CISCO
The bridge to possible

Cisco Nexus 3550-H Hydra

Contents

High-density, low-latency, physical layer switching

For enterprise network monitoring, management, and data replication

The Cisco Nexus® 3550-H Hydra is Nexus's highest density Layer 1 switch. Unlike traditional network switches that operate at the data-link layer (Layer 2), the Cisco Nexus 3550-H Hydra operates at the physical network layer (Layer 1). Connections through the device are made electrically through a matrix switch (see overleaf). This allows the device to tap into connections (for network monitoring), patch connections between ports (for reconfiguration), and fanout connections from one port to many (for high-speed applications), at nearly zero latency (<5ns).

Introducing QSFP-DD

Cisco Nexus 3550-H Hydra high density layer 1 matrix switch

The Cisco Nexus 3550-H Hydra (160) is the world's first networking device to use double-density QSFP connectors (QSFP-DD). QSFP-DD connectors are 100 percent backward compatible with legacy QSFP connectors, enabling a smooth transition path from legacy network cabling/connectors to these high-density connectors. The Cisco Nexus 3550-H Hydra is also available in a QSFP-only variant.

All-new management platform

Enterprise manageability features are core to the Cisco Nexus 3550-H Hydra.

The Cisco Nexus 3550-H Hydra features an all-new management platform based on the Cisco Nexus 3550-F Fusion product series. The Cisco Nexus 3550-H Hydra features a powerful x86-based management CPU, dual (1G and 10G) Ethernet management interfaces, USB- and RS232-based console access, and 10Gbps access from the management CPU to the data plane. It also offers high-quality PPS- and GPS-based time synchronization options for inline packet timestamping.

Packet-aware statistics and monitoring

The Cisco Nexus 3550-H Hydra operates at the physical layer and is fully packet aware.

Every port on the Cisco Nexus 3550-H Hydra is monitored for vital packet statistics, including the number of packets/bytes transmitted/received, and transmit/receive errors. The device also provides deep diagnostics on each of its 20 QSFP-DD ports including light levels, operating temperatures, transceiver capabilities, and more. All of these statistics are available at no latency cost on the critical path.

Transparent tapping

Replace 53 optical taps in a single 1RU device

Network monitoring is vital for logging, debugging, and compliance. While optical taps can be used for low latency network inspection, they consume valuable rack space and cannot be remotely managed. The Cisco Nexus 3550-H Hydra replaces 53 optical taps (159 lanes) in a single 1RU device. Taps through the 3550-H Hydra employ active signal regeneration so that the signal quality remains high while port-to-port latencies are as low as 3.2 ns with nearly undetectable jitter. This makes it nearly transparent to other devices in your network.
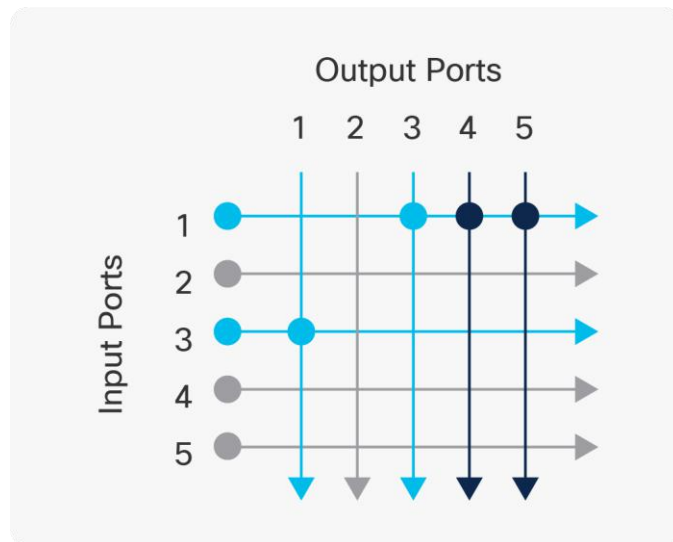

Figure 1.
Cisco Nexus 3550-H Hydra L1-144

Figure 2.
Cisco Nexus 3550-H Hydra L1-160

The Cisco Nexus 3550-H Hydra. A patch is configured between ports 1 and 3: all traffic from port 1 is directed to port 3, all traffic from port 3 is directed to port 1. Taps are configured from port 1 to ports 4 and 5: traffic from port 1 is replicated to ports 4 and 5 at latencies as low as 3.2 ns.

Layer 1 features

- Tap, patch, and fanout. 1:1 and 1:N connectivity on all ports***

- 3.2ns (min) port latency

- 1G/10Gb/s connectivity on all ports

- I/O signal conditioning and regeneration

Statistics

- Packet counters (RX, TX, dropped, etc.)

- Per-port status LEDs

- tcpdump all ports

- QSFP(-DD) diagnostics (light levels, temps, etc.)

- SNMP, local, and remote syslog

- LLDP TX/RX

- Time series logging to InfluxDB

Connectivity

- 20 QSFP-DD ports, 160x10G lanes (Cisco Nexus 3550-H Hydra 160) or 36 QSFP ports, for 144x10G lanes (Cisco Nexus 3550-H Hydra 144)

- QSFP (-DD) 8x [10GBASE-SR, 10GBASE-LR, 10GBASE-LRM, 1000BASE-SX, 1000BASE-LX]

- QSFP (-DD) Copper Direct Attach

- RJ45 / SFP+ management ports (1G/10G)

- RJ45 Industry standard serial port

- USB Micro serial port

- USB (for firmware upgrades)

- 2x SMA for GPS and PPS

Management

- x86-based management CPU
- CLI via serial, SSH, and telnet
- JSON RPC API for all CLI commands
- Automatic configuration via DHCP
- TACACS+ and multiuser support
- ACLs on management interface
- FW updates via SFTP, TFTP, HTTP and USB
- Onboard BASH and Python scripts
- Onboard Cron jobs
- Time sync via PPS, GPS, PTP and NTP, Low latency tapping, patching, and fan-out

General

- 19" 1RU, rack mount
- Weight: 15kg (24lbs)
- Dual, hot-swappable supplies
- Standard: AC 90-264V, 47-64 Hz, included IEC C13-C14 cables
- Optional: DC 40-72V
- Maximum consumption: 750W
- 3 hot-swappable fan modules
- Optional airflow direction (FTB, BTF)

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

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital® makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **https://www.cisco.com/go/offices**.