Data sheet
Cisco public

Cisco N9300-FX3S Series Switch

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Product overview

Based on Cisco® Cloud Scale technology, the Cisco N9300-FX3S is the latest generation of access switches. Building on the successful N9300-FX series, the platform supports cost-effective cloud-scale deployments and an increased number of endpoints, and is capable of wire-rate security and telemetry. The platform is built on modern system architecture designed to provide high performance and meet the evolving needs of highly scalable data centers and growing enterprises.

Cisco provides the Cisco NX-OS mode of operation for the Cisco N9300-FX3S Series Switch. Designed for the programmable network, the Cisco NX-OS operating system automates configuration and management for customers who want to take advantage of the DevOps operation model and tool sets.

Switch model

Table 1. Cisco N9300-FX3S Series Switch

Model	Description
Cisco N93180YC-FX3S	48 x 1/10/25-Gbps fiber ports and 6 x 40/100-Gbps QSFP28 ports

The Cisco N93180YC-FX3S Switch (Figure 1) is a 1RU switch that supports 3.6 Tbps of bandwidth and 1.2 bpps. The 48 downlink ports on the N93180YC-FX3S are capable of supporting 1-, 10-, or 25-Gbps Ethernet, offering deployment flexibility and investment protection. The 6 uplink ports can be configured as 40 and 100-Gbps Ethernet, offering flexible migration options. Please see the Licensing guide section below to enable features on the platform. The Cisco N93180YC-FX3S switch supports standard PTP Telecom profiles with Synchronous Ethernet (SyncE) and PTP boundary clock functionality for telco data center edge environments.



Figure 1.
Cisco N93180YC-FX3S Switch

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Features and benefits

The Cisco N9300-FX3S Series Switch provide the following features and benefits:

- **PTP Telecom profile**
  - Precision Time Protocol (PTP) is a protocol for distributing precise times and frequencies over packet networks. PTP is defined in the IEEE Standard 1588 and defines an exchange of timed messages. The G.8275.1 profile is also used in telecom networks where phase or time-of-day synchronization is required and where each network device participates in the PTP protocol.
  - Support for PTP Telecom profile 8275.1 with SyncE
  - PTP boundary clock
  - PTP Profile G.8273.2 - Class B
- **Cisco NX-OS architecture**
  - Support for standards-based VXLAN EVPN fabrics, inclusive of hierarchical multisite support (refer to VXLAN Network with MP-BGP EVPN Control Plane for more information)
  - Three-tier BGP architectures, enabling horizontal, nonblocking IPv6 network fabrics at web-scale
  - Segment routing allows the network to forward Multiprotocol Label Switching (MPLS) packets and engineer traffic without Resource Reservation Protocol (RSVP) traffic engineering (TE). It provides a control-plane alternative for increased network scalability and virtualization.
  - Comprehensive protocol support for Layer 3 (v4/v6) unicast and multicast routing protocol suites, 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).
  - The switch also supports a software “FEX mode.” [1] The switch can be converted to a Fabric Extender (FEX) by the use of a command.
- **Extensive programmability**
  - Day-zero automation through Power On Auto Provisioning (POAP), drastically reducing provisioning time.
  - Industry-leading integrations for leading DevOps configuration management applications, including Ansible, Chef, Puppet, and SALT. Extensive Native YANG and industry standard OpenConfig model support are available through RESTCONF/NETCONF.
  - Pervasive APIs for all switch CLI functions (JSON-based RPC over HTTP/HTTPs)
- **High scalability, flexibility, and security**
  - Flexible forwarding tables support up to two million shared entries on the FX3S model. Flexible use of TCAM space allows for custom definition of access control list (ACL) templates.
  - IEEE 802.1ae MAC Security (MACsec)[2] and CloudSec[2] (VTEP-to-VTEP encryption) support on all ports of 9300-FX3S model with speeds greater than or equal to 1 Gbps, allows traffic encryption at the physical layer and provides secure server, border leaf, and leaf-to-spine connectivity.

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- **Intelligent buffer management**
  - The platform offers Cisco's innovative intelligent buffer management, which offers capability to distinguish mice and elephant flows and apply different queue management schemes to them based on their network-forwarding requirements in the event of link congestion.
  - Intelligent buffer management functions are:
    - Approximate Fair Dropping (AFD) with Elephant Trap (ETRAP). AFD distinguishes long-lived elephant flows from short-lived mice flows by using ETRAP. AFD exempts mice flows from the dropping algorithm so that mice flows will get their fair share of bandwidth without being starved by bandwidth-hungry elephant flows. Also, AFD tracks elephant flows and subjects them to the AFD algorithm in the egress queue to grant them their fair share of bandwidth.

