CISCO Nexus 3548 Switch NX-OS Verified Scalability Guide User Guide

Contents

CISCO Nexus 3548 Switch NX-OS Verified Scalability

Product Information

This document provides the verified scalability limits and configuration limits for the Cisco Nexus 3548 Switch running on Cisco NX-OS Release 10.4(1)F. It includes information on various features, such as VLANs, BFD neighbors, STP logical interfaces, MAC
table size, port channels, system logging destination ports, SPAN sessions, Layer 3 interfaces, VRFs, IPv4 routes, multicast routes, IGMP Snooping groups, TCAM entries for ACLs, HSRP, VRRP, BGP neighbors, OSPF neighbors, PIM neighbors, NAT translations, and multicast service reflection.

Verified Scalability Limits – Unidimensional

The following table provides the verified scalability limits for Cisco NX-OS Release 10.4(1)F:

Feature	Verified Topology	Verified Maximum
Active VLANs per switch	507 (vPC – normal mode)	507 (with RSTP)
BFD neighbors	0	9,216
MTU	9,216	9,216
STP logical interfaces	2,500	9,000
MST instances	63	64
MAC table size	8,192	40,000 (vPC, Normal mode)
Port Channels	40 vPC port-channels 8 non-vPC port-channels	40 vPC port-channels 24 non-vPC port-channels

Product Usage Instructions

To use the Cisco Nexus 3548 Switch, follow these instructions:

1. Ensure that your scale requirements are within the Verified Topology or Verified Maximum limits described in the manual.
2. If your scale requirements exceed these limits, contact your Cisco representative for further assistance.
3. Configure the switch based on your specific requirements while ensuring that the scale capability of the hardware is not exceeded.
4. Refer to the provided tables for the configuration limits of various features.
5. For any non-default CoPP values used for vPC Verified Topology, refer to Table 2 in the manual.

Please note that this is only a summary of the information provided in the user manual. For detailed configuration instructions and additional information, refer to the Cisco Nexus 3548 Switch NX-OS Verified Scalability Guide, Release 10.4(1)F.

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Verified Scalability Limits

This document describes the Cisco NX-OS configuration limits for the Cisco Nexus 3548.

Introduction

- This document lists the Cisco verified limits for topologies that include Layer 2 and Layer 3 feature configurations.
- In the following tables, the Verified Topology column lists the verified scaling capabilities with all listed features enabled at the same time. The numbers listed here exceed those used by most customers in their topologies. The scale numbers listed here are not the maximum verified values if each feature is viewed in isolation.
- The Verified Maximum column lists the maximum scale capability tested for the corresponding feature individually. This number is the absolute maximum currently supported by the Cisco NX-OS Release software for the corresponding feature. If the hardware is capable of a higher scale, future software releases may increase this verified maximum limit.

Note

If your scale requirements exceed either the Verified Topology or the Verified Maximum limit, please contact your Cisco representative. Based on your requirements, it may be possible to validate support for your requirement, as long as the scale capability of the hardware is not exceeded.

Verified Scalability Limits – Unidimensional

The tables in this section list the verified scalability limits for Cisco NX-OS Release 10.4(1)F.

Table 1: Layer 2 and Layer 3 Topology Configuration Limits

Feature	Verified Topology	Verified Maximum
Active VLANs per switch	507 (vPC – normal mode)	507 (with RSTP) 4000 (with MSTP)
BFD neighbors	0	32
MTU	9,216	9,216
STP logical interfaces	2,500	9,000
MST instances	63	64
MAC table size	8,192	40,000 (vPC , Normal mode) 65,532 (non-vPC , Normal mode) 8,192 (non-vPC , Warp mode)
Port Channels	40 vPC port-channels 8 non-vPC port-channels	40 vPC port-channels 24 non-vPC port-channels

