



Cisco Nexus 9000 Series NX-OS IP Fabric for Media Release Notes, Release 10.2(3)F

This document describes the Cisco IP fabric for media solution, new hardware and software features, upgrade instructions, and caveats for Cisco NX-OS Release 10.2(1)F software for use on the following:

- N9K-X9624D-R2
- N9K-C9508-FM-R2

Table 1. Online History Change

Date	Description
April 26, 2022	Cisco NX-OS Release 10.2(3)F became available.

IP Fabric for Media

Today, the broadcast industry uses a serial digital interface (SDI) router and SDI cables to transport video and audio traffic. The SDI cables can carry only a single unidirectional signal. As a result, many cables, frequently stretched over long distances, is required, making it difficult and time-consuming to expand or change an SDI-based infrastructure.

Cisco’s IP fabric for media solution helps transition from an SDI router to an IP-based infrastructure. In an IP-based infrastructure, a single cable has the capacity to carry multiple bidirectional traffic flows and can support different flow sizes without requiring changes to the physical infrastructure. The solution uses Cisco Nexus 9000 Series switches in conjunction with the Cisco non-blocking multicast (NBM) algorithm (an intelligent traffic management algorithm) and with or without the Cisco DCNM Media Controller to provide a highly reliable (zero drop multicast), highly visible, highly secure, and highly available network.

Cisco Nexus 9000 Series NX-OS IP Fabric for Media Release 10.2(2)F supports two deployment methods:

- Spine-leaf topology—A single or multi-spine deployment method with variable flow size that allows the NBM fabric to form a multicast flow.
- Single modular switch—An architecture suitable for fixed deployments, with the controller providing features such as flow visibility, security, and monitoring.

Supported Device Hardware

Table 2 lists the hardware that the Cisco Nexus 9000 Series NX-OS IP Fabric for Media Release 10.2(2)F supports. For additional information about the supported hardware, see the [Hardware Installation Guide](#) for your Cisco Nexus 9000 Series device.

Table 2. Cisco Nexus 9000 Series Hardware

Product ID	Hardware Description	Role in Topology
N9K-C93108TC-EX	Cisco Nexus 93108TC-EX 1-RU switch with 48 10GBASE-T ports and 6 40/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93180YC-EX	Cisco Nexus 93180YC-EX 1-RU switch with 48 10/25-Gigabit Ethernet ports and 6 40/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology

Product ID	Hardware Description	Role in Topology
N9K-C93108TC-FX	Cisco Nexus 93108TC-FX 1-RU Top-of-Rack switch with 48 10GBASE-T (copper) ports and 6 40/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93180YC-FX	Cisco Nexus 93180YC-FX 1-RU Top-of-Rack switch with 48 10/25-Gigabit SFP28 ports and 6 40/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C9348GC-FXP	Cisco Nexus 9348GC-FXP switch with 48 100M/1GBASE-T (copper) ports, 4 10/25-Gigabit SFP28 ports, and 2 40/100-Gigabit QSFP ports	Leaf switch in spine-leaf topology
N9K-C93180YC-FX3S	Cisco Nexus 93180YC-FX3S 1-RU Top-of-Rack switch with 48 25/50/100-Gigabit Ethernet SFP28 ports and 6 10/25/40/50/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93180YC-FX3	Cisco Nexus 93180YC-FX3 1-RU Top-of-Rack switch with 48 25/50/100-Gigabit Ethernet SFP28 ports and 6 10/25/40/50/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93180YC-FX3P	Cisco Nexus 93108TC-FX3P 1-RU Top-of-Rack switch with 48 10GBASE-T (copper) ports and 6 40/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93216TC-FX2	Cisco Nexus 93216TC-FX2 2-RU switch with 96 100M/1G/10G RJ45 ports and 12 40/100-Gigabit QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93360YC-FX2	Cisco Nexus 93360YC-FX2 2-RU switch with 96 10/25-Gigabit SFP+ ports and 12 40/10-Gigabit Ethernet QSFP28 ports	Leaf switch in spine-leaf topology
N9K-C93240YC-FX2	Cisco Nexus 93240YC-FX2 1.2-RU Top-of-Rack switch with 48 10/25-Gigabit SFP28 fiber ports and 12 40/100-Gigabit Ethernet QSFP28 ports	Spine or leaf switch in spine-leaf topology
N9K-C9336C-FX2	Cisco Nexus 9336C-FX2 1-RU switch with 36 40/100-Gigabit Ethernet QSFP28 ports	Spine or leaf switch in spine-leaf topology
N9K-C9336C-FX2-E	Cisco Nexus 9336C-FX2-E 1-RU switch with 36 40/100-Gigabit Ethernet QSFP28 ports	Spine or leaf switch in spine-leaf topology
N9K-C9364C	Cisco Nexus 9364C 2-RU switch with 64 40/100-Gigabit QSFP28 ports and 2 1/10-Gigabit SFP+ ports	Spine switch in spine-leaf topology

