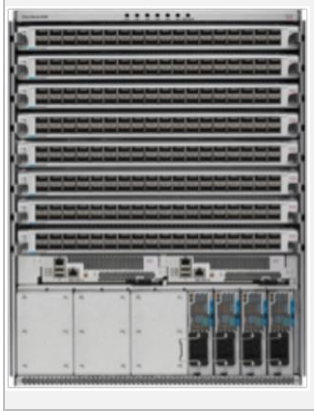
Figure 2. Cisco Nexus 9500 Platform Components



Cisco Nexus 9500 Platform Chassis

Customers can choose from 4-, 8-, or 16-slot chassis options to fit their deployment scale (Table 2).

Table 2. Cisco Nexus 9500 Platform for Cisco ACI Deployment

N9K-C9504: 4-Slot Chassis 	• Up to 4 line cards • Up to 4 power supplies • Up to 6 fabric modules • Up to 2 system controllers • Up to 2 supervisors • Up to 3 fan trays
N9K-C9508: 8-Slot Chassis 	• Up to 8 line cards • Up to 8 power supplies • Up to 6 fabric modules • Up to 2 system controllers • Up to 2 supervisors • Up to 3 fan trays

N9K-C9516: 16-Slot Chassis	
	• Up to 16 line cards • Up to 10 power supplies • Up to 6 fabric modules • Up to 2 system controllers • Up to 2 supervisors • Up to 3 fan trays

Cisco Nexus 9500 Platform Supervisor Module

A pair of redundant supervisor modules manages all switch operations using a state-synchronized active-standby model. The supervisor accepts an external clock and supports management through multiple ports, including two USB ports, a serial console, and a 10/100/1000-Mbps network port. Two supervisors are available to provide deployment options:

- Supervisor B+: 6-core, 12 thread, 1.9-GHz x86 CPU, with 32 GB of RAM and 256-GB solid-state disk drive
- Supervisor B: 6-core, 12 thread, 2.2-GHz x86 CPU, with 24 GB of RAM and 256-GB solid-state disk drive
- Supervisor A+: 4-core, 8 thread, 1.8-GHz x86 CPU, with 16 GB of RAM and 64-GB solid-state disk drive
- Supervisor A: 4-core, 4 thread, 1.8-GHz x86 CPU, with 16 GB of RAM and 64-GB solid-state disk drive

Either supervisor can be used in NX-OS deployments. Supervisor B+ provides additional computing and storage for enhanced performance. Redundant supervisors need to be of the same type within a chassis.

Cisco Nexus 9500 Platform System Controller

A pair of redundant system controllers offloads chassis management functions from the supervisor modules. The controllers are responsible for managing power supplies and fan trays and are a central point for the Gigabit Ethernet Out-of-Band Channel (EOBC) between the supervisors, fabric modules, and line cards.

Cisco Nexus 9500 Platform Power Supply

The Cisco Nexus 9500 platform supports hot-swappable, front-panel-accessible AC, DC, and universal AC/DC power supplies. N+1 and N+N redundancy modes are supported depending on the chassis configuration. The 3000W power supplies are 80 Plus Platinum rated, providing more than 90 percent efficiency across typical workloads.

Three power supply options are available for different deployment options:

- N9K-PAC-3000W-B: Cisco Nexus 9500 platform 3000W standard 200 to 240V AC power supply with port-side intake
- N9K-PDC-3000W-B: Cisco Nexus 9500 platform 3000W standard –48 to –60V DC power supply with port-side intake
- N9K-PUV-3000W-B: Cisco Nexus 9500 platform 3000W universal high-voltage 200 to 277V AC or 240 to 380V DC power supply with port-side intake

Cisco Nexus 9500 Platform Fan Trays

Three hot-swappable fan trays support front-to-back cooling. Each fan tray covers two fabric modules and can be removed for access.

Deployment Scenarios

The Cisco Nexus 9500 platform is a versatile data center switching platform. Switches can operate as End-of-Row (EoR) access-layer switches deployed with or without Cisco fabric extender technology, as aggregation-layer switches in traditional hierarchical network architecture, or as leaf or spine switches in a horizontally scaled leaf-and-spine architecture.

