

# Cisco Nexus 9000 Series NX-OS Verified Scalability Guide, Release 9.3(10)


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# Introduction

This document describes the Cisco NX-OS configuration limits for Cisco Nexus 9000 Series switches.

The values provided in this guide should not be interpreted as theoretical system limits for Cisco NX-OS hardware or Cisco NX-OS software. These limits refer to values that have been validated by Cisco. They can increase over time as more testing and validation is done.

## Verified Scalability Limits - Unidimensional

The tables in this section list the verified scalability limits for the Cisco Nexus 9000 Series switches for Cisco NX-OS Release 9.3(10).

These limits are validated with a unidimensional configuration. The values are provided in these tables focus on the scalability of one particular feature at a time.

Each number is the absolute maximum that is currently supported by this Cisco NX-OS release for the corresponding feature. If the hardware is capable of a higher scale, future software releases could increase this verified maximum limit. Results might differ from the values that are listed in this guide when you try to achieve maximum scalability with multiple features enabled.



**Note**

1. If only one number is provided, the verified limit applies to all supported platforms and line cards.
2. Verified limits are provided only for supported platforms.
3. If a feature is not supported for a particular platform, the verified limit is not provided.

***Table 1: Cisco Nexus 2000 Series Fabric Extenders (FEX) Straight Through Mode Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Fabric Extenders[1] and Fabric Extender server interfaces | Nexus 9300, 9300-EX, and 9300-FX/FX2/FX3 switches | 16 and 768 |
| | Nexus 9500 switches | 32 and 1536 |
| VLANs across all Fabric Extenders | Nexus 9300 and 9500 switches | 2000 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 562 |
| VLANs per Fabric Extender server interface[2] | Nexus 9300, 9300-EX, 9300-FX/FX2/FX3, and 9500 switches | 75 |
| Port channels | Nexus 9300 switches | 256 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3 switches + FEX | 511 |
| | Nexus 9500 switches | 426 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Unique Fabric Extenders per Cisco Nexus 9500 Series supported line card | Nexus 9500 switches | 12 |

[1] When FEX configured using "AA" mode, then the maximum number of 6 FEX on the NFE base ToR and 16 FEX for the LSE base ToR are supported.

[2] For FEX HIF port channels, Cisco recommends that you enable STP port type edge using the **spanning tree port type edge [trunk]** command.

***Table 2: ePBR Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Maximum services per switch | Nexus 9300 and 9500 switches | 150[3] |
| Endpoints per service | Nexus 9300 and 9500 switches | 32 |
| ePBR policies per switch | Nexus 9300 and 9500 switches | 150 |
| Policies per VRF | Nexus 9300 and 9500 switches | 16 |
| Services per chain | Nexus 9300 and 9500 switches | 6 |
| Match per policy. | Nexus 9300 and 9500 switches | 16 |
| Aces per match | Nexus 9300 and 9500 switches | 256 |

[3] Only 62 unique ACLs can be configured per slice of ASIC. Each ACL takes one label. If the same ACL is configured on multiple interfaces, the same label is shared. If each ACL has unique entries, the ACL labels are not shared, and the label limit is 62. In order to achieve 150 services per switch with the limitation of 62 ACLs per slice, the ingress interfaces should be spread across multiple slices of ASIC.

**Note**

1. For a list of platforms on which ePBR is supported, see the Cisco Nexus 9000 Series NX-OS ePBR Configuration Guide.
2. For the ACL limitations, see the Cisco Nexus 9000 Series NX-OS Security Configuration Guide.

***Table 3: FC and FCoE Switch Level Configuration Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| FLOGI per port | Nexus 93180YC-FX switches | 256 |
| FLOGI per switch | Nexus 93180YC-FX switches | 1000 |
| Port channels | Nexus 93180YC-FX switches | 8[4] |
| Maximum number of member ports in a port channel | Nexus 93180YC-FX switches | 16 |
| NPV switches per NPIV core switch | Nexus 93180YC-FX switches | 8[5] |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Maximum number of FC ports supported | Nexus 93180YC-FX switches | 48 |
| VFCs | Nexus 93180YC-FX switches | 544[6] |
| VSANs | Nexus 93180YC-FX switches | 32 |

[4] The number of SAN port channels and virtual FC port channels, together, can be only 8 on the Cisco Nexus 9000 Series switch.
[5] Tested with FC NPV.
[6] This is applicable only for the NPV mode.

