



## Overview

N3K-C3064PQ-10GX is the Nexus 3064-X, 48 SFP+ and 4 QSFP+ ports, with enhanced scale, low latency. The Cisco Nexus 3064-X, 3064-T, and 3064-32T Switches are high-performance, high-density Ethernet switches that are part of the Cisco Nexus 3000 Series Switches portfolio. These compact one-rack-unit (1RU) form-factor 10 Gigabit Ethernet switches provide line-rate Layer 2 and 3 switching. They run the industry-leading Cisco® NX-OS Software operating system, providing customers with comprehensive features and functions that are widely deployed globally. They support both forward and reverse airflow schemes with AC and DC power inputs. The Cisco Nexus 3064 switches are well suited for data centers that require cost-effective, power-efficient, line-rate Layer 2 and 3 top-of-rack (ToR) switches

## Quick Specs

Figure 1 shows the appearance of the Cisco N3K-C3064PQ-10GX

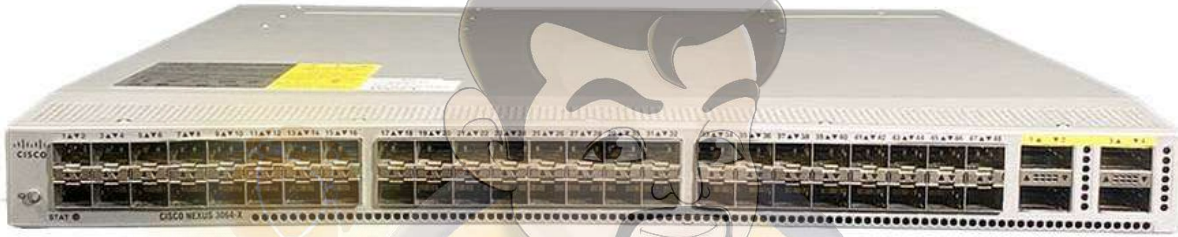


Table 1 shows the Quick Spec of the N3K-C3064PQ-10GX

|                           |   |
|---------------------------|---|
| Product Code              | N3K-C3064PQ-10GX  |
| Enclosure Type            | Rack-mountable - 1U   |
| Software operating system | Cisco® NX-OS  |
| Uplink configuration      | 4 QSFP+ ports support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet each |
| Downlink Ports            | 48 SFP+ ports support 1 and 10 Gigabit Ethernet                           |
| MAC addresses             | 128,000   |
| Forwarding Performance    | 950 Mpps  |
| Switching Capacity        | 1.28 Tbps   |
| Buffers                   | 9 MB shared   |
| Boot flash memory         | 2 GB  |
| Dimensions                | 4.4 x 43.9 x 50.5 cm  |
| Fans                      | 1fan tray with redundant fans   |
| power supply              | 2 redundant power supplies  |
| Maximum power             | Cisco Nexus 3064-X: 199W  |

Product Details

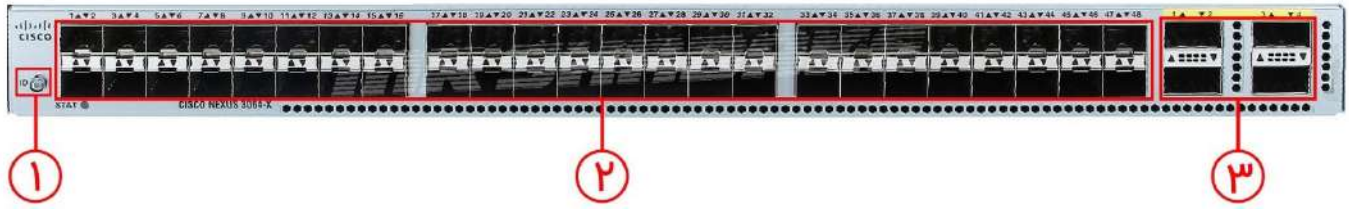


Figure 2 shows the front panel of the Cisco N3K-C3064PQ-10GX

|     |                |     |                              |
|-----|----------------|-----|------------------------------|
| (1) | UID button     | (3) | 4 x QSFP+ uplink module slot |
| (2) | 48 X Port SFP+ |     |                              |

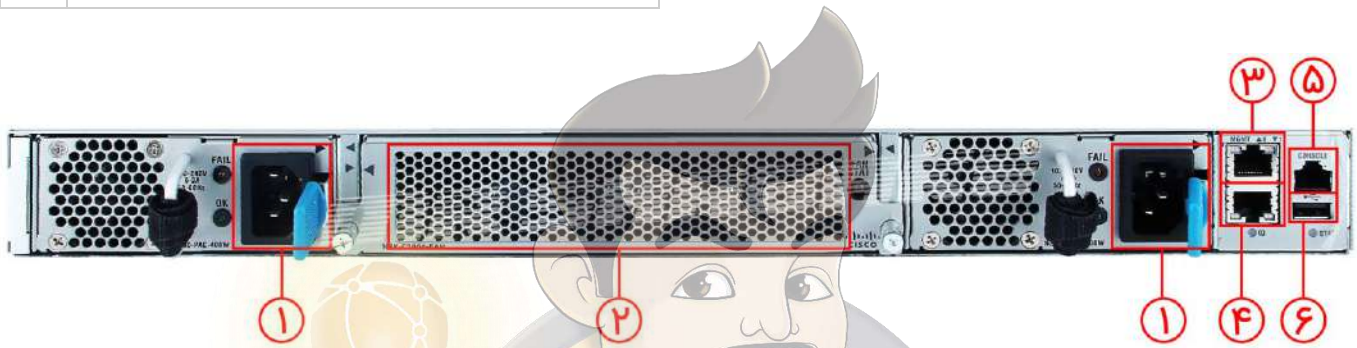


Figure 3 shows the back panel of the N3K-C3064PQ-10GX

|     |                      |     |                              |
|-----|----------------------|-----|------------------------------|
| (1) | Power supply modules | (4) | 1 I/O module with management |
| (2) | Fan                  | (5) | Fan module                   |
| (3) | MGMT port            | (6) | USB flash memory ports       |

Product Details

The Cisco Nexus 3064 switches provides the following main benefits:

