

Cisco NX-OS Software Release 7.3(0)N1(1) for the Cisco Nexus 5500 Series, Nexus 5600 Series and Nexus 6000 Series Switches

PB736958

This product bulletin introduces Cisco® NX-OS Software Release 7.3(0)N1(1) for the Cisco Nexus® 5500 Series, Nexus 5600 Series and Nexus 6000 Series Switches (Figure 1). This document summarizes the new features that this new release supports.

Figure 1. Cisco Nexus 5500 Series, Nexus 5600 Series & Nexus 6000 Series Switches



New Features

Cisco NX-OS 7.3(0)N1(1) for the Cisco Nexus 5500 Series, Nexus 5600 Series and Nexus 6000 Series Switches provide a robust and comprehensive feature set to address the high demands of mission-critical data centers.

NX-OS 7.3(0)N1(1) supports all hardware and software supported in prior NX-OS releases. In addition, NX-OS 7.3(0)N1(1) delivers the new Cisco Nexus 5672UP-16G switch that introduces 16-Gbps Fibre Channel on Cisco Nexus fixed switches and new innovative solutions for Cisco Programmable Fabric, Cisco Unified Fabric, Cisco Fabric Extenders(FEX), and Programmability. The Cisco Nexus 5600 switches are now integrated into Virtual Extensible LAN (VXLAN) Ethernet VPN (EVPN)–based Programmable Fabric. They include Chef and Puppet agent support for automation and extend the proven Cisco FEX architecture with support for 16-Gbps Fibre Channel over the Cisco Nexus 2348UPQ 10GE FEX. The following list summarizes the main new software features in this release:

- Programmable Fabric enhancements:
 - VXLAN EVPN control-plane support with the Cisco Nexus 5600 series switch acting as a leaf switch (Distributed IP Anycast Gateway), border-leaf switch, and spine switch with support for Bidirectional Protocol-Independent Multicast (Bidir-PIM) in the underlay
 - VXLAN EVPN hand-off, which includes classical Ethernet L2 and L3 hand-off
 - Auto-configuration for VXLAN EVPN networks, including Virtual Machine Tracker auto-configuration
 - VXLAN operations, administration and management (OAM) support

- Programmability enhancements:
 - Support for Chef and Puppet agents
- Fibre Channel over Cisco Nexus 2348UPQ with Cisco Nexus 5600 switch as the parent switch
- FEX enhancements:
 - Slow Drain for Fibre Channel over Ethernet (FCoE)/Slow Port Recovery
- Enhancements to Class-Based quality-of-service (cbQoS) MIB
- Link Aggregation Control Protocol (LACP) Fast Hello
- Graceful insertion and removal (GIR) enhancements:
 - Protocol isolation
 - FEX Group GIR Functionality
- Security enhancements:
 - Product Security Baseline enhancements
 - Conceptual Schema Definition Language (CSDL): No-Execute
- Layer 3 enhancements:
 - Layer 3 over virtual-port-channel (vPC) unicast
 - PIM Source-Specific Multicast (PIM-SSM) over vPC
 - Virtual Router Redundancy Protocol Version 3 (VRRPv3)
 - Lightweight Dynamic Host Configuration Protocol Version 6 (DHCPv6) Relay (LDRA)

Hardware Support

NX-OS 7.3(0)N1(1) supports the following new hardware:

- Cisco Nexus 5672UP-16G switch (N5K-C5672UP-16G)
- Cisco Nexus 2348TQ-E FEX (N2K-C2348TQ-E)
- Cisco Nexus 2248PQ 10GE FEX support for CVR-QSFP-SFP10G (FET-10G, SFP-10G-SR, SFP-10G-LR, SFP-10G-ER, and AOC)

Cisco Nexus 5672UP-16G

The Cisco Nexus 5672UP-16G is a VXLAN and 16-Gbps Fibre Channel–capable 1-rack-unit (1RU) 10-Gbps top-of-rack (ToR) switch (Figure 2).

Figure 2. Cisco Nexus 5672UP-16G



Main features include:

- 24 Unified Ports that support 16-, 8-, 4-, and 2-Gbps Fibre Channel or 1/10/40 Gigabit Ethernet or 10/40Gbps FCoE
- 128 buffer-to-buffer credits, providing SAN extension of up to 16 kilometers at 16-Gbps Fibre Channel speeds

Cisco Nexus 2348TQ-E

The Cisco Nexus 2348TQ-E is a 10GBASE-T FEX with 40-Gbps uplinks and support for 100 Megabit Ethernet (Figure 3).

Figure 3. Cisco Nexus 2348TQ-E



Table 1 lists all the new hardware supported in this release.