***Table 4: FC and FCoE Fabric Level Configuration Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Zones | Nexus 93180YC-FX switches | 8000 |
| Zone members | Nexus 93180YC-FX switches | 16,000 |
| Zone sets | Nexus 93180YC-FX switches | 32 |
| Zone database size | Nexus 93180YC-FX switches | 2 MB |
| FCNS entries in the fabric | Nexus 93180YC-FX switches | 10,000 |
| Device Alias | Nexus 93180YC-FX switches | 8000 |
| Switch hops from server to storage | Nexus 93180YC-FX switches | 7 |

***Table 5: Intelligent Traffic Director Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Nodes per device group | Nexus 9200, 9300, and 9500 switches | 64 |
| Nodes across all device groups | Nexus 9200, 9300, and 9500 switches | 256 |
| Device groups per switch | Nexus 9200, 9300, and 9500 switches | 48 |
| ITD services per switch | Nexus 9200, 9300, and 9500 switches | 150 [7] |
| Ingress interfaces per ITD service | Nexus 9200, 9300, and 9500 switches | 8 |
| Virtual IP addresses per ITD service | Nexus 9200, 9300, and 9500 switches | 255 |
| Device groups per ITD service | Nexus 9200, 9300, and 9500 switches | 48 |

[7] Only 62 unique ACLs can be configured per slice of ASIC. Each ACL takes one label. If the same ACL is configured on multiple interfaces, the same label is shared. If each ACL has unique entries, the ACL labels are not shared, and the label limit is 62. In order to achieve 150 ITD services per switch with the limitation of 62 ACLs per slice, the ingress interfaces should be spread across multiple slices of ASIC.

**Note**

1. For a list of platforms on which ITD is supported, see the Cisco Nexus 9000 Series NX-OS Intelligent Traffic Director Configuration Guide.
2. For the ACL limitations, see the Cisco Nexus 9000 Series NX-OS Security Configuration Guide.

***Table 6: Interfaces Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| DHCP clients per switch | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX line cards | 10 (IPv4) + 10 (IPv6) |
| Flex link | Nexus 9300-EX, 9300-FX/FX2, and 9364C switches | One pair consists of one each of active and backup interface. The active and backup interface can be either a physical port or port channel. |
| IP DHCP relay addresses (helper addresses) per L3 interface | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX line cards | 32 (IPv4) + 32 (IPv6) |
| Generic routing encapsulation (GRE) tunnels | Nexus 9200, 9300-EX, 9300-FX/FX2, 9500 switches, and Nexus 9700-EX line cards | 16 |
| | Nexus 9300 switches | 8 |
| LACP rate fast support during system switchover | Nexus 9500 switches and Nexus 9700-EX line cards | 606 ports in total on the Nexus 9516 switches with 16 line cards |
| Port channel links | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX line cards | 32 |
| SVIs | Nexus 9200 switches | 490 |
| | Nexus 9300-EX and 9300-FX/FX2 switches | 1000 (with HSRP)<br>1000 HSRP groups |
| | Nexus 9300-GX | 1000 |
| | Nexus 9300 switches | 450 (with HSRP) |
| | Nexus 9300-FX3 switches | 510 |
| | Nexus 9500 switches and Nexus 9700-EX line cards | 490 (with HSRP), 1500 (without HSRP) |
| | Nexus 9600-R and 9600-RX line cards | 3967 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Selective Q-in-Q with Multiprovider tag | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches, and 9700-EX line cards | 4000 mappings, 10 provider VLANs; System wide: 48,000 mappings, 512 Provider VLANs |
| SVI Unnumbered | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2, 9500 switches and Nexus 9700-EX line cards | Primary (50); Secondary (450), 1 primary SVI can have a maximum of 50 secondary SVIs |
| vPCs | Nexus 9200, Nexus 9300, and Nexus 9300-FX/FX2/FX3 switches | 80 |
| | Nexus 9300-EX switches | 48 |
| | Nexus 9500 switches and Nexus 9700-EX line cards | 300 |
| | Nexus 9600-R, 9600-RX, and 9700-EX line cards | 255 |
| Static Network Address Translation (NAT) | Nexus 9200, 9300, 9300-EX/FX/FX2/FX3/GX switches | 1023 |
| Dynamic Network Address Translation (NAT) | Nexus 9200, 9300, 9300-EX/FX/FX2/FX3/GX switches | 1023 |
| Static twice Network Address Translation (NAT) | Nexus 9200, 9300, 9300-EX/FX/FX2/FX3/GX switches | 768 |
| Dynamic twice Network Address Translation (NAT) | Nexus 9200, 9300, 9300-EX/FX/FX2/FX3/GX switches | 1023 |

