



The bridge to possible

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# Cisco Nexus 3550-F Fusion HPT

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## High-precision timestamping

**The Cisco Nexus® 3550-F Fusion HPT is a high-precision network tapping, aggregation, and monitoring solution, optimized for high-performance, low-latency networks.**

The device incorporates our world-leading HPT<sup>1</sup> time-stamping technology, for industry-leading 100ps (0.1ns) timestamps that are embedded in every packet. This makes the Cisco Nexus 3550-F Fusion HPT the highest-precision network aggregation and monitoring solution available on the market. The device also offers high-quality time synchronization to pulse-per-second (PPS), GPS, and Precision Time Protocol (PTP) sources, ensuring that every packet is globally synchronized as well as precisely timestamped.

## High-bandwidth ingress and egress

**The system offers 400Gb/s of ingress and configurable egress options of up to 80Gb/s.**

This ensures that tap aggregation continues to perform well even under adverse network conditions. The device supports up to 40 ingress ports operating at 1Gb/s<sup>2</sup>, 10Gb/s, or 40Gb/s<sup>2</sup> (400Gb/s total), with HPT timestamps at 100ps resolution. Egress is supported through between 1 and 8 ports operating at 10Gb/s each, or 1 to 2 ports operating at 40Gb/s<sup>2</sup> each. Egress ports also feature industry-standard Ethernet flow control, to allow lossless transmission even when capture devices are congested.

## Deep packet buffer hierarchy

**A deep, multilayered packet buffer architecture provides robust micro-burst protection.**

Correlated micro-bursts are a fact of life, especially in high-performance networks. Yet regulatory environments require that every packet be captured. The Cisco Nexus 3550-F Fusion HPT has a deep packet buffer hierarchy to ensure that packets are captured, time stamped, and transferred to long-term storage, even under extreme correlated micro-burst scenarios. It offers 32kB per-port buffers, 64kB per-quad-port buffers, and 32GB of global packet buffering (see figure overleaf). This multilayer architecture makes the Cisco Nexus 3550-F Fusion HPT the most reliable tap aggregation system available.

## Transparent tapping

**Replace 20 optical taps with a single 1RU device**

Optical taps are difficult to deploy and manage, and consume large amounts of rack space. Every ingress port on the Cisco Nexus 3550-F Fusion HPT can be configured as a Layer 1 tap, allowing the device to replace 20 optical taps in a single 1RU of rack space. Cisco Nexus 3550-F HPT taps are transparent to other devices. They add less than 5ns of delay to the tapped path, and nearly undetectable jitter.