- Wire-rate Layer 2 and 3 switching on all ports
- The Cisco Nexus 3064 switches provide Layer 2 and 3 switching of up to 1.2 terabits per second (Tbps) and more than 950 million packets per second (mpps) in a compact 1RU form factor.
- Ultra-low latency
- The Cisco Nexus 3064 switches deliver ultra-low nominal latency that allows customers to implement high-performance infrastructure for high-frequency trading (HFT) workloads.
- Purpose-built on Cisco NX-OS operating system with comprehensive, proven innovations
- Virtual PortChannel (vPC) provides Layer 2 multipathing through the elimination of Spanning Tree Protocol and enables fully utilized bisectonal bandwidth and simplified Layer 2 logical topologies without the need to change the existing management and deployment models.
- PowerOn Auto Provisioning (POAP) enables touchless bootup and configuration of the switch, drastically reducing provisioning time.
- Cisco Embedded Event Manager (EEM) and Python scripting enable automation and remote operations in the data center.
- Advanced buffer monitoring reports real-time buffer use per port and per queue, which allows organizations to monitor traffic bursts and application traffic patterns.

- The 64-way equal-cost multipath (ECMP) routing enables Layer 3 fat tree designs and allows organizations to prevent network bottlenecks, increase resiliency, and add capacity with little network disruption.
- EtherAnalyzer is a built-in packet analyzer for monitoring and troubleshooting control-plane traffic and is based on the popular Wireshark open source network protocol analyzer.
- Precision Time Protocol (PTP; IEEE 1588) provides accurate clock synchronization and improved data correlation with network captures and system events.
- Full Layer 3 unicast and multicast routing protocol suites are supported, including Border Gateway Protocol (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).
- Network traffic monitoring with Cisco Nexus Data Broker
- Build simple, scalable and cost-effective network tap or Cisco Switched Port Analyzer (SPAN) aggregation for network traffic monitoring and analysis.

## Transceiver and Cabling Options

The Cisco Nexus 3064 switches support a wide variety of 1, 10, and 40 Gigabit Ethernet connectivity options. 1 and 10 Gigabit Ethernet connectivity is achieved in the first 48 ports, and 40 Gigabit Ethernet connectivity is achieved using QSFP+ transceivers in the last 4 ports.

QSFP+ technology allows smooth transition from 10 to 40 Gigabit Ethernet infrastructures in data centers. The Cisco Nexus 3064 switches support connectivity over copper and fiber cables, providing excellent physical-layer flexibility. For low-cost cabling, copper-based 40-Gbps TwiDax cables can be used, and for longer cable reaches, short-reach optical transceivers are excellent.

Connectivity can be established from the QSFP ports to an upstream 10 Gigabit Ethernet switch using a splitter cable that has a QSFP transceiver on one end and four SFP+ transceivers on the other end. Similar capability can be achieved using optical transceivers by procuring third-party fiber splitters. Table 1 lists the QSFP transceiver types supported.

## Cisco Nexus 3064 QSFP Transceiver Support Matrix

| Part Number       | Description  |
|-------------------|--|
| QSFP-4X10G-AC10M  | Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 10m, active |
| QSFP-4X10G-AC7M   | Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 7m, active  |
| QSFP-4SFP10G-CU5M | QSFP to 4xSFP10G passive copper splitter cable, 5m                                     |
| QSFP-4SFP10G-CU3M | QSFP to 4xSFP10G passive copper splitter cable, 3m                                     |
| QSFP-4SFP10G-CU1M | QSFP to 4xSFP10G passive copper splitter cable, 1m                                     |
| QSFP-H40G-ACU10M  | Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 10m, active                        |
| QSFP-H40G-ACU7M   | Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 7m, active                         |
| QSFP-H40G-CU5M    | 40GBASE-CR4 passive copper cable, 5m   |
| QSFP-H40G-CU3M    | 40GBASE-CR4 passive copper cable, 3m   |
| QSFP-H40G-CU1M    | 40GBASE-CR4 passive copper cable, 1m   |
| QSFP-40G-SR4      | 40GBASE-SR4 QSFP transceiver module with MPO connector                                 |
| QSFP-40G-CSR4     | Cisco 40GBASE-CSR4 transceiver module, MPO, 300m                                       |
| QSFP-40GE-LR4     | QSFP 40GBASE-LR4 QSFP+ module for SMF  |

For in-rack or adjacent-rack cabling, the Cisco Nexus 3064-X supports SFP+ direct-attach 10 Gigabit Ethernet copper, an innovative solution that integrates transceivers with Twinax cables into an energy-efficient and low-cost solution. For longer cable runs, multimode and single-mode optical SFP+ transceivers are supported. Table 2 lists the supported 10 Gigabit Ethernet transceiver options.