***Table 7: Label Switching Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Forwarding Equivalence Classes (FECs) (Node /Prefix /Adj / Binding SID) | Nexus 9200 switches | MPLS Heavy Template: 512; Default: 128 |
| | Nexus 9300 and 9500 switches | 128 |
| | Nexus 9300-EX, 9300-FX switches and Nexus 9700-EX/FX line cards | MPLS Heavy Template: 4096; Default: 1024 |
| | Nexus 9600-R and 9600-RX line cards | 1000 |
| Equal-cost multipaths (ECMPs) | Nexus 9200, 9300, and 9500 switches | 16 |
| | Nexus 9300-EX, 9300-FX switches, and Nexus 9700-EX/FX line cards | 32 |
| | Nexus 9600-R and 9600-RX line cards | 8 - way |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Equal-cost multipaths Groups (ECMPs) | Nexus 9300-EX, 9300-FX2, and 9364C switches | MPLS Heavy Template: 7166 (with 4-way ECMP) and 4096 (with 8-way ECMP)<br>Default: 1024<br>**Note**<br>After the ECMP objects are exhausted, there is a fallback to the adjacency for all further routes. |
| | Nexus 9300-FX and 9300-GX switches | MPLS Heavy Template and Default Routing Mode: 7166 (with a 4-way ECMP) and 4096 (with 8-way ECMP)<br>**Note**<br>After the ECMP objects are exhausted, there is a fallback to the adjacency for all further routes. |
| | Nexus 9600-RX line cards | 24,000 ECMP Groups 2 paths per ECMP<br>**Note**<br>Supported only on Cisco NX-OS Release 9.2(4). |
| FECs * ECMPs | Nexus 9200, 9300, and 9500 switches | 1000 |
| | Nexus 9600-R and 9600-RX line cards | 8000 |
| Flex counters for segment-routing in ingress direction | Nexus 9300 and 9500 switches | 4000 (includes ingress and egress) |
| | Nexus 9200 switches | 4000 (includes ingress and egress) (MPLS Heavy Template) |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | Total ingress label stats: 4000; VRF ingress label stats: 1000; (MPLS Heavy Template) |
| Flex counters for segment-routing in Egress direction | Nexus 9300 and 9500 switches | 4000 (includes ingress and egress) |
| | Nexus 9200 switches | 4000 (includes ingress and egress) (MPLS Heavy Template) |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | Total ingress label stats: 48,000 (MPLS Heavy Template) |
| Egress Peer Engineering | Nexus 9200, 9300, 9300-EX, 9300-FX switches and Nexus 9700-EX/FX line cards | 64 |
| IAS option B labels | Nexus 9600-R and 9600-RX line cards | 450,000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Label-switched paths (LSPs) for label stack imposition[8] | Nexus 9300 and 9500 switches | 128 (with 4 - way ECMP and 3 label stack push) |
| | Nexus 9200 switches | 256 (with 32 - way ECMP and 5 label stack push) |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | 256 (with 32 - way ECMP and 5 label stack push) |
| Layer 3 VPN routes | Nexus 9600-R and 9600-RX line cards | 450,000 |
| Layer 3 EVPN Labels | Nexus 9300 and 9500 switches | 128 |
| | Nexus 9200 switches | 128 (With MPLS Heavy Template) |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | 1000 (With MPLS Heavy Template) |
| LDP session | Nexus 9600-R and 9600-RX line cards[9] | 200 |
| Node Sid/Prefix SID | Nexus 9200, 9300, and 9500 switches | 128 |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | 4000 |
| Adjacency SID | Nexus 9200, 9300, and 9500 switches | 128 |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | 112 |
| Binding SID | Nexus 9200, 9300, and 9500 switches | 50 |
| | Nexus 9300-EX/FX switches and Nexus 9700-EX/FX line cards | 1000 |
| **Private VLANs (PVLANs)** | | |
| Primary VLANs [10] | Nexus 9300, and 9500 switches and Nexus 9700-EX/FX line cards | 16 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 400 |
| Secondary VLANs [11] | Nexus 9300, and 9500 switches and Nexus 9700-EX/FX line cards | 20 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 400 |
| Ports in Community host mode | Nexus 9300, Nexus 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 40 |
| Ports in isolated host mode | Nexus 9500 switches | 20 |
| | Nexus 9300, Nexus 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX/FX line cards | 40 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Ports in isolated trunk host mode | Nexus 9500 switches | 22 |
| | Nexus 9300, Nexus 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX/FX line cards | 40 |
| Ports in promiscuous mode | Nexus 9300-EX and 9300-FX switches | 10 |
| | Nexus 9500 switches | 48 |
| | Nexus 9300, 9300-FX2/FX3 switches and Nexus 9700-EX/FX line cards | 5 |
| Ports in promiscuous trunk mode | Nexus 9300-EX and 9300-FX switches | 10 |
| | Nexus 9500 switches | 80 |
| | Nexus 9300, 9300-FX2 /FX3 switches and Nexus 9700-EX/FX line cards | 5 |
| PVLANs allowed on a PVLAN port [12] | Nexus 9300, 9500 switches and Nexus 9700-EX/FX line cards | 16 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 400 |

