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Unifying Security and Operations with Cisco N9300 Series Smart Switches

Introduction to Cisco N9300 Series Smart switches

Cisco N9300 Series Smart switches are data center devices that

- integrate advanced networking and embedded security features,
- use hardware acceleration to deliver high-performance operation, and
- provide software flexibility for scalable and efficient data center management.

The Cisco N9300 Series Smart switches provide embedded security that is powered with Hypershield. The switches offer service-accelerated performance and simplify security by integrating into the network, eliminating the need for separate Layer 4 stateful firewalls.

The Cisco N9300 Series Smart switches securely segment and connect security zones within the data center, across interconnects and Cloud.

Cisco N9300 Series Smart switch models

The Cisco N9300 Series Smart switches integrate Data Processing Units (DPUs) with networking ASICs to enhance data center networking and security.

Cisco N9324C-SE1U switch

The Cisco N9324C-SE1U Switch provides high-performance networking capabilities for your data center needs. This 1-rack unit (1 RU) solution offers these features.

- The switch provides 24 x 100G ports.
- The switch uses the Cisco Silicon One E100 ASIC to deliver high-speed connectivity for your applications.
- You can use four DPUs for software-defined stateful services, enabling advanced networking features for your workloads.
- Deploy the switch as a Top of Rack (ToR) device to support VXLAN-EVPN, BGP fabrics, and Multisite deployments in your network.
- Network interfaces and speeds include:
 - Supported port speeds of 40G and 100G.
 - Breakout options of 4 x 10G, 4 x 25G, and 2 x 50G.

Port specifications

Data ports

- Twenty-four 100G Ethernet QSFP28 ports

Management and console ports

- Management ports (RJ-45 or SFP)
- USB 3.0 port

Cisco N9348Y2C6D-SE1U switch

The Cisco N9348Y2C6D-SE1U Switch provides high performance for your data center and offers a flexible port configuration. This 1-rack unit (1 RU) solution includes these features.

- The switch offers forty-eight 10G and 25G ports, two 40G and 100G ports, and six 400G ports.
- The switch uses the Cisco Silicon One E100 ASIC to meet your high-speed networking requirements.
- You can use two DPUs for software-defined stateful services in your network.
- Use the switch as a Top of Rack (ToR) device in VXLAN-EVPN, BGP fabrics, and Multisite network environments.
- Network interfaces and speeds include:
Supported port speeds of 10G, 25G, 40G, 100G, and 400G.
Breakout options of 4 x 10G, 4 x 25G, 2 x 50G, and 4 x 100G

Port specifications

Data Ports

- Forty-eight 10G and 25G Ethernet SFP28 ports (Ports 1-48)
- Six 400G Ethernet QSFP-DD ports (Ports 51-56)
- Two 40G and 100G Ethernet QSFP28 ports (Ports 49-50)

Management and Console Ports

- management port (10/100/1000 BASE-T RJ-45)
- console port (RS-232)
- USB 3.0 port

Port speed and breakout modes

The switches support port speeds, breakout modes and QSA adapters.

- **Port Speed:**

The configured data transmission rate of a switch port, determining the bandwidth capacity it supports

- **Breakout Modes:**

Configuration profiles that enable a high-bandwidth port to be split into multiple lower-speed ports.

- **QSA (Quad Small Form-factor Pluggable Adapter):**

An adapter that allows a QSFP port to support lower-speed transceivers like 1G or 10G on the switches, with the requirement that all QSAs in a port group operate at the same speed.

Cisco N9324C-SE1U switch

Native port speeds

- 40G
- 100G

Breakout modes

- 4 x 25G
- 4 x 10G
- 2 x 50G

QSA adapter

10G with QSA on the ports

Cisco N9348Y2C6D-SE1U switch

Native port speeds

- 10G
- 25G
- 40G
- 100G
- 400G

Breakout modes

- 4 x 10G
- 4 x 25G
- 2 x 50G
- 4 x 100G

QSA adapter

10G with QSA on the ports

Optics Support

For list of supported optics on the Cisco N9300 Series smart switches switch, see [Transceiver Module \(TMG\) Compatibility Matrix](#).

Available software features in networking mode

Cisco NX-OS Release 10.6(1s), when operating in network-only mode, supports a broad range of features across core networking functions.

Layer 2 Features

- DHCP relay, QinQ, SVI support, UDLD
- Port channels, vPC
- ICAM
- RSTP, MSTP
- LACP, LLDP

Unicast Routing or Layer 3 Features (IPv4 and IPv6)

- BGP, OSPF, EIGRP, ISIS, BFD (Single Hop), VRF, RIP
- ECMP (8192 groups, 512-way ECMP)
- IP directed broadcast
- uRPF
- Static routing
- HSRP, VRRP
- IP unnumbered (non-SVI)

Multicast Features

- Layer 2 or Layer3 IPv4 multicast PIM (ASM, SSM)
- Layer 3-Phy, Port channel, SI, SVI, vPC
- Layer 2 Port channel
- IGMP snooping
- Flow path visibility
- Multicast route-aliveness
- Hitbit, route statistics (packets, bytes)

MPLS or Segment Routing Features

- SR-MPLS underlay
- SR-MPLS L3EVPN

Quality of Service

- Classification and marking
- Queuing and scheduling
- CoPP, custom CoPP

Network Security

- AAA, RADIUS, TACACS+
- Ingress PACL

- Ingress and egress RACL (IPv4/V6)
- SSH protocol version 2
- SNMPv3
- PBR
- MACsec

Telemetry and Monitoring

- SNMPv2
- Software Telemetry
 - DME data collection
 - NX-API data sources
 - Google protocol buffer (GPB) encoding over Google
 - Remote Procedure Call (gRPC) transport
 - JSON encoding over HTTP
- sFlow
- gNMI support
- SPAN, SPAN on drop, ERSPAN

VXLAN Features

- VXLAN EVPN v4/v6
- Multicast/IR
- TRMv4
- DSVNI
- Multi-Site Anycast border gateway
- vPC and vPC fabric peering
- NGOAM
- L3 physical port and L3 Port channels as fabric uplinks
- IGMP snooping with or without TRMv4

IPFM

- NBM Use cases
- Policer Scale

Programmability

- Open NX-OS automation

- Open and native YANG models - NETCONF, RESTCONF, gNMI
- [Python API](#)
- [TCL](#)
- [Cisco NX-API](#)

Upgrade

- POAP, GIR
- Disruptive ISSU