Product ID	Hardware Description	Role in Topology
N9K-C9316D-GX	Cisco Nexus 9316D 1RU switch with 16 fixed 40/100/400G QSFP-DD ports	Spine switch in spine-leaf topology
N9K-C93600CD-GX	Cisco Nexus 93600CD-GX 1RU switch with 28 fixed 40/100G QSFP-28 ports and 8 fixed 40/100/400G QSFP-DD ports	Spine or leaf switch in spine-leaf topology
N9K-C9364C-GX	Cisco Nexus 9364C-GX 2RU switch with 64 fixed 40/100G QSFP-28 ports	Spine or leaf switch in spine-leaf topology
N9K-C9364D-GX2A	Cisco Nexus 9364D-GX2A is a 2-Rack-Unit (2RU) switch with 64 fixed 40/100/400G QSFP-DD ports and two fixed 1/10G SFP+ ports	Spine or leaf switch in spine-leaf topology
N9K-C9348D-GX2A	Cisco Nexus 9348D-GX2A is a 2-Rack-Unit (2RU) switch with 48 fixed 40/100/400G QSFP-DD ports and two fixed 1/10G SFP+ ports	Spine or leaf switch in spine-leaf topology
N9K-C9332D-GX2B	Cisco Nexus 9332D-GX2B is a compact form-factor 1-Rack-Unit (1RU) switch with 32 fixed 40/100/400G QSFP-DD ports and two fixed 1/10G SFP+ ports	Spine or leaf switch in spine-leaf topology
Cisco Nexus 9504 or 9508 switch with the following line cards: N9K-X9636C-R N9K-X9636C-RX N9K-X9636Q-R	Cisco Nexus 9504 4-slot or 9508 8-slot switch N9K-X9636C-R: 36-port 40/100-Gigabit Ethernet QSFP28 line card N9K-X9636C-RX: 36-port 40/100-Gigabit Ethernet QSFP28 line card N9K-X9636Q-R: 36-port 40-Gigabit Ethernet QSFP+ line card	Spine in spine-leaf topology or single modular switch
N9K-X9624D-R2 N9K-C9508-FM-R2	N9K-X9624D-R2 Line card with 24 400G QSFP-DD ports (only to be used with 8-slot chassis) N9K-C9508-FM-R2 Fabric module for 400G line card (only to be used with 8-slot chassis)	Spine in spine-leaf topology or single modular switch

New and Enhanced Features

The following features are enhanced for Cisco Nexus 9000 Series NX-OS IP Fabric for Media Release 10.2(3)F.

Feature	Description
VRF Aware Egress NAT for PMN Flows	IPFM supports Unicast to Multicast NAT, Multicast to Unicast NAT, Multicast to Multicast NAT, and Egress NAT on non-default VRF.
NAT Support on Sub-interface and SVI for Native	Network Address Translation (NAT) is not supported with sub-interface.