[8] For Cisco Nexus 9300 and 9500 Series switches, LSPs *ECMP* label stack push cannot exceed 1500.
[9] N9K-X9636C-RX, N9K-X9636C-R, N9K-X9636Q-R, and N9K-96136YC-R
[10] The 400 PVLAN-mapping scale per PVLAN port is only applicable when port is configured as promiscuous trunk port
[11] The 400 PVLAN-mapping scale per PVLAN port is only applicable when port is configured as promiscuous trunk port
[12] The 400 PVLAN-mapping scale per PVLAN port is only applicable when port is configured as promiscuous trunk port



**Note** For network scalability, Cisco recommends using a hierarchical routing design with multi-hop BGP for advertising the attached prefixes from a top-of-rack (ToR) or border leaf switch.

***Table 8: Layer 2 Switching Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| MAC addresses | Nexus 9200 and 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX/FX line cards | 92,000 |
| | Nexus 9300 and 9500 switches | 90,000 |
| | Nexus 9300-GX switches | 92,000 (default system routing mode)<br>200,000 [13] |
| | Nexus 9364C switches | 90,000 (default system routing mode without system routing layer 3 scale)<br>32,000 (default system routing mode with system routing layer 3 scale) |
| | Nexus 9600-R and 9600-RX line cards | 192,000 |
| | N9K-C9264PQ, N9K-C9272Q, N9K-C9236C, N9K-C92300YC, N9K-C92304QC, N9K-C92300YC, and 9300-EX switches | 200,000 [14] |
| MST instances | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 64 |
| MST PV count with single instances 0 | Nexus 9200, 9300, and 9300-FX/FX2/FX3 switches | 190,000 |
| MST virtual ports with more than 1 MST instance | Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2/FX3 switches | 48,000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 85,000 |
| | Nexus 9600-R and 9600-RX line cards | 236,000 |
| RPVST virtual ports (physical ports * vlans) | Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2/FX3 switches | 14,000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 22,000 |
| | Nexus 9600-R and 9600-RX line cards | 13,750 |
| RPVST logical ports (logical ports * vlans) | Nexus 9300-EX/FX/FX2/FX3 switches | 12,000 |
| | Nexus N9K-X9716D-GX and 9700-EX/FX line cards | 22,000 |
| | Nexus 9600-R and 9600-RX line cards | 13,750 |
| VLANs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 3967 (the remaining 127 VLANs are reserved) |
| | Nexus 92348GC-X switches | 4096 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| VLANs in RPVST mode | Nexus 9200 and 9300-EX/FX/FX2/FX3/GX switches | 3967 |
| | Nexus 9300 and 9500 switches | 500 |
| | Nexus 9700-EX/FX line cards | 3967[15] |
| | Nexus 9600-R and 9600-RX line cards | 250 |
| Total number of VLANs × ports with switch port isolated (3967 VLANs x 48 ports) | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches, and Nexus 9700-EX/FX line cards | 190,000 |
| **Private VLANs (PVLANs)** | | |
| Primary VLANs | Nexus 9300, 9300-EX/FX/FX2, 9500 switches and Nexus 9700-EX line cards | 16 |
| Secondary VLANs | Nexus 9300, 9300-EX/FX/FX2, 9500 switches and Nexus 9700-EX line cards | 20 |
| Ports in Community host mode | Nexus 9300, 9300-EX/FX/FX2, 9500 switches and Nexus 9700-EX line cards | 40 |
| Ports in isolated host mode | Nexus 9500 switches | 20 |
| | Nexus 9300, 9300-EX/FX/FX2 switches and Nexus 9700-EX line cards | 40 |
| Ports in isolated trunk host mode | Nexus 9500 switches | 22 |
| | Nexus 9300, 9300-EX/FX/FX2 switches and Nexus 9700-EX line cards | 40 |
| Ports in promiscuous mode | Nexus 9500 switches | 48 |
| | Nexus 9300, 9300-EX/FX/FX2 switches and Nexus 9700-EX line cards | 5 |
| Ports in promiscuous trunk mode | Nexus 9500 switches | 80 |
| | Nexus 9300, 9300-EX/FX/FX2 switches and Nexus 9700-EX line cards | 5 |
| PVLANs allowed on a PVLAN port | Nexus 9300, 9300-EX/FX/FX2, 9500 switches and Nexus 9700-EX line cards | 16 |