Table 1. New Hardware in Cisco NX-OS Release 7.3(0)N1(1)

Category	Hardware	Part Number
Cisco Nexus 5600 Series	Cisco Nexus 5672UP-16G	N5K-C5672UP-16G
		N5K-C5672UP-16G=
Cisco Nexus 2300 Series	Cisco Nexus 2348TQ-E	N2K-C2348TQ-E
		N2K-C2348TQ4F-E
		N2K-C2348TQ8F-E
		N2K-C2348TQ12F-E
		N2K-C2348TQ-10G-E=
Optics	Cisco Nexus 2248PQ support for Quad Small Form-Factor Pluggable (QSFP)-to-SFP or Enhanced SFP (SFP+) adapter (QSA)	CVR-QSFP-SFP10G
		CVR-QSFP-SFP10G=

NX-OS 7.3(0)N1(1) supports all other hardware supported in prior NX-OS software releases.

Software Support

NX-OS 7.3(0)N1(1) supports all the software features previously supported on the Cisco Nexus 5500 Series Nexus 5600 Series & Nexus 6000 Series Switches up through Cisco NX-OS 7.2(0)N1(1).

NX-OS 7.3(0)N1(1) is compatible with Cisco In-Service Software Upgrade (ISSU) with NX-OS Release 7.2(1)N1(1). In addition, NX-OS 7.3(0)N1(1) supports the new software features described in Table 2.

For more detailed information about supported features and ISSU, refer to the NX-OS 7.3(0)N1(1) release notes (see "[For More Information](#)" at the end of this document).

Table 2. New Software Features in Cisco NX-OS Release 7.3(0)N1(1)

Category	New Feature	Description
Programmable Fabric	VXLAN (L2/L3 gateway and Border Gateway Protocol [BGP] EVPN)	VXLAN with the Multiprotocol BGP (MP-BGP) EVPN control plane is supported with the Cisco Nexus 5600 series switch acting as a leaf switch (L2/L3 Gateway with Distributed Anycast Gateway and vPC), border-leaf switch (L2/L3 Gateway, Virtual Routing and Forwarding lite [VRF-lite], and Classic Ethernet Layer 2 with and without vPC), and spine switch with and without a route reflector. For VXLAN multi-destination traffic, Bidir-PIM is required.
	VXLAN EVPN Auto-configuration	Virtual Machine Tracker auto-configuration automatically configures a tenant for provisioning. The Virtual Machine Tracker auto-configuration retrieves information about a tenant from the database (Lightweight Directory Access Protocol [LDAP]) and sends the necessary configuration commands for the provisioning process.
	VXLAN OAM	Ethernet OAM is a protocol for installing, monitoring, and troubleshooting Ethernet networks to enhance management in VXLAN-based overlay networks.
Programmability	Support for Chef and Puppet agents	Open agents such as Chef and Puppet provide automated network configuration and management capabilities. These agents cannot be directly installed on the Cisco Nexus switches. Instead, they run in a special environment: a decoupled execution space within a Linux Container (LXC) called the Open Agent Container (OAC).
	Network Configuration Protocol (NETCONF) RFC 4741 compliance	NETCONF (RFC 4741) is an IETF network management protocol that provides mechanisms for installing, manipulating, and deleting network device configurations.
Storage	Fibre Channel over Cisco Nexus 2348UPQ (with Cisco Nexus 5600 platform switch as parent)	The host interface (HIF) ports, which are unified ports on the Cisco Nexus 2348UPQ Fabric Extender (FEX) can now be configured and used as Fibre Channel ports to run 2-, 4-, 8-, or 16-Gbps Fibre Channel.
	Implicit bind for virtual Fibre Channel (vFC)	You can now create a vFC and implicitly bind it to an Ethernet interface or a port channel using a single command. You must make sure that the vFC identifier matches the Ethernet interface or port-channel identifier. The Ethernet interface can be a module (slot or port) or a Fabric Extender (FEX) interface (chassis, slot, or port).
Application Experience and IT Simplicity	Graceful Insertion Removal-Protocol Isolate	The default mode for GIR is now isolate. By using the isolate command to isolate the protocols, the switch can be isolated from the network but not shut down. This approach retains neighborhood and prevents loss of data traffic.
	FEX Group GIR Functionality	GIR can be used to perform maintenance and software upgrades of the switches and the connected FEXs. A FEX group is added to optimize the procedure to bring up or take down the FEX.
	LACP Fast Hello	This feature is enhanced to change the LACP short timeout value for the lACP fast rate command to modify the duration of the LACP Fast Rate timeout. Prior to this enhancement, even when the rate was set to fast (1 second), the timeout was still 15 seconds. This enhancement introduces a configurable short timeout with a range of 3 to 15 seconds.
	Enhancements to cbQoS MIB	The following cbQoS MIB tables now are also supported by QoS policies: <ul style="list-style-type: none"> cbQoSClassMapStats cbQoSMatchStmntStats cbQoSQueueingStats
	Cisco IOS® Software parity features: <ul style="list-style-type: none"> 63-character host name Exec Banner 128-character VLAN name 32-character Network Time Protocol (NTP) authentication key 	<p>The character limit for a switch name and a host name is increased from 32 to 63 alphanumeric characters.</p> <p>The Exec banner is displayed after a user logs in to a switch. This banner can be used to post reminders to your network administrators.</p> <p>The size of VLAN long names that you can configure has now been increased from 32 to 128 characters.</p> <p>You can now use up to 32 alphanumeric characters for the MD5 message digest string.</p>