End-of-Row Access-Layer Switch

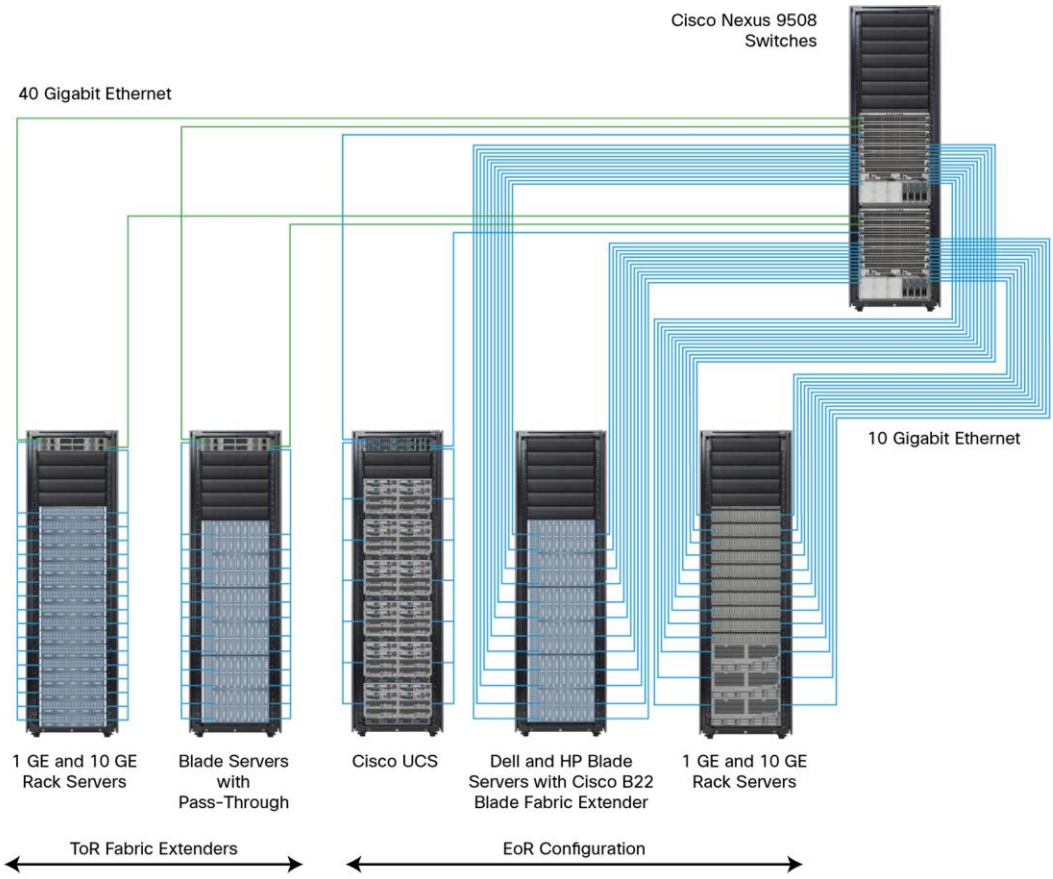
Configured as EoR access-layer switches (Figure 3), Cisco Nexus 9500 platform switches can connect to almost any blade or rack server through 100 Megabit Ethernet, 1 Gigabit Ethernet, and 10 Gigabit Ethernet connections, including:

- 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 9500 platform offers an easy upgrade path from the Cisco Catalyst 6500 Series, bringing the features, reliability, scalability, and availability of NX-OS platforms to existing EoR configurations. With support for 100 Megabit Ethernet, 1 Gigabit Ethernet, and 10 Gigabit Ethernet copper connectivity, the platform supports the transition from 1 to 10 Gigabit Ethernet one server or rack at a time.

For example, equipped with eight 48-port 1 and 10GBASE-T line cards, each Cisco Nexus 9508 can service up to 384 servers, with 32 x 40 Gigabit Ethernet uplinks available for server access or uplinks to the aggregation tier. The Cisco Nexus 9500 can also be used to connect both 10 and 40 Gigabit Ethernet–equipped fabric extenders, Cisco Nexus B22 Blade Fabric Extenders, and 10 Gigabit Ethernet–equipped servers and systems such as Cisco UCS.