[13] Layer 2 unidimensional scale only. SVI, Layer 3 interface, and VXLAN VLANs are not supported. 200K MAC is enabled only when " system routing template-l2-heavy" is configured and the system is reloaded.

[14] Layer 2 unidimensional scale only. SVI, Layer 3 interface, and VXLAN VLANs are not supported. 200K MAC is enabled only when " system routing template-l2-heavy" is configured and the system is reloaded.

[15] On EOR, support is for 12,000 PV count with 3967 vlans and RPVST with default timers. If 22,000 PV count is needed with 3968 vlans and RPVST, recommended hello timer value is 4 or higher. It is also recommended to tune forward delay and max age accordingly

**Note**

- For more information on STP scale considerations, see Spanning Tree Protocol scale considerations, on page 52.
- The number of supported VLANs per vPC should be within the MST or RPVST virtual port count that is specified in this table, depending on the topology.
- The number of supported STP VLAN port instances, for Fabric Extender host interface ports, should be less than 13000.

***Table 9: Multicast Routing Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Egress NAT | Nexus 9300-EX/FX/FX2 switches | 2000 |
| Ingress NAT | Nexus 9300-EX/FX/FX2 switches | 2000 |
| Egress and Ingress NAT | Nexus 9300-EX/FX/FX2 switches | 2000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv4 multicast routes<br>**Note**<br>The limits are for a combination of IPv4 and IPv6 multicast routes. Layer 2 multicast entries are a part of the total 120K limits. For example, 110K IPv4 + 2K IPv6 multicast routes + 8K Layer 2 multicast entries. | Nexus 9200 and 9348GC-FXP switches | 8192 (Layer 2 + Layer 3)<br>**Note**<br>Cisco Nexus 9200 switches do not support the system routing template - Ipm - heavy mode for IPv4 multicast routes. Make sure to reset the LPM maximum limit to 0. |
| | Nexus 9300 switches | 8192 (Layer 2 + Layer 3) |
| | Nexus 9300-EX switches and Nexus 9700-EX line cards | 8192 (Layer 2 + Layer 3); 32,768 (layer 2 + Layer 3 with system routing template - multicast -heavy mode); 8192 (with system routing template - lpm - heavy mode) |
| | Nexus 9332C and 9364C switches | 16,384 (Layer 2 + Layer 3) with the default template and the system routing layer 3 scale configuration. |
| | Nexus 9300-FX2 switches | 8192 (Layer 2 + Layer 3); 32,768 (Layer 2 + Layer 3 with system routing template -multicast -heavy mode); 131,072 (with system routing template -multicast - ext - heavy mode) |
| | Nexus 9500 switches | 32,768 (Layer 2 + Layer 3) |
| | Nexus 9500 switches and Nexus 9700-FX line cards | 8192 (Layer 2 + Layer 3); 32,768 (layer 2 + Layer 3 with system routing template - multicast -heavy mode); 131,072 (with system routing template - multicast - ext - heavy mode) [16] |
| | Nexus 9300-FX/FX3/GX switches | 32,768 (layer 2 + Layer 3 with system routing template - default, multicast -heavy mode); 131,072 (with system routing template - multicast - ext - heavy mode) |
| | Nexus 9600-R and 9600-line cards | 32,768 (Layer 3) |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv6 multicast routes | Nexus 92160YC-X, 9300-EX, 9300-FX, and 9500 switches | 8192 (Layer 3 with system routing template - default, multicast - heavy, multicast - ext - heavy and multicast - heavy, multicast - ext - heavy, dual - stack - multicast) |
| | Nexus 9300-FX2 and 9364C switches | 8192 (Layer 3 with system routing template -multicast -heavy mode) |