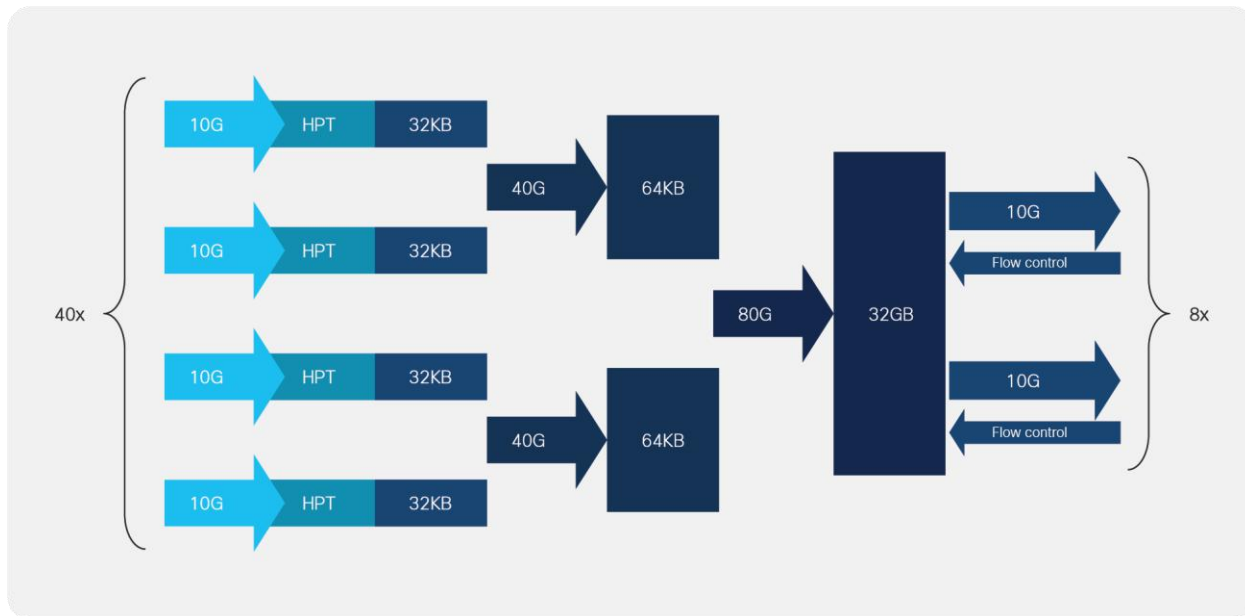
## Ease of use and manageability

**Ease of use and enterprise manageability features are core to the Cisco Nexus 3550-F Fusion range.**

Many users rate our CLI as one of the best they have operated. Every command available on the CLI is also available via a remote JSON RPC API. This makes the device easy to operate and to manage at scale. All Cisco Nexus 3550-F devices include standard enterprise manageability and deployability features, including automatic configuration (via DHCP), SNMP, TACACS+ authentication, onboard Python programmability, BASH shell access, and time-series logging.



**Figure 1.**  
Cisco Nexus 3550-F Fusion HPT



**Figure 2.**  
Cisco Nexus 3550-F Fusion HPT multilayer, deep packet buffer hierarchy

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## Aggregation

- 400Gb/s ingress (1GbE<sup>2</sup>/ 10GbE / 40GbE<sup>2</sup>)
- 100ps high-precision timestamping (HPT<sup>1</sup>)
- 80Gb/s egress (8x 10GE or 2x 40<sup>2</sup>GbE) with Ethernet flow control (IEEE 802.3x)

## Packet buffering

- 32kB per port buffer (40x)
- 64kB per quad port buffer (10x)
- 32GB deep buffer (shared)

## Time synchronization

- 72 channel GPS, GLONASS, QZSS, BeiDou
- Active antenna support (3.3V)
- Cold-start timesync acquisition <30s
- PPS in/out with selectable 50Ω termination
- PTP/NTP support via management port

## Connectivity

- 3x 16 SFP+ line cards, up to 48 ports
- 3x 4QSFP line cards, up to 12 ports
- Any 40 ports assignable as ingress
- Any 8 ports assignable as egress
- SFP+ Fiber (10GBASE-SR, 10GBASE-LR, 10GBASE-LRM, 1000BASE-SX, 1000BASE-LX)
- SFP+ Copper Direct Attach
- SMA for PPS in/out
- SMA for GPS in
- RJ45 management port
- RJ45 industry-standard serial port
- USB (for firmware upgrades)

## Footnotes

<sup>1</sup>Patent pending

<sup>2</sup>Scheduled for a future firmware release

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## Management

- 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
- Firmware updates via SFTP, TFTP, HTTP, and USB
- Onboard BASH and Python scripts
- Onboard Cron jobs

## Statistics

- Packet counters (RX, TX, dropped, etc.)
- Per port status LEDs
- Live packet dump
- SFP diagnostics (light levels, temps, etc.)
- SNMP, local, and remote syslog
- Time-series logging to InfluxDB

## General

- 19" 1RU, rack mount
- Weight: 11kg (24lbs)
- Dual, hot-swappable supplies
- Standard: AC 90-264V, 47-64 Hz, included IEC C13-C14 cables
- Optional: DC 40-72V
- Maximum consumption: 150W
- Dual hot-swappable fan modules
- Optional airflow direction (FTB, BTF)

## Cisco environmental sustainability

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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	<a href="#">Materials</a>
Information on electronic waste laws and regulations, including products, batteries, and packaging	<a href="#">WEEE compliance</a>

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