### Cisco Nexus 3064-X 10 Gigabit Ethernet Transceiver Support Matrix

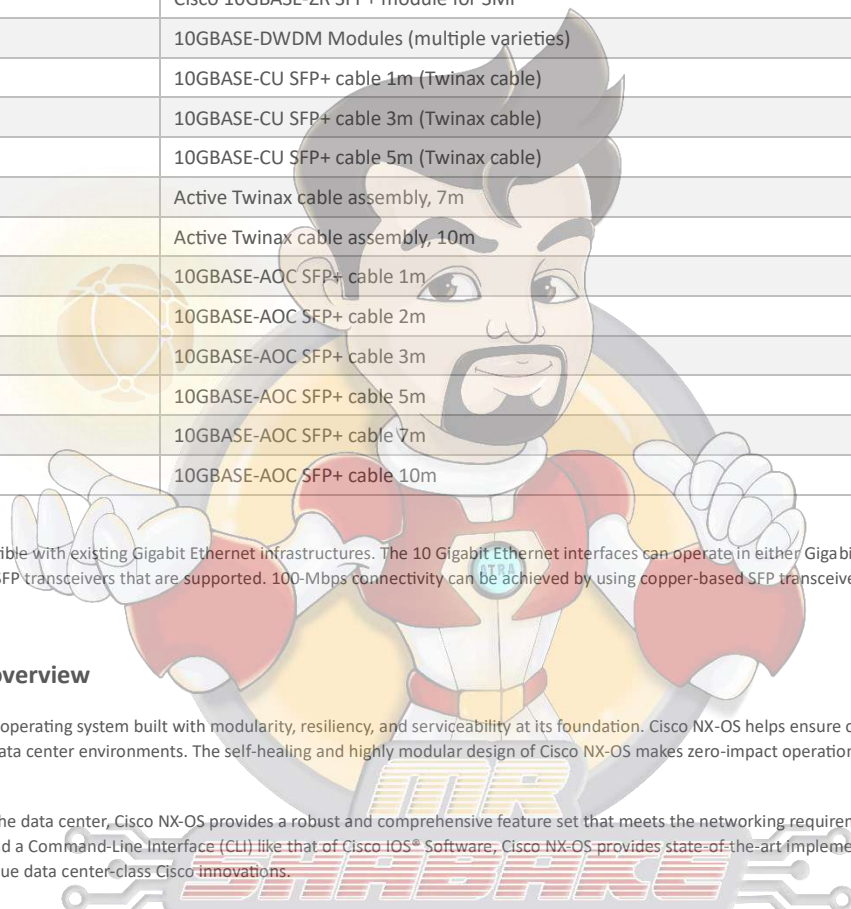
| Part Number      | Description                                      |
|------------------|--|
| SFP-10G-SR       | 10GBASE-SR SFP+ module (Multimode Fiber [MMF])   |
| SFP-10G-LR       | 10GBASE-LR SFP+ module (Single-Mode Fiber [SMF]) |
| SFP-10G-ER       | Cisco 10GBASE-ER SFP+ module for SMF             |
| SFP-10G-ZR       | Cisco 10GBASE-ZR SFP+ module for SMF*            |
| DWDM-SFP10G-*    | 10GBASE-DWDM Modules (multiple varieties)        |
| SFP-H10GB-CU1M   | 10GBASE-CU SFP+ cable 1m (Twinax cable)          |
| SFP-H10GB-CU3M   | 10GBASE-CU SFP+ cable 3m (Twinax cable)          |
| SFP-H10GB-CU5M   | 10GBASE-CU SFP+ cable 5m (Twinax cable)          |
| SFP-H10GB-ACU7M  | Active Twinax cable assembly, 7m                 |
| SFP-H10GB-ACU10M | Active Twinax cable assembly, 10m                |
| SFP-10G-AOC1M    | 10GBASE-AOC SFP+ cable 1m                        |
| SFP-10G-AOC2M    | 10GBASE-AOC SFP+ cable 2m                        |
| SFP-10G-AOC3M    | 10GBASE-AOC SFP+ cable 3m                        |
| SFP-10G-AOC5M    | 10GBASE-AOC SFP+ cable 5m                        |
| SFP-10G-AOC7M    | 10GBASE-AOC SFP+ cable 7m                        |
| SFP-10G-AOC10M   | 10GBASE-AOC SFP+ cable 10m                       |

The Cisco Nexus 3064-X is compatible with existing Gigabit Ethernet infrastructures. The 10 Gigabit Ethernet interfaces can operate in either Gigabit Ethernet or 100-Mbps mode. Table 3 lists the Gigabit Ethernet SFP transceivers that are supported. 100-Mbps connectivity can be achieved by using copper-based SFP transceivers (SFP-GE-T and GLC-T).

### Cisco NX-OS Software overview

Cisco NX-OS is a data center-class operating system built with modularity, resiliency, and serviceability at its foundation. Cisco NX-OS helps ensure continuous availability and sets the standard for mission-critical data center environments. The self-healing and highly modular design of Cisco NX-OS makes zero-impact operations a reality and provides exceptional operation flexibility.

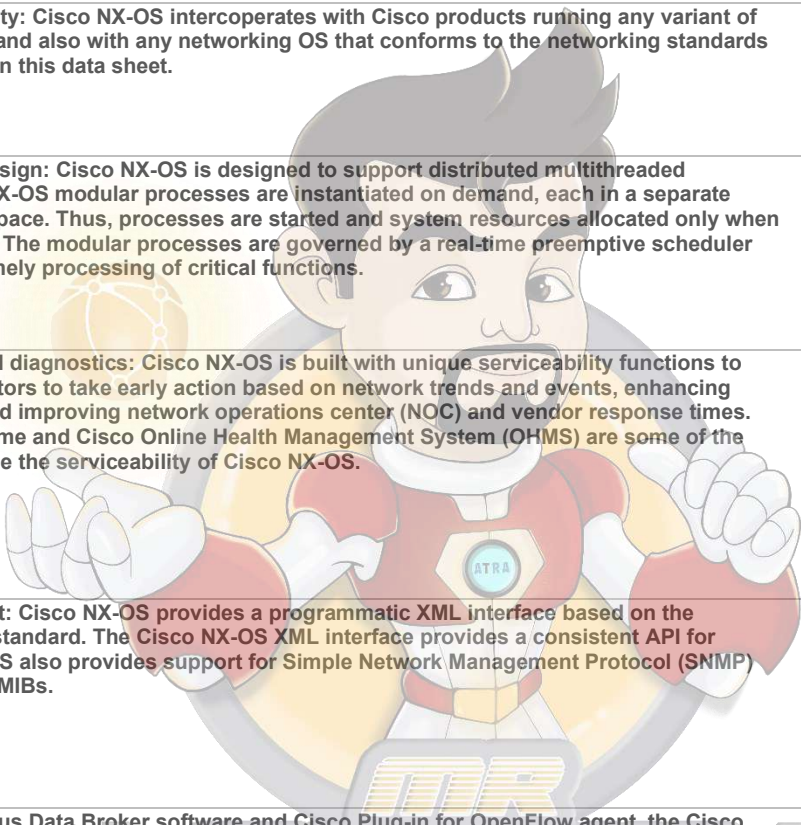
Focused on the requirements of the data center, Cisco NX-OS provides a robust and comprehensive feature set that meets the networking requirements of present and future data centers. With an XML interface and a Command-Line Interface (CLI) like that of Cisco IOS® Software, Cisco NX-OS provides state-of-the-art implementations of relevant networking standards as well as a variety of true data center-class Cisco innovations.



summarizes the benefits that Cisco NX-OS Software offers.

summarizes the benefits that Cisco NX-OS Software offers.