Figure 3. Cisco Nexus 9500 Platform Switches as EoR Access-Layer Switches

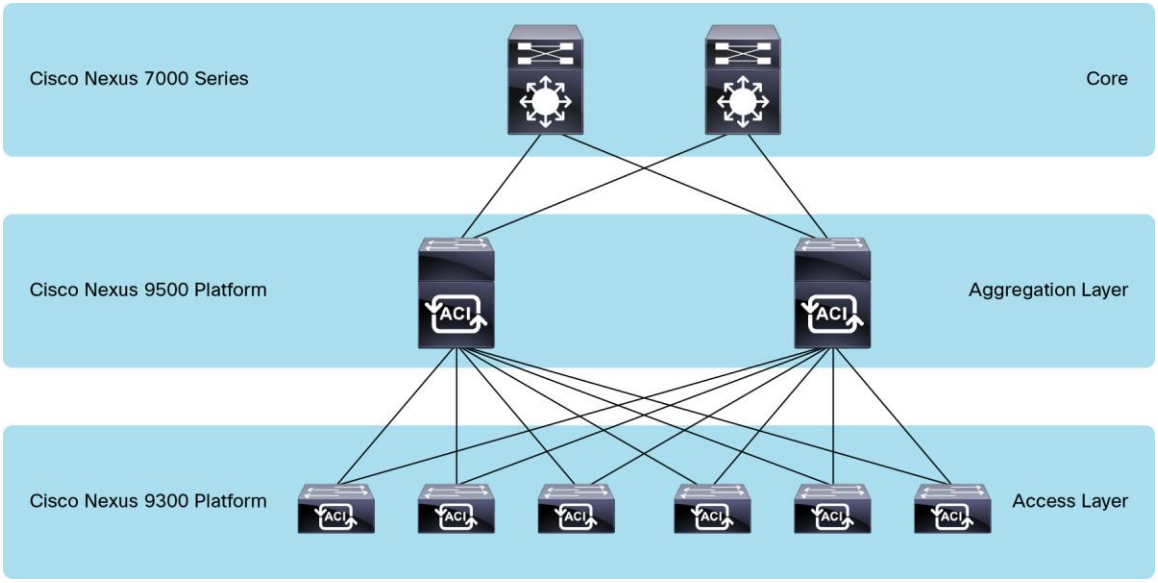


Aggregation-Layer Switch

The Cisco Nexus 9500 platform switches can act as aggregation-layer switches in traditional hierarchical architectures (Figure 4). Because the Cisco Nexus 9500 platform supports multiple-speed 1, 10, 25, 40, 50, and 100 Gigabit Ethernet interfaces, organizations have the flexibility to build new infrastructure or to use the switches as slide-in replacements with increased bandwidth and functions.

- Uplinks: 100 Gigabit Ethernet and 40 Gigabit Ethernet connectivity between Ethernet and the core switching layer is supported. The migration path offered by the Cisco Nexus 9500 platform prepares data center networks for future capacity growth. 100 Gigabit Ethernet QSFP28 module form factor compatibility with 40 Gigabit Ethernet QSFP+ enables migration and co-existence of multispeed connectivity.
- Downlinks: 10 Gigabit Ethernet connectivity to existing Cisco and third-party switches allows the switch to use the existing infrastructure and integrate with Top-of-Row (ToR), EoR, or Middle-of-Row (MoR) access-layer switches. 100 and 40 Gigabit Ethernet capability pairs the Cisco Nexus 9500 platform in the aggregation layer with 100 and 40 Gigabit Ethernet uplink ports on the Cisco Nexus 9300 or 9200 platform switches with fixed access ports. The use of 40-Gbps connectivity on existing fiber pairs dramatically simplifies the evolution to greater per-rack bandwidth without the cost and complexity of having to upgrade the data center cable plant.

