# Cisco Nexus 3000 Series Switches

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## Ultra Low Latency with High Density

Cisco Nexus® 3000 Series Switches, part of the Unified Fabric component of the Cisco® Data Center Business Advantage (DCBA) architectural framework, now extends the comprehensive, proven innovations into the High Frequency Trading (HFT) market. The Cisco Nexus 3064 Switch is a high-performance, high-density, ultra-lowlatency Ethernet switch that is part of the new Cisco Nexus 3000 Series Switches.

**Figure 1.** Cisco Nexus 3064 Switch



The Cisco Nexus 3064 is well suited for financial co-location deployments, delivering features such as latency of less than a microsecond, line-rate Layer 2 and 3 unicast and multicast switching, and the support for 40 Gigabit Ethernet (40GbE) standards technologies on the data center–class Cisco NX-OS operating system. Figure 2 shows small- and larger-scale co-location deployment scenarios with Cisco Nexus 3000 Series Switches.

**Figure 2.** Cisco Nexus 3000 Series Switches in the Data Center Network
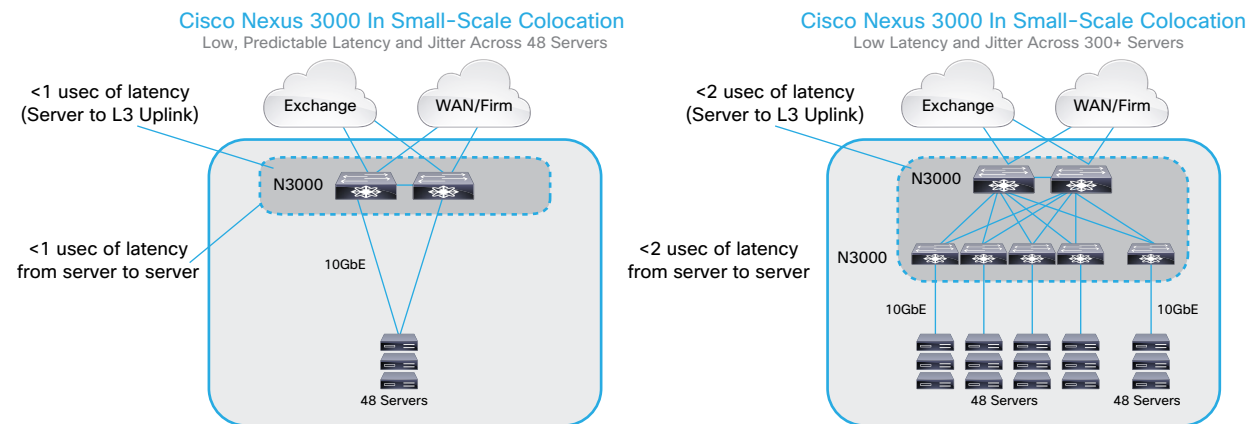
## Main Benefits of Cisco Nexus 3064

- Ultra low latency
  - Ultra-low nominal latency, enabling customers to implement high-performance infrastructures for high-frequency trading workloads

- Wire-rate Layer 2 and 3 switching on all 64 10 Gigabit Ethernet ports
  - 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 switch
  - Support for 40GbE standards technologies enabling the customers data center to be 40GbE-ready

- Purpose-built using the Cisco NX-OS operating system, with comprehensive, proven innovations
  - Modular OS built from the start for resiliency
  - Full Layer 3 unicast routing protocol suites including Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Routing Information Protocol Version 2 RIPv2
  - Full Layer 3 multicast routing protocol suites including Protocol Independent Multicast–Sparse Mode (PIM-SM) and Multicast Source Discovery Protocol (MSDP)
  - Integration with Cisco Data Center Network Manager (DCNM) and XML management tools

## Main Features of Cisco Nexus 3064

- One-rack-unit (1RU) form factor 1/10/40 Gigabit Ethernet switch offering throughput of up to 1.28 Tbps
- 48 fixed 1/10-Gbps Enhanced Small Form-Factor Pluggable (SFP+) ports and 4 fixed Quad SFP+ (QSFP+) ports
  - QSFP+ technology allows smooth transition from 10 Gigabit Ethernet to 40 Gigabit Ethernet.
- Line-rate Layer 2 and 3 switching
- Dual redundant power supplies
- Comprehensive unicast and multicast routing protocol support
  - Unicast protocols include BGP, OSPF, EIGRP, and RIPv2
  - Multicast protocols include PIM-SM and 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 Switched Port Analyzer (SPAN) and Ethanalyzer
- Support for the IEEE 1588* standard
  - Time synchronization capability synchronizes internal clocks according to a network master clock
- Switch management by Cisco 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 Family Switches:
http://www.cisco.com/go/nexus

Cisco Nexus 3000 Series Switches:
http://www.cisco.com/go/ nexus3000

Cisco NX-OS Software:
http://www.cisco.com/go/nxos

* Please check the release notes for feature availability.

**Cisco Nexus 3000 In Small-Scale Colocation**
Low, Predictable Latency and Jitter Across 48 Servers

<1 usec of latency (Server to L3 Uplink)

Exchange    WAN/Firm

N3000

<1 usec of latency from server to server

10GbE

48 Servers

**Cisco Nexus 3000 In Small-Scale Colocation**
Low Latency and Jitter Across 300+ Servers

<2 usec of latency (Server to L3 Uplink)

Exchange    WAN/Firm

N3000

N3000

<2 usec of latency from server to server

10GbE    10GbE

48 Servers    48 Servers