Cisco Nexus 3548 Switch with Algo Boost for High-Performance Trading

Business Overview

High-performance trading businesses know that a robust network environment that reduces latency can deliver a competitive advantage. With the ultimate goal of "capturing alpha," or helping investors achieve market-beating returns on investments, the main differentiators of the trading value chain include the capability to:

- Increase order execution speed
- Increase order flow and liquidity
- Enhance risk management
- Accelerate price discovery
- Capture opportunities during periods of volatility

High-performance trading networks must be able to respond to the increased speed requirements while also maintaining a detailed view of the performance of the network at any given time.

Cisco Nexus 3500 Platform

The Cisco Nexus® 3500 platform, a critical component of a Cisco high-performance fabric, further extends the leadership of the Cisco Nexus 3000 Series Switches by introducing the groundbreaking technology Algorithm Boost (or Algo Boost) integrated within Cisco's custom silicon application-specific integrated circuits (ASICs). Algo Boost allows a full-featured switch to achieve exceptionally low latency of 300 nanoseconds (ns) or less for all workloads—unicast and multicast, and Layer 2 and Layer 3—regardless of the features applied.

The Cisco Nexus 3548 Switch (Figure 1) is well suited for high-performance trading, high-performance computing, and big data environments, in which speed and visibility are of utmost importance. The Cisco Nexus 3548 with Algo Boost runs the industry-leading Cisco® NX-OS Software operating system, providing customers with comprehensive features and functions that are widely deployed globally.

Figure 1. Cisco Nexus 3548 Switch

Main Features of Cisco Nexus 3548 with Algo Boost

The Cisco Nexus 3548 is the first platform to incorporate Algo Boost technologies to deliver competitive advantage for high-performance trading customers.

Algo Boost features include:

- Normal Mode Latency: Process transactions as low as 250ns.
- Warp Mode Latency: Further reduce latency to 190ns for small-to-midsize deployments.
- Warp SPAN: Enable stock market data deliver to trading servers in as little as 50ns.
- Active Buffer Monitoring: Never miss another microburst.
- Network Address Translation (NAT): Execute trades at any venue, with no latency penalty.
- Embedded Remote Switched Port Analyzer (SPAN) with nanosecond timestamp: Monitor your traffic with unparalleled precision.

Hardware Specifications

- 48 fixed 1/10-Gbps Enhanced Small Form-Factor Pluggable (SFP+) ports
- Line-rate Layer 2 and Layer 3 throughput of up to 960 Gbps
- Compact one-rack-unit (1RU) form factor
- Dual redundant color-coded power supplies
- Four redundant color-coded fans

Comprehensive Feature Set with Cisco NX-OS

- Support for the IEEE 1588 Precision Time Protocol (PTP) standard
  - Time synchronization capability synchronizes switches and server's internal clocks to a network master clock.
- Full-featured unicast protocols including Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Routing Information Protocol (RIP) version 2
- Multicast protocols including Protocol-Independent Multicast sparse mode (PIM-SM), PIM source-specific mode (PIM-SSM), and Multicast Source Discovery Protocol (MSDP)
- Full support for access control lists (ACLs; port, VLAN, and routed) and quality of service (QoS; queueing and marking)
- Full support for troubleshooting tools such as SPAN and Ethanalyzer
- Switch management by Cisco Data Center Network Manager (DCNM)
  - Cisco DCNM is a Cisco NX-OS management tool that automates provisioning processes, proactively monitors the LAN by detecting performance degradation, secures the network, and streamlines the diagnosis of dysfunctional network elements.

For More Information

- Cisco Nexus 3548 Switch: http://www.cisco.com/go/nexus3548
- Cisco Nexus 3000 Series Switches: http://www.cisco.com/go/nexus3000
- Cisco NX-OS Software: http://www.cisco.com/go/nxos

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