      ETRAP measures the byte counts of incoming flows and compares this against the user-defined ETRAP threshold. After a flow crosses the threshold, it becomes an elephant flow.
    - Dynamic Packet Prioritization (DPP) provides the capability of separating mice flows and elephant flows into two different queues so that buffer space can be allocated to them independently. Mice flows, sensitive to congestion and latency, can take priority queues and avoid reordering, which allows elephant flows to take full-link bandwidth.
- **RDMA over Converged Ethernet – RoCE support**
  - Platform offers lossless transport for RDMA over Converged Ethernet with support of DCB protocols:
    - Priority-based Flow Control (PFC) to prevent drops in the network and to pause frame propagation per priority class
    - Enhanced Transmission Selection (ETS) to reserve bandwidth per priority class in a network-contention situation
    - Data Center Bridging Exchange Protocol (DCBX) to discover and exchange priority and bandwidth information with endpoints
  - Platform also supports explicit congestion notification (ECN), which provides end-to-end notification per IP flow by marking packets that experienced congestion, without dropping traffic. The platform can track ECN statistics regarding the number of marked packets that have experienced congestion.
- **Hardware and software high availability**
  - Virtual port-channel (vPC) technology provides Layer 2 multipathing through the elimination of Spanning Tree Protocol. It also enables fully utilized bisectional bandwidth and simplified Layer 2 logical topologies without the need to change the existing management and deployment model.
  - The 64-way Equal-Cost Multipath (ECMP) routing enables the use of Layer 3 fat-tree designs. This feature helps organizations prevent network bottlenecks, increase resiliency, and add capacity with little network disruption.
  - Advanced reboot capabilities that include hot and cold patching
  - Switch uses hot-swappable Power-Supply Units (PSUs) and fans with N+1 redundancy.

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- **Purpose-built Cisco NX-OS software operating system with comprehensive, proven innovations**
  - Single binary image that supports every switch in the Cisco N9000 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 loss of state. The operating system supports hot and cold patching and online diagnostics.
  - Cisco Data Center Network Manager (DCNM) is the network management platform for all NX-OS-enabled deployments, spanning new fabric architectures, IP Fabric for Media, and storage networking deployments for the Cisco Nexus-powered data center. Accelerate provisioning from days to minutes, and simplify deployments from day 0 through day N. Reduce troubleshooting cycles with graphical operational visibility for topology, network fabric, and infrastructure. Eliminate configuration errors and automate ongoing change in a closed loop, with a templated deployment model and configuration compliance alerting with automatic remediation. Real-time health summary for fabric, devices, and topology. Correlated visibility for fabric (underlay, overlay, virtual, and physical endpoints), including compute visualization with VMware.
  - Network traffic monitoring with Cisco Nexus Data Broker builds simple, scalable, and cost-effective network test access points (TAPs) and Cisco Switched Port Analyzer (SPAN) aggregation for network traffic monitoring and analysis.
- **Cisco Data Center Network Assurance and Insights**
  - Support to intelligent automation to day-2 operations with Cisco Data Center Network Assurance and Insights. Click here to learn more.

Product specifications

The Cisco N9300-FX3S Series Switch offers industry-leading density and performance with flexible port configurations that can support existing copper and fiber cabling (Table 2).

Table 2. Cisco N9300-FX3S Series Switch specifications

Feature	Cisco N93180YC-FX3S
Ports	48 x 1/10/25-Gbps and 6 x 40/100-Gbps QSFP28 ports
Downlink supported speeds	1/10/25-Gbps Ethernet
CPU	6 cores
System memory	Up to 32 GB
SSD drive	128 GB
System buffer	40 MB
Management ports	1 RJ-45 port
USB ports	1
1PPS	GPS 1PPS input or output