Figure 4. Cisco Nexus 9500 Platform as Aggregation-Layer Switches

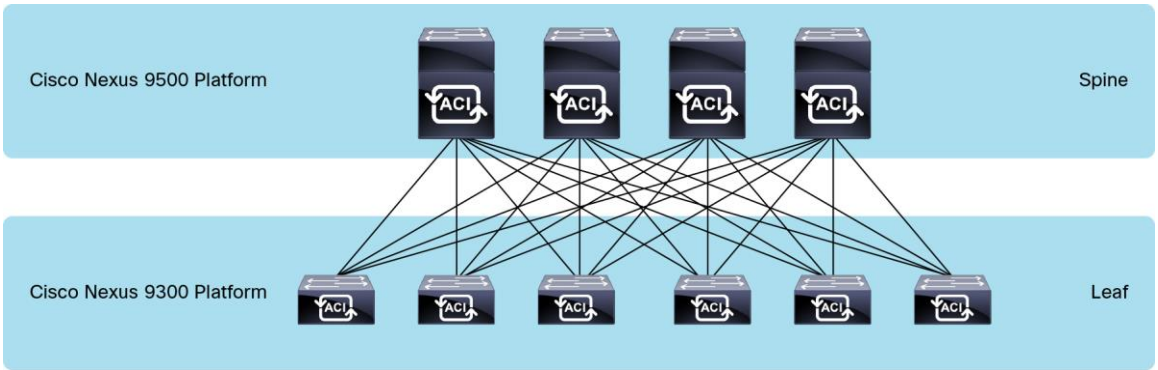


Leaf-and-Spine Architecture

The Cisco Nexus 9500 platform switches can serve as leaf or spine nodes in network architectures (Figure 5). With their line rate Layer 3 capabilities, Cisco Nexus 9500 and 9300 platform switches can be used with Equal-Cost Multipath (ECMP) routing to accelerate the flow of traffic and reduce reconvergence time in the event of a failure. Redundancy in a leaf-and-spine architecture offers increased availability with highly flexible workload placement. On the basis of your deployment requirements, you can implement a leaf-and-spine design. For leaf-and-spine deployments in NX-OS mode, you can use the Cisco Nexus 9500, 9300, or 9200 platform in the spine or leaf role.

In ACI mode, you can use either the Cisco Nexus 9500 or 9300 platform for spine switches, and you can use the Cisco Nexus 9300 platform for leaf switches. For additional information about ACI mode, refer to the Cisco Nexus 9500 Platform Switches for Cisco Application Centric Infrastructure data sheet.

Figure 5. Cisco Nexus 9500 Platform in a Leaf-and-Spine Architecture



Cisco NX-OS Software Overview

Cisco Nexus 9000 Series Switches work in two operating modes:

- Standalone NX-OS deployment: NX-OS mode
- Cisco ACI deployment: ACI mode

NX-OS is a purpose-built operating system for the data center designed for performance, resiliency, scalability, manageability, and programmability. It provides a robust and comprehensive feature set that can meet the demanding requirements of virtualization and automation in existing and future data centers.

The Cisco Nexus 9000 Series uses an enhanced version of NX-OS with a single binary image that supports every switch in the series to simplify image management. The operating system is modular, with a dedicated process for each routing protocol that isolates faults while increasing availability. In the event of a process failure, the process can be restarted without loss of state. The operating system supports patching and online diagnostics. In the event of a supervisor module failure, the operating system provides stateful switchover, supporting continuous availability.

Main features include the following:

- Virtual Extensible LAN (VXLAN) bridging and routing supports and accelerates communication between virtual and physical servers across multiple data centers. The Border Gateway Protocol (BGP) Ethernet Virtual Private Network (EVPN) control plane provides scalable multitenancy and host mobility (refer to VXLAN Network with MP-BGP EVPN Control Plane for more information).
- In Service Software Upgrade (ISSU) and patching enable software updates without any interruption in switch operations.
- Power On Auto Provisioning (POAP) enables touchless bootup and configuration of the switch, drastically reducing provisioning time.
- Open programmability supports built-in DevOps automation tools like Puppet, Chef, and Ansible.
- NX-API supports for a common programmatic approach across Cisco Nexus switches. NX-API provides operators with a way to manage the switch through remote procedure calls (RPCs; JavaScript Object Notation [JSON] or XML) over HTTP/HTTPS infrastructure.
- Onboard Python scripting engine enables automation and remote operations in the data center. Linux shell access enables the switch to be configured through Linux shell scripts, helping automate the configuration process and ensure consistency when you configure multiple switches.
- Complete Layer 3 unicast and multicast routing protocol suites are supported, including BGP, Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Routing Information Protocol Version 2 (RIPv2), Protocol Independent Multicast Sparse Mode (PIM-SM), Source-Specific Multicast (SSM), and Multicast Source Discovery Protocol (MSDP).
- Segment routing allows the network to forward Multiprotocol Label Switching (MPLS) packets and perform traffic engineering without Resource Reservation Protocol (RSVP) Traffic Engineering (TE). It provides a control-plane alternative for increased network scalability and virtualization.
- Network traffic monitoring with Cisco Nexus Data Broker builds simple, scalable, and cost-effective network Test Access Points (TAPs) or Cisco Switched Port Analyzer (SPAN) aggregation for network traffic monitoring and analysis.

For a complete list of supported features, refer to the Cisco Feature Navigator.