Category	New Feature	Description
Security	CSDL (No Execute)	Runtime protections provide increased resiliency to a product while it is running. They typically allow the software to detect and correct certain types of undesirable behavior, or allow the product to terminate or restart to regain its integrity. These technologies help prevent malicious software from gaining a foothold in a system. With the enhancement in this release, certain areas of memory can now be marked as "no execute": that is, the areas cannot be run on the CPU. This feature normally is enabled for areas of memory that are writable, thus preventing an attacker from writing memory during exploitation of a vulnerability and then subsequently running the written data.
	SHA-512 Algorithm Support to verify OS	With this enhancement, the show file <filename> command displays an option to calculate the SHA-512 sum, and the show file bootflash: file sha512sum command displays the SHA-512 checksum for the input file.
	Login Block Per User	The Login Block Per User feature helps detect suspected Denial of Service (DoS) attacks and slow down dictionary attacks. You can configure login parameters to block logins per user (applicable only for local users).
Fabric Extender	Cisco Nexus 2300 FEX enhancements: Slow Port Recovery/Slow Drain for FCoE	During slow-drain detection, the driver checks for the pause condition for each No-Drop class per port at an interval of 100 milliseconds.
Layer 3 Leadership	Layer 3 over vPC unicast	A Layer 3 device can form peering adjacency between both the vPC peers in a vPC domain. Traffic sent over the peer link will not have the time-to-live (TTL) value decremented. The Layer 3 device can form peering adjacency with both vPC peers.
	Layer 3 FEX Scale for Cisco Nexus 5696Q Switch: 32 FEX nodes	Layer 3 FEX support for the Cisco Nexus 5696Q is now increased from 24 to 32 nodes.
	PIM-SSM over vPC	PIM-SSM traffic is supported.
	IPv6 enhancements: LDRA VRRPv3	LDRA forwards DHCPv6 messages between clients and servers when they are not on the same IPv6 link, allowing relay agent information to be inserted by an access node that performs a link-layer bridging (non-routing) function. VRRPv3 enables a group of switches to form a single virtual switch to provide redundancy and reduce the possibility of a single point of failure in a network. The LAN clients can then be configured with the virtual switch as the default gateway.

Licensing Information

NX-OS 7.3(0)N1(1) also supports a new license for the 16-Gbps Fibre Channel capability on the 24 unified ports of the Cisco Nexus 5672UP-16G (Table 3).

Table 3. New Software License in Cisco NX-OS Release 7.3(0)N1(1)

License Part number	Description
N56-12P-SSK9	Cisco Nexus 5672UP-16G 12-port storage license

Service and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing Cisco Nexus 5500 Series, Nexus 5600 Series and Nexus 6000 Series Switches in your data center. Our innovative services are delivered through a unique combination of people, processes, tools, and partners and focus on helping you increase operation efficiency and improve your data center network. Cisco Advanced Services use an architecture-led approach to help you align your data center infrastructure with your business goals and provide long-term value. Cisco SMARTnet™ Service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources. With this service, you can take advantage of the Cisco Smart Call Home service capability, which offers proactive diagnostic information and real-time alerts for your Cisco Nexus 5500 Series, Nexus 5600 Series and Nexus 6000 Series Switches.

Spanning the entire network lifecycle, Cisco Services offerings help increase investment protection, optimize network operations, provide migration support, and strengthen your IT expertise. For more information about Cisco Data Center Services, visit <http://www.cisco.com/go/dcservices>.

Cisco Capital Financing to Help You Achieve Your Objectives

Cisco Capital[®] financing can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce capital expenditures (CapEx), accelerate your growth, and optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital financing is available in more than 100 countries. [Learn more.](#)

For More Information

For more information about the Cisco Nexus 5500 Series, Nexus 5600 Series and Nexus 6000 Series Switches, visit the product homepage at <http://www.cisco.com/go/nexus> or contact your local account representative.



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 www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)