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Feature	Cisco N93180YC-FX3S
10MhZ	GPS 10Mhz input or output.
Time of Date (TOD)	1 RJ-45
ANT	Antenna for GNSS
RS-232 serial ports	1
Power supplies (up to 2)	650W AC, 930W DC, or 1200W HVAC/HVDC
Typical power (AC/DC)*	325W
Maximum power (AC/DC)*	600W
Input voltage (AC)	100 to 240V
Input voltage (High-Voltage AC [HVAC])	200 to 277V
Input voltage (DC)	–48 to –60V
Input voltage (High-Voltage DC [HVDC])	–240 to –380V
Frequency (AC)	50 to 60 Hz
Fans	4
Airflow	Port-side intake and exhaust
Physical dimensions (H x W x D)	1.72 x 17.3 x 19.6 in. (4.4 x 43.9 x 49.6 cm)
Acoustics	Port-side exhaust: Fan speed at 50%:63.4 dBA Fan speed at 70%:74.3 dBA Fan speed at 100%: 83.4 dBA Port Side Intake: Fan speed at 50%:64.6 dBA Fan speed at 70%:76.1 dBA Fan speed at 100%: 85.4 dBA
RoHS compliance	Yes
MTBF	288,760 Hours
Minimum Cisco ACI® image	Not supported
Minimum NX-OS image	NXOS-9.3.5

* Typical and maximum power values are based on input drawn from the power circuit. The power supply value (for example, 650W AC power supply: NXA-PAC-650W-PI) is based on the output rating to the inside of the switch.

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Table 3 lists the performance and scalability specifications for The Cisco N9300-FX3S Series Switch. (Check the software release notes for feature support information.)

Table 3. Hardware performance and scalability specifications*

Item	The Cisco N9300-FX3S Series Switch
Maximum number of IPv4 Longest Prefix Match (LPM) routes**	1,792,000
Maximum number of IPv4 host entries**	1,792,000
Maximum number of IPv6 Longest Prefix Match (LPM) routes**	896,000
Maximum number of IPv6 host entries**	1,792,000
Maximum number of MAC address entries**	512,000
Maximum number of multicast routes	128,000
Number of Interior Gateway Management Protocol (IGMP) snooping groups	Shipping: 8000 Maximum: 32,000
Maximum number of Cisco N2000 Series Fabric Extenders per switch	16
Maximum number of Access Control List (ACL) entries	Single-slice forwarding engine: 5000 ingress 2000 egress
Maximum number of VLANs	4096**
Number of Virtual Routing and Forwarding (VRF) instances	Shipping: 1000 Maximum: 16,000
Maximum number of ECMP paths	64
Maximum number of port channels	512
Maximum number of links in a port channel	32
Number of active SPAN sessions	4
Maximum number of VLAN's in Rapid per-VLAN Spanning Tree (RPVST) instances	3967
Maximum number of Hot-Standby Router Protocol (HSRP) groups	490
Number of Network Address Translation (NAT) entries	1023

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Item	The Cisco N9300-FX3S Series Switch
Maximum number of Multiple Spanning Tree (MST) instances	64
Flow-table size used for Cisco Secure Workload ™	64,000
Number of queues	8

* More templates and greater scalability are on the roadmap. Refer to the Cisco N9000 Series Verified Scalability Guide documentation for the latest exact scalability values validated for specific software.

** Raw capacity of flow table

*** 27 VLANs out of 4096 are reserved for this.

Table 4 lists the environmental properties, and Table 5 lists the weight for The Cisco N9300-FX3S Series Switch.

Table 4. Environmental properties

Property	Description
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)

Table 5. Weight

Component	Weight
Cisco N93180YC-FX3S without power supplies or fans	21 lb (9.52 kg)
650W AC power supply	2.42 lb (1.1 kg)
930W DC power supply	2.42 lb (1.1 kg)
1200W HVDC/HVAC power supply	2.42 lb (1.1 kg)
Fan tray: NXA-FAN-35CFM-F or NXA-FAN-35CFM-B	0.26 lb (0.12 kg)

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Table 6 summarizes regulatory standards compliance for the Cisco N9300-FX3S Series Switch.

Table 6. 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	NEBS • 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.

Software licensing and optics supported

The software packaging for Cisco N9000 Series Switches offers flexibility and a comprehensive feature set. The default system software has a comprehensive Layer 2 security and management feature set. To enable additional functions, including Layer 3 IP unicast and IP multicast routing and Cisco Nexus Data Broker, you must install additional licenses. To meet customer requirements, licensing is available as both subscription and perpetual. The licensing guide illustrates the software packaging and licensing available to enable advanced features. For the latest software release information and recommendations, refer to the product bulletin at https://www.cisco.com/go/n9000.

For details about the optics modules available and the minimum software release required for each supported module, visit https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.

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Ordering information

Table 7 presents ordering information for the Cisco N9300-FX3S Series Switch.