Cisco NX-OS Features and Benefits

Software for the Cisco Nexus 9000 Series offers flexibility and a comprehensive feature set for consistency with Cisco Nexus access switches. The default system software has a comprehensive Layer 2 security and management feature set. Additional licenses are required to enable Layer 3 IP Unicast and IP Multicast routing functions. Table 3 lists the software packaging and licensing available to enable these advanced features.

Table 3. Software Packaging and Licensing

Packaging	Chassis Based	Part Number	Supported Features
Cisco Nexus 9500 platform Layer 3 license	Chassis	N95-LAN1K9	Layer 3 features, including full Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Border Gateway Protocol (BGP)
Cisco Nexus Data Broker license	Chassis	NDB-MODL-SWT-K9	Test Access Point (TAP) and Cisco Switched Port Analyzer (SPAN0) aggregation license for 1 Cisco Nexus 9504, 9508 or 9516 Switch
Cisco Data Center Network Management (DCNM) license	Chassis	DCNM-LAN-N95-K9	DCNM license for Cisco Nexus 9500 platform

Software Requirements

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

Power Supply

Tables 4, 5, and 6 list the properties of the Cisco Nexus 9500 platform power supplies.

Table 4. N9K-PAC-3000W-B Standard AC Power-Supply Properties

AC Power-Supply Properties	Cisco Nexus 9500 Platform
Power	3000W
Input voltage	200 to 240V AC
Frequency	50 to 60 Hz
Efficiency	90% or greater (20 to 100% load)
RoHS compliance	Yes
Hot swappable	Yes
Port side intake airflow power supply	Yes

Table 5. N9K-PDC-3000W-B DC Power-Supply Properties

DC Power-Supply Properties	Cisco Nexus 9500 Platform
Power	3000W
Input voltage	-48 to -60V DC (nominal) -40 to -72V DC (min – max)
Frequency	–
Efficiency	90% or greater (20 to 100% load)
RoHS compliance	Yes
Hot swappable	Yes
Port side intake airflow power supply	Yes

Table 6. N9K-PUV-3000W-B Universal High-Voltage AC/DC Power-Supply Properties

AC/DC Power-Supply Properties	Cisco Nexus 9500 Platform
Power	3000W
Input voltage	200 to 277V AC or 240 to 380V DC (nominal) 192 to 400V DC (min – max)
Frequency	47 to 63 Hz
Efficiency	90% or greater (20 to 100% load)
RoHS compliance	Yes
Hot swappable	Yes
Port side intake airflow power supply	Yes

Environment

Table 7 lists the environmental properties of the Cisco Nexus 9500 platform.

Table 7. Environmental Properties

Property	Cisco Nexus 9500 Platform
Physical (H x W x D) • Cisco Nexus 9504 • Cisco Nexus 9508 • Cisco Nexus 9516	 • 12.25 x 17.50 x 33.15 in. (31.1 x 44.50 x 84.20 cm) • 22.70 x 17.50 x 31.76 in. (57.78 x 44.50 x 80.67 cm) • 36.70 x 17.50 x 31.76 in. (93.41 x 44.50 x 80.67 cm)
Operating temperature	32 to 104°F (0 to 40°C)
Nonoperating (storage) temperature	-40 to 158°F (-40 to 70°C)
Humidity	5 to 95% (noncondensing)
Altitude	0 to 13,123 ft (0 to 4000m)

Weight and Typical Power

Table 8 lists the weight and typical power consumption of the Cisco Nexus 9500 platform.

Table 8. Weight and Power Consumption

Component	Weight	Typical Power	Maximum Power
Chassis • Cisco Nexus 9504 chassis • Cisco Nexus 9508 chassis • Cisco Nexus 9516 chassis	 • 84 lb (38.2 kg) • 150 lb (68.2 kg) • 192 lb (87.3 kg)	-	-
Power supply • N9K-PAC-3000W-B • N9K-PDC-3000W-B • N9K-PUV-3000W-B	 • 6.2 lb (2.8 kg) • 6.4 lb (2.9 kg) • 5.9 lb (2.7 kg)	-	-
Fan tray (3 maximum) • Cisco Nexus 9504 • Cisco Nexus 9508 • Cisco Nexus 9516	 • 6.38 lb (2.9 kg) • 8.25 lb (3.7 kg) • 10.10 lb (4.6 kg)	 • 95W • 176W • 330W	 • 137W • 250W • 450W
Supervisor (2 maximum) • SUP-A+ • SUP-B+ • SUP-A • SUP-B	 • 5.2 lb (2.37 kg) • 5.3 lb (2.39 kg) • 4.84 lb (2.2 kg) • 6.00 lb (2.72 kg)	 • 39W • 47W • 69W • 75W	 • 80W • 80W • 80W • 90W
System controller (2 maximum)	1.91 lb (0.9 kg)	13W	25W

Mean Time between Failure

Table 9 lists the MTBF information for the Cisco Nexus 9500 platform.