| Feature   | Benefit  |
|---|--|
| Common software throughout the data center: Cisco NX-OS runs on all Cisco data center switch platforms (Cisco Nexus 7000, 5000, 4000, 2000, and 1000V Series).  | <ul style="list-style-type: none"> <li>• Simplification of data center operating environment</li> <li>• End-to-end Cisco Nexus and Cisco NX-OS fabric</li> <li>• No retraining necessary for data center engineering and operations teams</li> </ul>   |
| Software compatibility: Cisco NX-OS interoperates with Cisco products running any variant of Cisco IOS Software and also with any networking OS that conforms to the networking standards listed as supported in this data sheet.   | <ul style="list-style-type: none"> <li>• Transparent operation with existing network infrastructure</li> <li>• Open standards</li> <li>• No compatibility concerns</li> </ul>  |
| Modular software design: Cisco NX-OS is designed to support distributed multithreaded processing. Cisco NX-OS modular processes are instantiated on demand, each in a separate protected memory space. Thus, processes are started and system resources allocated only when a feature is enabled. The modular processes are governed by a real-time preemptive scheduler that helps ensure timely processing of critical functions. | <ul style="list-style-type: none"> <li>• Robust software</li> <li>• Fault tolerance</li> <li>• Increased scalability</li> <li>• Increased network availability</li> </ul>  |
| Troubleshooting and diagnostics: Cisco NX-OS is built with unique serviceability functions to allow network operators to take early action based on network trends and events, enhancing network planning and improving network operations center (NOC) and vendor response times. Cisco Smart Call Home and Cisco Online Health Management System (OHMS) are some of the features that enhance the serviceability of Cisco NX-OS.  | <ul style="list-style-type: none"> <li>• Quick problem isolation and resolution</li> <li>• Continuous system monitoring and proactive notifications</li> <li>• Improved productivity of operations teams</li> </ul>  |
| Ease of management: Cisco NX-OS provides a programmatic XML interface based on the NETCONF industry standard. The Cisco NX-OS XML interface provides a consistent API for devices. Cisco NX-OS also provides support for Simple Network Management Protocol (SNMP) Versions 1, 2, and 3 MIBs.   | <ul style="list-style-type: none"> <li>• Rapid development and creation of tools for enhanced management</li> <li>• Comprehensive SNMP MIB support for efficient remote monitoring</li> </ul>  |
| Using the Cisco Nexus Data Broker software and Cisco Plug-in for OpenFlow agent, the Cisco Nexus 3064 switches can be used to build a scalable, cost-effective, and programmable tap or SPAN aggregation infrastructure. This approach replaces the traditional purpose-built matrix switches with these switches. You can interconnect these switches to build a multilayer topology for tap or SPAN aggregation infrastructure.   | <ul style="list-style-type: none"> <li>• Scalable and cost effective</li> <li>• Robust traffic filtering capabilities</li> <li>• Traffic aggregation from multiple input ports across different switches</li> <li>• Traffic replication and forwarding to multiple monitoring tools</li> </ul> |
| Role-Based Access Control (RBAC): With RBAC, Cisco NX-OS enables administrators to limit access to switch operations by assigning roles to users. Administrators can customize access and restrict it to the users who require it.  | <ul style="list-style-type: none"> <li>• Effective access control mechanism based on user roles</li> <li>• Improved network device security</li> </ul>   |



- Reduction in network problems arising from human error

## Compare to Similar Items

Table 3 shows the comparison of similar items.

| Models                          | N3K-C3064PQ-10GX   | N3K-C3132Q-V   |
|---------------------------------|--|--|
| Ports                           | <ul style="list-style-type: none"> <li>◦ 32 QSFP 40 Gbps Ports.</li> <li>◦ Each QSFP port supports 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet</li> </ul> | <ul style="list-style-type: none"> <li>◦ 48 SFP ports support 1 and 10 Gigabit Ethernet</li> <li>◦ 4 QSFP ports support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet each</li> </ul> |
| Physical Dimensions (H x W x D) | 1.72 x 17.3 x 19.7 in. (4.4 x 43.9 x 50.5 cm)  | 1.72 x 17.3 x 19.7 in. (4.4 x 43.9 x 50.5 cm)  |
| Weight                          | 18.8 lb (8.5 kg) 20.5 lb (9.3 kg)  | 18.8 lb (8.5 kg) 20.5 lb (9.3 kg)  |