Feature	Description
Multicast Flows	
VRF Aware Egress NAT for Native Multicast Flows	IPFM supports VRF aware egress NAT for native multicast flows.
PMN PIM Passive Multicast to Multicast Egress NAT	PMN support for egress multicast NAT in NBM PIM-Passive mode.
PMN PIM Active Multicast to Unicast NAT	PMN support for Multicast to Unicast NAT in PIM-Active mode.
PMN PIM Passive Multicast to Unicast NAT	PMN support for Multicast to Unicast NAT in PIM-Passive mode.
IGMP SG Host Proxy in PIM Passive mode	PMN support for IGMP SG Host Proxy in PIM-Passive mode.
PMN PIM Active Unicast to Multicast NAT	PMN support for Unicast to Multicast NAT in PIM-Active mode.
PMN PIM Passive Unicast to Multicast NAT	PMN support for Unicast to Multicast NAT in PIM-Passive mode.

Open Issues

There are no open issues in Cisco Nexus 9000 Series NX-OS IP Fabric for Media Release 10.2(2)F.

Resolved Issues

There are no resolved issues in Cisco Nexus 9000 Series NX-OS IP Fabric for Media Release 10.2(2)F.

Limitations

When using ASM (IGMPv2), the bandwidth is reserved between the receiver leaf switch and the spine switch even when the sender is local to the receiver leaf switch.

NBM static OIF can include an SVI; however, an IGMP snooping entry must be manually created to force the traffic out of the Layer 2 physical interface.

To prevent packet drops for NBM flows, configure 5% more bandwidth than the traffic being sent.

Upgrade Instructions

Follow these steps to upgrade from a Cisco NX-OS 7.x or 9.x release to Cisco NX-OS Release 10.2(2)F in an IP fabric for media deployment.

Note: For Cisco Nexus 9504 and 9508 switches with -R line cards, you must upgrade from Cisco NX-OS Release 7.0(3)F3(4) to a 10.x release.

1. Shut down the endpoint-facing ports on the switches.
2. Disable NBM (using the **no feature nbm** command).

3. Disable the **ip pim pre-build-spt force** command on the spine switches in your fabric.
4. Disable PIM passive mode (using the **no ip pim passive** command).
5. Upgrade the switch software from 7.x or 9.x to 10.1(1).
6. For Cisco Nexus 9504 and 9508 switches with -R line cards, configure these TCAM carving commands in the following order and then reload the switch:

```
hardware access-list tcam region redirect_v6 0
hardware access-list tcam region ing-nbm 2048
```
7. Upgrade DCNM.
8. Configure PIM and MSDP, if applicable.
9. Enable NBM (using the **feature nbm** command).
10. Configure NBM policies using the CLI or DCNM. (See the *Cisco Nexus 9000 Series IP Fabric for Media Solution Guide, Release 10.1(x)*.)
11. If you're not using DCNM, disable IGMP static OIF and create an NBM flow definition to establish a flow.
12. Re-enable all ports facing the endpoints.
13. On configuring "feature nbm", DEFAULT VRF will not come in any PMN mode (pim-active/passive). You must configure it explicitly using command "nbm mode pim-active" / "nbm mode pim-passive" under Default VRF.
14. On configuring NBM non-default VRF using "nbm vrf <foo>", NON-DEFAULT VRF will not come in any PMN mode (pim-active/passive). You must configure it explicitly using command "nbm mode pim-active" / "nbm mode pim-passive" under Non-Default VRF.

Related Documentation

- *Cisco Nexus 9000 Series IP Fabric for Media Solution Guide, Release 10.2(x)*
- *Cisco Nexus 9000 Series NX-OS Release Notes, Release 10.2(x)*
- *Cisco Nexus 9000 Series NX-OS Verified Scalability Guide, Release 10.2(x)*
- *Cisco Nexus 3000 and 9000 Series NX-API REST SDK User Guide and API Reference*
- *Cisco DCNM Media Controller Configuration Guide, Release 11.5(1)*
- *Cisco DCNM Installation and Upgrade Guide for Media Controller Deployment, Release 11.5(1)*
- The entire Cisco Nexus 9000 Series NX-OS documentation set is available at the following URL:
<http://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/tsd-products-support-series-home.html>

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to nexus9k-docfeedback@cisco.com. We appreciate your feedback.

Legal Information

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. (1721R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2022 Cisco Systems, Inc. All rights reserved.