Table 9. MTBF Information

Component	MTBF (Hours)
Chassis	
• Cisco Nexus 9504	• 1,038,080
• Cisco Nexus 9508	• 928,910
• Cisco Nexus 9516	• 680,000
Power Supply	
• N9K-PAC-3000W-B	• 287,097
• N9K-PDC-3000W-B	• 406,994
• N9K-PUV-3000W-B	• 324,000
Fan Tray (3 Maximum)	
• Cisco Nexus 9504	• 8,900,530
• Cisco Nexus 9508	• 2,702,700
• Cisco Nexus 9516	• 1,822,650
Supervisor (2 Maximum)	
• Supervisor-A+	
• Supervisor-B+	
• Supervisor-A	• 312,070
• Supervisor-B	• 292,110
System Controller (2 Maximum)	1,108,240

Regulatory Standards Compliance

Table 10 summarizes regulatory standards compliance for the Cisco Nexus 9500 platform.

Table 10. 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
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 11 provides ordering information for the Cisco Nexus 9500 platform.

Table 11. Ordering Information

Part Number	Product Description
Hardware	
N9K-C9504-B3-E	Nexus 9504 Chassis Bundle with 1 Sup, 3 AC PS, 2 SC, 3 Fan Trays, 4 E-Series 100G Cloudscale Fabric Modules
N9K-C9508-B3-E	Nexus 9508 Chassis Bundle with 1 Sup, 3 AC PS, 2 SC, 3 Fan Trays, 4 E-Series 100G Cloudscale Fabric Modules
N9K-C9516-B3-E	Nexus 9516 Chassis Bundle with 1 Sup, 3 AC PS, 2 SC, 3 Fan Trays, 4 E-Series 100G Cloudscale Fabric Modules
N9K-C9504	Nexus 9504 Chassis with 4 linecard slots
N9K-C9508	Nexus 9508 Chassis with 8 linecard slots
N9K-C9516	Nexus 9516 Chassis with 16 linecard slots
N9K-SUP-A+	Nexus 9500 4-Core/8-Thread Supervisor
N9K-SUP-B+	Nexus 9500 6-Core/12-Thread Supervisor
N9K-SUP-A	Nexus 9500 4-Core/4-Thread Supervisor
N9K-SUP-B	Nexus 9500 6-Core/12-Thread Supervisor
N9K-SC-A	Nexus 9500 System Controller
N9K-PAC-3000W-B	Nexus 9500 3000W 200V to 240V AC AC PS, Port Side Intake
N9K-PDC-3000W-B	Nexus 9500 3000W -48V-60V DC PS, Port Side Intake
N9K-PUV-3000W-B	Nexus 9500 3000W 200V to 277V AC or 240V to 380V DC Universal high voltage AC/DC PS, Port Side Intake
N9K-C9504-FAN	Fan Tray for Nexus 9504 chassis
N9K-C9508-FAN	Fan Tray for Nexus 9508 chassis
N9K-C9516-FAN	Fan Tray for Nexus 9516 chassis
Software	
N95-LAN1K9	Enhanced L3 including full OSPF, EIGRP, BGP, VXLAN
NDB-MODL-SWT-K9	Tap/SPAN Agg lic for 1 Cisco Nexus 9504/9508/9516 switch
DCNM-LAN-N95-K9	DCNM license for Nexus 9500 Series
Accessories	
N9K-C9500-RMK=	Nexus 9500 Rack Mount Kit for Nexus 9508 and Nexus 9516 chassis
N9K-C9504-RMK=	Nexus 9500 Rack Mount Kit for Nexus 9504
N9K-C9500-ACK=	Nexus 9500 Accessory Kit

Warranty

The Cisco Nexus 9500 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 9500 platform in your data center. These 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 use 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, which offers proactive diagnostics and real-time alerts on your Cisco Nexus 9500 platform switch.

Spanning the entire network lifecycle, Cisco Services offerings help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise.

Cisco Capital Financing to Help You Achieve Your Objectives

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For More Information

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

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