Feature	Verified Topology	Verified Maximum
Number of member ports per Port Channel	16	24
Number of system logging destination ports	0	8
SPAN sessions	4 active sessions [1]	4 active bi-directional sessions[2] 1 destination ports per session
Layer 3 physical interfaces	10	48
Layer 3 SVI, subinterfaces, EtherChannels	256	1,024
VRF	10	200
IPv4 hosts	4,096	65,535 [3]
IPv4 routes (LPM)	8192 (vPC , Normal mode) 4096 (non-vPC , Warp mode)	24,576 (vPC , Normal mode) 24,576 (non-vPC , Normal mode) 4096 (non-vPC , Warp mode)
Multicast routes	4000 (vPC , Normal mode) 7,990 (non-vPC , Warp mode)	4000 (vPC , Normal mode) 8,192 (non-vPC , Normal mode)
IGMP Snooping groups	3,000	8,192
ECMP[4]	2-way	32-way
TCAM entries for ACL	384 ingress (Normal mode) 128 ingress (Warp mode)	3,000 ingress, 1,000 egress (Normal mode)
HSRP	256	500
VRRP	250[5]	256[6]
Configurable QoS groups	4	4
BGP neighbors	85	100
OSPF neighbors	150 (in a single area, area 0)	150 (in a single area, area 0)
PIM neighbors	250	250
NAT translations	250	1023
Multicast Service Reflection sessions	400	1023 (Regular mode) 2047 (Fast Pass mode)

1. Allows same SPAN source in a single direction in 2 SPAN sessions with difference destinations.
2. 4 active SPAN sessions regardless of the direction of the SPAN session.

3. The host IP address pattern can lead to a hash collision in the host table and therefore the number of host routes programmed will be lesser than 65,535. To avoid a collision, use a different IP address range.
4. Only supported in Normal Traffic Forwarding mode.
5. A combination of HSRP and VRRP groups, where the total is 250.
6. A combination of HSRP and VRRP groups, where the total is 250.

   Note The following non-default CoPP values were used for some protocols for the verified topology scale numbers.

Table 2: Non-Default CoPP Values Used for vPC Verified Topology

Default Values	Non-Default Values
class copp-s-routingProto2 police pps 1300 class copp-s-routingProto1 police pps 1000 class copp-s-pimreg police pps 200 class copp-s-lldp police pps 500	class copp-s-routingProto2 police pps 500 class copp-s-routingProto1 police pps 1500 class copp-s-pimreg police pps 600 class copp-s-lldp police pps 800

Table 3: Non-VPC Scale Numbers of Cisco Nexus N3548-X Switches

Feature	Verified Topology	Verified Maximum
Active VLANs per switch	605 (MST Mode)	507 (RSTP Mode) 4013 (MSTP Mode)
BFD neighbors	16	32
MTU	9,216	9,216
STP logical interfaces	2,500	9000
MST instances	1	64
MAC table size	7375 (90% approx.)	65532 (Non-warp Mode) 8192 (Warp Mode)
Port Channels	7 Non-vPC port-channels	24
Number of member ports per Port Channel	9	24
Number of system logging destination ports	0	8
SPAN sessions	4 Active sessions 7	4
Layer 3 physical interfaces	10	48

Feature	Verified Topology	Verified Maximum
Layer 3 SVI, subinterfaces, EtherChannels	250	1024
VRF	11	200
IPv4 hosts	7400 (90% approx.)	65,535 (Normal Mode) 8196 (Warp Mode)
IPv4 routes (LPM)	3700 (Non-vPC , WARP mode)	24,576 (Non-vPC, Normal Mode) 4096 (Warp Mode)
Multicast routes	3680 (Non-vPC, WARP mode)	8192 (VPC Normal Mode) 4096 (Non-VPC, Normal Mode)
IGMP Snooping groups	3,000	8192
ECMP 8	2-way	32-way
TCAM entries for ACL	384 ingress (Normal mode) 128 ingress (WARP mode)	3000 Ingress, 1000 Egress
HSRP	256	500
VRRP	250 9	256
Configurable QoS groups	4	4
BGP neighbors	10	100
OSPF neighbors	10 (in a single area, area 0)	150
PIM neighbors	100	250
NAT translations	10	1023
Multicast Service Reflection sessions	400	1023 (Regular mode) 2047 (Fast Pass mode)

Allows same SPAN source in a single direction in 2 SPAN sessions with difference destinations.
Only supported in Normal Traffic Forwarding mode.
A combination of HSRP and VRRP groups, where the total is 250.

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