## Specification

| Specification                          |  |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
|--|--|---------------|---------|-----------------|------|-------------------------|---|-------------|---|---------------|--|-------------------------|---------------|----------------------------------|----|---------|-------------|-------------------|------|
| <b>Physical</b>                        | <ul style="list-style-type: none"> <li>• 1RU fixed form factor</li> <li>• Cisco Nexus 3064-X: 64 10 Gigabit Ethernet ports (48 SFP+ and 4 QSFP+)                             <ul style="list-style-type: none"> <li>◦ 48 SFP ports support 1 and 10 Gigabit Ethernet</li> <li>◦ 4 QSFP ports support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet each</li> </ul> </li> <li>• Cisco Nexus 3064-T: 64 x 10 Gigabit Ethernet ports (48 10GBASE-T and 4 QSFP+)                             <ul style="list-style-type: none"> <li>◦ 48 RJ-45 ports support 100 Mbps and 1 and 10 Gigabit Ethernet</li> <li>◦ 4 QSFP ports support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet each</li> </ul> </li> <li>• Cisco Nexus 3064-32T: 48 x 10 Gigabit Ethernet ports (32 10GBASE-T and 4 QSFP+)                             <ul style="list-style-type: none"> <li>◦ 32 RJ-45 ports support 100 Mbps and 1 and 10 Gigabit Ethernet</li> <li>◦ 4 QSFP ports support 4 x 10 Gigabit Ethernet or 40 Gigabit Ethernet each</li> </ul> </li> <li>• 2 redundant power supplies</li> <li>• 1 fan tray with redundant fans</li> <li>• 1 I/O module with management, console, and USB flash memory ports</li> </ul> |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| <b>Performance</b>                     | <ul style="list-style-type: none"> <li>• 1.28-Tbps switching capacity</li> <li>• Forwarding rate of 950 mpps</li> <li>• Line-rate traffic throughput (both Layer 2 and 3) on all ports</li> <li>• Configurable Maximum Transmission Units (MTUs) of up to 9216 bytes (jumbo frames)</li> </ul>   |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| <b>Hardware tables and scalability</b> | <table border="1"> <tbody> <tr> <td>MAC addresses</td> <td>128,000</td> </tr> <tr> <td>Number of VLANs</td> <td>4096</td> </tr> <tr> <td>Spanning-tree instances</td> <td> <ul style="list-style-type: none"> <li>• Rapid Spanning Tree Protocol (RSTP): 512</li> <li>• Multiple Spanning Tree (MST) Protocol: 64</li> </ul> </td> </tr> <tr> <td>ACL entries</td> <td> <ul style="list-style-type: none"> <li>• 2000 ingress</li> <li>• 1000 egress</li> </ul> </td> </tr> <tr> <td>Routing table</td> <td> <ul style="list-style-type: none"> <li>• 16,000 prefixes and 16,000 host entries *</li> <li>• 8000 multicast routes *</li> </ul> </td> </tr> <tr> <td>Number of EtherChannels</td> <td>64 (with vPC)</td> </tr> <tr> <td>Number of ports per EtherChannel</td> <td>32</td> </tr> <tr> <td>Buffers</td> <td>9 MB shared</td> </tr> <tr> <td>Boot flash memory</td> <td>2 GB</td> </tr> </tbody> </table>   | MAC addresses | 128,000 | Number of VLANs | 4096 | Spanning-tree instances | <ul style="list-style-type: none"> <li>• Rapid Spanning Tree Protocol (RSTP): 512</li> <li>• Multiple Spanning Tree (MST) Protocol: 64</li> </ul> | ACL entries | <ul style="list-style-type: none"> <li>• 2000 ingress</li> <li>• 1000 egress</li> </ul> | Routing table | <ul style="list-style-type: none"> <li>• 16,000 prefixes and 16,000 host entries *</li> <li>• 8000 multicast routes *</li> </ul> | Number of EtherChannels | 64 (with vPC) | Number of ports per EtherChannel | 32 | Buffers | 9 MB shared | Boot flash memory | 2 GB |
| MAC addresses                          | 128,000  |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Number of VLANs                        | 4096   |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Spanning-tree instances                | <ul style="list-style-type: none"> <li>• Rapid Spanning Tree Protocol (RSTP): 512</li> <li>• Multiple Spanning Tree (MST) Protocol: 64</li> </ul>  |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| ACL entries                            | <ul style="list-style-type: none"> <li>• 2000 ingress</li> <li>• 1000 egress</li> </ul>  |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Routing table                          | <ul style="list-style-type: none"> <li>• 16,000 prefixes and 16,000 host entries *</li> <li>• 8000 multicast routes *</li> </ul>   |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Number of EtherChannels                | 64 (with vPC)  |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Number of ports per EtherChannel       | 32   |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Buffers                                | 9 MB shared  |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |
| Boot flash memory                      | 2 GB   |               |         |                 |      |                         |   |             |   |               |  |                         |               |                                  |    |         |             |                   |      |

|                    |  |   |
|--------------------|--|---|
| <b>Power</b>       | Number of power supplies   | 2 <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X: Redundant for AC and DC power</li> <li>• Cisco 3064-T and 3064-32T: Redundant for AC power</li> </ul>  |
|                    | Power supply types   | <ul style="list-style-type: none"> <li>• AC (forward and reversed airflow)</li> <li>• DC (forward and reversed airflow)</li> </ul>  |
|                    | Typical operating power  | <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X <ul style="list-style-type: none"> <li>◦ 143 watts (W; 64p with Twinax at 100% load; 2 power supply units [PSUs])</li> <li>◦ 177W (64p with SR optics at 100% load; 2 PSUs)</li> </ul> </li> <li>• Cisco Nexus 3064-T <ul style="list-style-type: none"> <li>◦ 362W (48p with 3m cables; 4 SR4 at 100% load)</li> </ul> </li> </ul>                           |
|                    | Maximum power  | <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X: 199W</li> <li>• Cisco Nexus 3064-T</li> </ul>  |
|                    | AC PSUs <ul style="list-style-type: none"> <li>• Input voltage</li> <li>• Frequency</li> <li>• Efficiency</li> </ul>       | <ul style="list-style-type: none"> <li>• 100 to 240 VAC</li> <li>• 50 to 60 Hz</li> <li>• 89 to 91% at 220V</li> </ul>  |
|                    | DC PSUs <ul style="list-style-type: none"> <li>• Input voltage</li> <li>• Maximum current</li> <li>• Efficiency</li> </ul> | <ul style="list-style-type: none"> <li>• -40 to -72 VDC</li> <li>• 33A</li> <li>• 85 to 88%</li> </ul>  |
|                    | Typical heat dissipation   | <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X <ul style="list-style-type: none"> <li>◦ 488 BTU/hr (64p with Twinax at 100% load; 2 PSUs)</li> <li>◦ 605 BTU/hr (64p with SR optics at 100% load; 2 PSUs)</li> </ul> </li> <li>• Cisco Nexus 3064-T <ul style="list-style-type: none"> <li>◦ 1235 BTU/hr (48p with 3m cables; 4 SR4 at 100% load)</li> </ul> </li> </ul>                                     |
|                    | Maximum heat dissipation   | <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X: 683 BTU/hr</li> <li>• Cisco Nexus 3064-T: 1553 BTU/hr</li> </ul>   |
|                    | <b>Cooling</b>   | <p>Forward and reversed airflow schemes:</p> <ul style="list-style-type: none"> <li>• Forward airflow: Port-side exhaust (air enters through fan-tray and power supplies and exits through ports)</li> <li>• Reversed airflow: Port-side intake (air enters through ports and exits through fan-tray and power supplies)</li> </ul> <p>Single fan tray with redundant fans<br/>Hot swappable (must swap within 1 min)</p> |
| <b>Sound</b>       | Measured sound power (maximum)   | <ul style="list-style-type: none"> <li>• 59.7 dBA</li> <li>• 66.4 dBA</li> <li>• 71.0 dBA</li> </ul>  |
| <b>Environment</b> | Dimensions (height x width x depth)  | <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X: 1.72 x 17.3 x 19.7 in. (4.4 x 43.9 x 50.5 cm)</li> <li>• Cisco Nexus 3064-T and 3064-32T: 1.72 x 17.3 x 22.45 in. (4.4 x 43.9 x 57.0 cm)</li> </ul>  |
|                    | Weight   | <ul style="list-style-type: none"> <li>• Cisco Nexus 3064-X: 20.5 lb (9.3 kg)</li> <li>• Cisco Nexus 3064-T and 3064-32T: 20.8 lb (9.5 kg)</li> </ul>   |
|                    | Operating temperature  | 32 to 104°F (0 to 40°C)   |
|                    | Storage temperature  | -40 to 158°F (-40 to 70°C)  |
|                    | Operating relative humidity  | <ul style="list-style-type: none"> <li>• 10 to 85% noncondensing</li> <li>• Up to 5 days at maximum (85%) humidity</li> <li>• Recommend ASHRAE data center environment</li> </ul>   |
|                    | Storage relative humidity  | 5 to 95% noncondensing  |
|                    | Altitude   | 0 to 10,000 ft (0 to 3000m)   |