Table 7. Ordering information

Part number	Product description
Base part numbers	
N9K-C93180YC-FX3S	Cisco N9300 with 48p 1/10G/25G SFP and 6p 40G/100G QSFP28
Power supplies	
NXA-PAC-650W-PE	Cisco N9000 650W AC PS, Port-side Exhaust
NXA-PAC-650W-PI	Cisco N9000 650W AC PS, Port-side Intake
NXA-PDC-930W-PI	Cisco N9000 930W DC PS, Port-side Intake
NXA-PDC-930W-PE	Cisco N9000 930W DC PS, Port-side Exhaust
N9K-PUV-1200W	Cisco N9300 1200W Universal Power Supply, Bi-directional air flow and Supports HVAC/HVDC
Fans	
NXA-FAN-35CFM-F	Cisco Nexus Single Fan, 30CFM, port side exhaust airflow
NXA-FAN-35CFM-B	Cisco Nexus Single Fan, 30CFM, port side intake airflow
Licenses on Cisco N9300-FX3S Series Switch	
C1E1TN9300XF-3Y	Cisco ACI and NX-OS Subscription Essentials package for 10/25/40G+ Nexus 9K Leaf, 3 Year Term
C1E1TN9300XF-5Y	Cisco ACI and NX-OS Subscription Essentials package for 10/25/40G+ Nexus 9K Leaf, 5 Year Term
C1A1TN9300XF-3Y	Cisco ACI and NX-OS Subscription Advantage package for 10/25/40G+ Nexus 9K Leaf, 3 Year Term
C1A1TN9300XF-5Y	Cisco ACI and NX-OS Subscription Advantage package for 10/25/40G+ Nexus 9K Leaf, 5 Year Term
NX-OS-ES-XF	Cisco NX-OS Essentials SW license for a 10/25/40G+ Nexus 9K Leaf
NX-OS-AD-XF	Cisco NX-OS Advantage SW license for a 10/25/40G+ Nexus 9K Leaf
DCN-SYNCE-XF	SyncE add-on license

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Part number	Product description
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)
CAB-HVAC-SD-0.6M	HVAC Power Cable for Anderson-LS-25
CAB-HVAC-C14-2M	HVAC Power Cable for C14, 2 Meters (no more than 240 V)
CAB-HVAC-RT-0.6M	HVAC Power Cable with Right Angle Connector for RF-LS-25
Accessories on Cisco N9300-FX3S Series Switch	
NXK-ACC-KIT-1RU	Cisco Nexus Fixed Accessory Kit with 4-post rack mount kit

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Warranty, service, and support

The Cisco N9300-FX3S Series Switch 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).

Cisco offers a range of professional, solution, and product support services for each stage of your Cisco N9300-FX3S Series Switch deployment:

- Cisco Data Center Quick Start Service for Cisco N9000 Series Switch: This offering provides consulting services that include technical advice and assistance to help deploy Cisco N9000 Series Switches.
- Cisco Data Center Accelerated Deployment Service for Cisco N9000 Series Switch: This service delivers planning, design, and implementation expertise to bring your project into production. The service also provides recommended next steps, an architectural high-level design, and operation-readiness guidelines to scale the implementation to your environment.
- Cisco Migration Service for Cisco N9000 Series Switch: This service helps you migrate from a Cisco Catalyst® 6000 Series Switch to a Cisco N9000 Series Switch.
- Cisco Product Support: Support service is available globally 24 hours a day, seven days a week, for Cisco software and hardware products and technologies associated with Cisco N9000 Series Switches. Enhanced support options delivered by Cisco also include solution support for Cisco SMARTnet™ Service, and Cisco Smart Net Total Care®* service.
- For more information, visit https://www.cisco.com/go/services.

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Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to **information about key environmental sustainability topics** (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

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Reference links to **product-specific environmental sustainability information** that is mentioned in relevant sections of this data sheet are provided in the following table:

Sustainability topic	Reference
General	
Product compliance	Table 6. Safety and Compliance Information
Power	
Power supply	Table 2. Product specifications: Power Supplies, Typical and Max power specification
Material	
Unit weight	Table 5. Weight
Dimensions and mean time between failures metrics	Table 2. Product specifications

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For more information

For more information about the Cisco N9000 Series and latest software release information and recommendations, visit https://www.cisco.com/go/n9000.

[1] For the capabilities to enable FEX mode, please see the latest software release notes for details.

[2] For the capabilities to enable MACsec needs feature license, please see the Cisco N9000 Licensing Guide and release notes for details.

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Document history

New or revised topic	Described in	Date
Product name change	Throughout the data sheet	August 2026

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Cisco Systems, Inc.
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Europe Headquarters
Cisco Systems International BV Amsterdam,
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