## Software features

| Description              | Specification   |
|--------------------------|---|
| Layer 2                  | <ul style="list-style-type: none"> <li>● Layer 2 switch ports and VLAN trunks</li> <li>● IEEE 802.1Q VLAN encapsulation</li> <li>● Support for up to 4096 VLANs</li> <li>● Rapid Per-VLAN Spanning Tree Plus (PVRST+) (IEEE 802.1w compatible)</li> <li>● Multiple Spanning Tree Protocol (MSTP) (IEEE 802.1s): 64 instances</li> <li>● Spanning Tree PortFast</li> <li>● Spanning Tree Root Guard</li> <li>● Spanning Tree Bridge Assurance</li> <li>● Cisco EtherChannel technology (up to 32 ports per EtherChannel)</li> <li>● Link Aggregation Control Protocol (LACP): IEEE 802.3ad</li> <li>● Advanced PortChannel hashing based on Layer 2, 3, and 4 information</li> <li>● vPC</li> <li>● Jumbo frames on all ports (up to 9216 bytes)</li> <li>● Storm control (unicast, multicast, and broadcast)</li> <li>● Private VLANs</li> </ul>  |
| Layer 3                  | <ul style="list-style-type: none"> <li>● Layer 3 interfaces: Routed ports on interfaces, Switch Virtual Interfaces (SVIs), PortChannels, and subinterfaces (total: 1024)</li> <li>● 64-way ECMP</li> <li>● 2000 ingress and 1000 egress ACL entries</li> <li>● IPv6 routing: Static, OSPFv3, and BGPv6</li> <li>● Routing protocols: Static, RIPv2, EIGRP, OSPF, and BGP</li> <li>● Bidirectional Flow Detection (BFD) for BGP, OSPF and ipv4 Static routes</li> <li>● HSRP and VRRP</li> <li>● ACL: Routed ACL with Layer 3 and 4 options to match ingress and egress ACLs</li> <li>● VRF: VRF-lite (IP VPN), VRF-aware unicast (BGP, OSPF, and RIP), and VRF-aware multicast</li> <li>● Unicast Reverse-Path Forwarding (uRPF) with ACL; strict and loose modes</li> <li>● Jumbo frame support (up to 9216 bytes)</li> <li>● Generic Routing Encapsulation (GRE) tunneling</li> </ul> |
| Multicast                | <p>Multicast: PIMv2, PIM-SM, and SSM</p> <p>Bootstrap Router (BSR), Auto-RP, and Static RP</p> <p>Multicast Source Discovery Protocol (MSDP) and Anycast RP</p> <p>Internet Group Management Protocol (IGMP) Versions 2 and 3</p>   |
| Quality of Service (QoS) | <p>Layer 2 IEEE 802.1p (Class of Service [CoS])</p> <p>8 hardware queues per port</p> <p>Per-port QoS configuration</p> <p>CoS trust</p> <p>Port-based CoS assignment</p> <p>Modular QoS CLI (MQC) compliance</p> <p>ACL-based QoS classification (Layers 2, 3, and 4)</p> <p>MQC CoS marking</p> <p>Differentiated services code point (DSCP) marking</p> <p>Weighted Random Early Detection (WRED)</p> <p>CoS-based egress queuing</p> <p>Egress strict-priority queuing</p> <p>Egress port-based scheduling: Weighted Round-Robin (WRR)</p> <p>Explicit Congestion Notification (ECN)</p> <p>Configurable ECN (Marking) per port</p>   |
| Security                 | <ul style="list-style-type: none"> <li>● Ingress ACLs (standard and extended) on Ethernet</li> <li>● Standard and extended Layer 3 to 4 ACLs include IPv4, Internet Control Message Protocol (ICMP), TCP, and User Datagram Protocol (UDP)</li> <li>● VLAN-based ACLs (VACLs)</li> <li>● Port-based ACLs (PACLs)</li> <li>● Named ACLs</li> <li>● ACLs on virtual terminals (vtys)</li> <li>● DHCP snooping with Option 82</li> </ul>   |



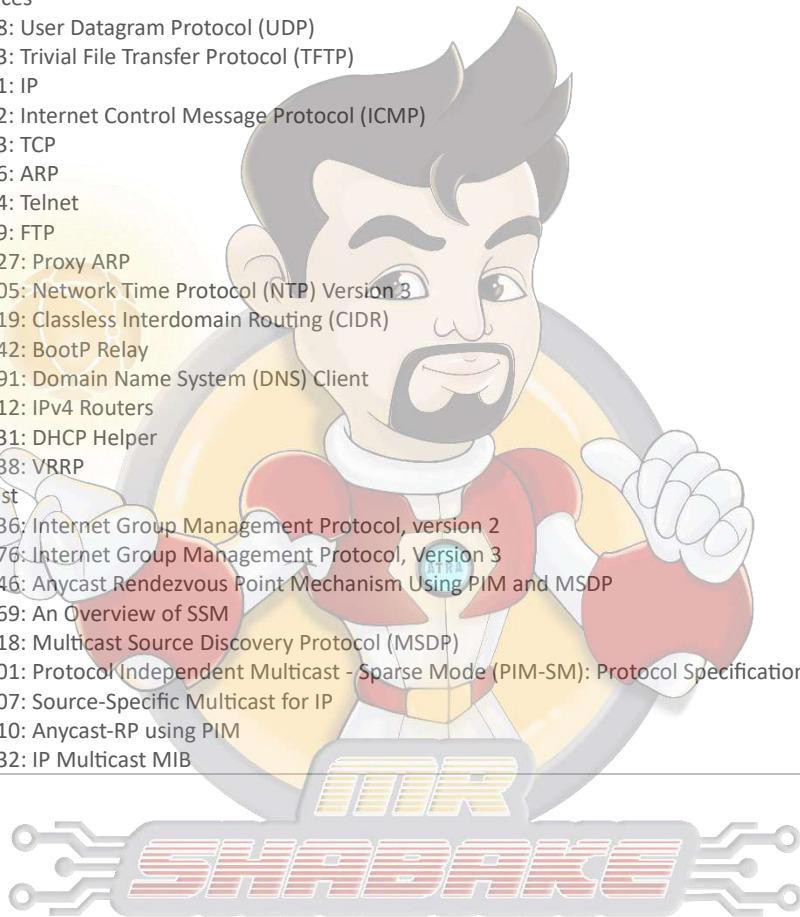
|                         |   |
|-------------------------|---|
|                         | <ul style="list-style-type: none"> <li>● Port number in DHCP Option 82</li> <li>● DHCP relay</li> <li>● Dynamic Address Resolution Protocol (ARP) inspection</li> <li>● Configurable CoPP</li> </ul>  |
| Cisco Nexus Data Broker | <ul style="list-style-type: none"> <li>● Topology support for tap and SPAN aggregation</li> <li>● Support for QinQ to tag input source tap and SPAN ports</li> <li>● Traffic load balancing to multiple monitoring tools</li> <li>● Traffic filtering based on Layer 1 through Layer 4 header information</li> <li>● Traffic replication and forwarding to multiple monitoring tools</li> <li>● Robust RBAC</li> <li>● Northbound Representational State Transfer (REST) API for all programmability support</li> </ul>   |
| Management              | <ul style="list-style-type: none"> <li>● POAP</li> <li>● Python scripting</li> <li>● Cisco EEM</li> <li>● Switch management using 10/100/1000-Mbps management or console ports</li> <li>● CLI-based console to provide detailed out-of-band management</li> <li>● In-band switch management</li> <li>● Locator and beacon LEDs</li> <li>● Configuration rollback</li> <li>● SSHv2</li> <li>● Secure Copy (SCP) server</li> <li>● Telnet</li> <li>● AAA</li> <li>● AAA with RBAC</li> <li>● RADIUS</li> <li>● TACACS+</li> <li>● Syslog</li> <li>● Syslog generation on system resources (for example, FIB tables)</li> <li>● Embedded packet analyzer</li> <li>● SNMP v1, v2, and v3</li> <li>● Enhanced SNMP MIB support</li> <li>● XML (NETCONF) support</li> <li>● Remote monitoring (RMON)</li> <li>● Advanced Encryption Standard (AES) for management traffic</li> <li>● Unified username and passwords across CLI and SNMP</li> <li>● Microsoft Challenge Handshake Authentication Protocol (MS-CHAP)</li> <li>● Digital certificates for management between switch and RADIUS server</li> <li>● Cisco Discovery Protocol Versions 1 and 2</li> <li>● RBAC</li> <li>● Switched Port Analyzer (SPAN) on physical layer, PortChannel, and VLAN</li> <li>● Tunable Buffer Allocation for SPAN</li> <li>● Encapsulated Remote SPAN (ERSPAN)</li> <li>● Ingress and egress packet counters per interface</li> <li>● PTP (IEEE 1588) boundary clock</li> <li>● Network Time Protocol (NTP)</li> <li>● Cisco OHMS</li> <li>● Comprehensive bootup diagnostic tests</li> <li>● Cisco Call Home</li> <li>● Cisco DCNM</li> <li>● Advanced buffer utilization monitoring</li> <li>● sFlow</li> </ul> |

### Management and Standards Support

| Description   | Specification  |   |   |
|---|--|---|---|
| MIB Support   | <table border="0"> <tr> <td> <ul style="list-style-type: none"> <li>● Generic MIBs</li> <li>● SNMPv2-SMI</li> <li>● CISCO-SMI</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>● Monitoring MIBs</li> <li>● NOTIFICATION-LOG-MIB</li> <li>● CISCO-SYSLOG-EXT-MIB</li> </ul> </td> </tr> </table> | <ul style="list-style-type: none"> <li>● Generic MIBs</li> <li>● SNMPv2-SMI</li> <li>● CISCO-SMI</li> </ul> | <ul style="list-style-type: none"> <li>● Monitoring MIBs</li> <li>● NOTIFICATION-LOG-MIB</li> <li>● CISCO-SYSLOG-EXT-MIB</li> </ul> |
| <ul style="list-style-type: none"> <li>● Generic MIBs</li> <li>● SNMPv2-SMI</li> <li>● CISCO-SMI</li> </ul> | <ul style="list-style-type: none"> <li>● Monitoring MIBs</li> <li>● NOTIFICATION-LOG-MIB</li> <li>● CISCO-SYSLOG-EXT-MIB</li> </ul>  |   |   |

|           |  |   |
|-----------|--|---|
|           | <ul style="list-style-type: none"> <li>● SNMPv2-TM</li> <li>● SNMPv2-TC</li> <li>● IANA-ADDRESS-FAMILY-NUMBERS-MIB</li> <li>● IANAifType-MIB</li> <li>● IANAiprouteprotocol-MIB</li> <li>● HCNM-TC</li> <li>● CISCO-TC</li> <li>● SNMPv2-MIB</li> <li>● SNMP-COMMUNITY-MIB</li> <li>● SNMP-FRAMEWORK-MIB</li> <li>● SNMP-NOTIFICATION-MIB</li> <li>● SNMP-TARGET-MIB</li> <li>● SNMP-USER-BASED-SM-MIB</li> <li>● SNMP-VIEW-BASED-ACM-MIB</li> <li>● CISCO-SNMP-VACM-EXT-MIB</li> <li>● MAU-MIB</li> <li>Ethernet MIBs</li> <li>● CISCO-VLAN-MEMBERSHIP-MIB</li> <li>● LLDP-MIB</li> <li>● IP-MULTICAST-MIB</li> <li>Configuration MIBs</li> <li>● ENTITY-MIB</li> <li>● IF-MIB</li> <li>● CISCO-ENTITY-EXT-MIB</li> <li>● CISCO-ENTITY-FRU-CONTROL-MIB</li> <li>● CISCO-ENTITY-SENSOR-MIB</li> <li>● CISCO-SYSTEM-MIB</li> <li>● CISCO-SYSTEM-EXT-MIB</li> <li>● CISCO-IP-IF-MIB</li> <li>● CISCO-IF-EXTENSION-MIB</li> <li>● CISCO-NTP-MIB</li> <li>● CISCO-VTP-MIB</li> <li>● CISCO-IMAGE-MIB</li> <li>● CISCO-IMAGE-UPGRADE-MIB</li> </ul> | <ul style="list-style-type: none"> <li>● CISCO-PROCESS-MIB</li> <li>● RMON-MIB</li> <li>● CISCO-RMON-CONFIG-MIB</li> <li>● CISCO-HC-ALARM-MIB</li> <li>Security MIBs</li> <li>● CISCO-AAA-SERVER-MIB</li> <li>● CISCO-AAA-SERVER-EXT-MIB</li> <li>● CISCO-COMMON-ROLES-MIB</li> <li>● CISCO-COMMON-MGMT-MIB</li> <li>● CISCO-SECURE-SHELL-MIB</li> <li>Miscellaneous MIBs</li> <li>● CISCO-LICENSE-MGR-MIB</li> <li>● CISCO-FEATURE-CONTROL-MIB</li> <li>● CISCO-CDP-MIB</li> <li>● CISCO-RF-MIB</li> <li>Layer 3 and Routing MIBs</li> <li>● UDP-MIB</li> <li>● TCP-MIB</li> <li>● OSPF-MIB</li> <li>● BGP4-MIB</li> <li>● CISCO-HSRP-MIB</li> </ul> |
| Standards | <ul style="list-style-type: none"> <li>● IEEE 802.1D: Spanning Tree Protocol</li> <li>● IEEE 802.1p: CoS Prioritization</li> <li>● IEEE 802.1Q: VLAN Tagging</li> <li>● IEEE 802.1s: Multiple VLAN Instances of Spanning Tree Protocol</li> <li>● IEEE 802.1w: Rapid Reconfiguration of Spanning Tree Protocol</li> <li>● IEEE 802.3z: Gigabit Ethernet</li> <li>● IEEE 802.3ad: Link Aggregation Control Protocol (LACP)</li> <li>● IEEE 802.3ae; 10 Gigabit Ethernet (Cisco Nexus 3064-X)</li> <li>● IEEE 802.3ba: 40 Gigabit Ethernet</li> <li>● IEEE 802.3an: 10GBASE-T (Cisco Nexus 3064-T and 3064-32T)</li> <li>● IEEE 802.1ab: LLDP</li> <li>● IEEE 1588-2008: Precision Time Protocol (Boundary Clock)</li> </ul>   |   |
| RFC       | <p>BGP</p> <ul style="list-style-type: none"> <li>● RFC 1997: BGP Communities Attribute</li> <li>● RFC 2385: Protection of BGP Sessions with the TCP MD5 Signature Option</li> <li>● RFC 2439: BGP Route Flap Damping</li> <li>● RFC 2519: A Framework for Inter-Domain Route Aggregation</li> <li>● RFC 2545: Use of BGPv4 Multiprotocol Extensions</li> <li>● RFC 2858: Multiprotocol Extensions for BGPv4</li> <li>● RFC 3065: Autonomous System Confederations for BGP</li> <li>● RFC 3392: Capabilities Advertisement with BGPv4</li> <li>● RFC 4271: BGPv4</li> <li>● RFC 4273: BGPv4 MIB: Definitions of Managed Objects for BGPv4</li> <li>● RFC 4456: BGP Route Reflection</li> <li>● RFC 4486: Subcodes for BGP Cease Notification Message</li> </ul>  |   |

- RFC 4724: Graceful Restart Mechanism for BGP
  - RFC 4893: BGP Support for Four-Octet AS Number Space
- OSPF
- RFC 2328: OSPF Version 2
  - RFC 3101: OSPF Not-So-Stubby-Area (NSSA) Option
  - RFC 3137: OSPF Stub Router Advertisement
  - RFC 3509: Alternative Implementations of OSPF Area Border Routers
  - RFC 3623: Graceful OSPF Restart
  - RFC 4750: OSPF Version 2 MIB
- RIP
- RFC 1724: RIPv2 MIB Extension
  - RFC 2082: RIPv2 MD5 Authentication
  - RFC 2453: RIP Version 2
- IP Services
- RFC 768: User Datagram Protocol (UDP)
  - RFC 783: Trivial File Transfer Protocol (TFTP)
  - RFC 791: IP
  - RFC 792: Internet Control Message Protocol (ICMP)
  - RFC 793: TCP
  - RFC 826: ARP
  - RFC 854: Telnet
  - RFC 959: FTP
  - RFC 1027: Proxy ARP
  - RFC 1305: Network Time Protocol (NTP) Version 3
  - RFC 1519: Classless Interdomain Routing (CIDR)
  - RFC 1542: BootP Relay
  - RFC 1591: Domain Name System (DNS) Client
  - RFC 1812: IPv4 Routers
  - RFC 2131: DHCP Helper
  - RFC 2338: VRRP
- IP Multicast
- RFC 2236: Internet Group Management Protocol, version 2
  - RFC 3376: Internet Group Management Protocol, Version 3
  - RFC 3446: Anycast Rendezvous Point Mechanism Using PIM and MSDP
  - RFC 3569: An Overview of SSM
  - RFC 3618: Multicast Source Discovery Protocol (MSDP)
  - RFC 4601: Protocol Independent Multicast - Sparse Mode (PIM-SM): Protocol Specification (Revised)
  - RFC 4607: Source-Specific Multicast for IP
  - RFC 4610: Anycast-RP using PIM
  - RFC 5132: IP Multicast MIB



شما میتوانید کلیه تجهیزات شبکه را با گارانتی و ضمانت اصالت کالا از فروشگاه اینترنتی مستر شبکه تهیه کنید.

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- [آشنایی با سیستم عامل NX-OS و تفاوت آن با IOS سیسکو](#)
- [قابلیت SPAN در سوئیچ های سیسکو](#)
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