| | Nexus 9300-FX3 switches | 8192 (4096 - *, G + 4096 - S,G) |
| | Nexus 9332C and 9364C switches | 8192 (Layer 2 + Layer 3 with system routing template -multicast -heavy mode) |
| | Nexus 9348GC-FXP switches | 8192 (layer 2 + Layer 3 with system routing template - multicast -heavy -multicast - ext - heavy mode) |
| | Nexus 9300-GX switches | 8192 |
| MLD snooping groups | Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2, 9500 switches and Nexus 9700-EX/FX line cards | 8192 |
| Multicast FPV | Nexus 9300-GX switches | IPv4 32,000 (Layer 2 + Layer 3) multicast routes |
| Outgoing interfaces (OIFs) | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 40 (SVI + physical layer 3) or 256 (physical layer 3) |
| | Nexus 9600-R and 9600-RX line cards | 16 OIFs for 32K mroutes or 287 OIFs for 1000 mroutes |
| IGMP snooping groups | Nexus 9200, 9300, 9300-EX, 9500 switches and Nexus 9700-EX line cards | 8000 |
| | Nexus 9300-FX2 switches and Nexus 9700-FX line cards | 8000 (with system routing template - default), 16000 (with system routing template - multicast -heavy - multicast - ext - heavy mode) |
| | Nexus 9600-R and 9600-RX line cards | 8000 |
| | Nexus 9300-FX/FX3/GX switches and N9K-X9716D-GX line card | 16,000 |
| PIM neighbors | Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2/FX3 switches | 250 |
| | Nexus 9500 switches and Nexus 9600-R, 9600-RX and 9700-EX/FX line cards | 500 |
| **MVPN- unidimensional** | | |
| Multicast VRFs | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 300 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Default MDT groups | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 300 |
| MVPN Peers (PIM neighbors) per device | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 900 |
| Maximum number of PEs per VRF | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 200 PEs per VRF with up to 3 VRFs (600 PIM neighbors) |
| Maximum number of Data MDT groups per VRF on a PE | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 1000 |
| Maximum number of Data MDT groups across all VRFs on a PE | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 10,000 |
| Maximum number of MDT groups across all VRFs on PE | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 10,300 (10,000 Data + 300 default DMT) |
| Maximum number of Multicast routes on a PE node | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards (except the N9K-X96136YC-R line card) | 32,000 |

[16] All line cards must have the FX type.

**Note**

- The IPv4 multicast routes and the IPv4/IPv6 host routes share the same hardware table. Limits are provided for both the default line card mode and the max host line card mode.
- High availability (graceful restart and stateful switchover) is not supported when unicast or multicast aggressive timers are configured at any scale.

***Table 10: IP Fabric for Media Solution Verified Scalability Limits (Unidimensional)***

| Feature | Verified Limits |
|---|---|
| Number of nodes | 35 (2 spines and 33 leafs) |
| No of routes | 32,000 |
| **Host Policy** | |
| Sender | 8000 |
| Receiver | 8000 |

| Feature | Verified Limits |
|---|---|
| PIM | 512 |
| FlowPolicy | 2000 |
| ASM group-range | 20 |
| **NBM Static Flows** | |
| Per switch maximum (receiver leaf where the static OIF will be programmed) mroutes | 1500 |
| Per fabric maximum mroutes | 8000 |
| VRFs | 16 |
| **PMN NAT** | |
| Egress-NAT | 1000 with ing-nbm tcam 512 |
| Ingress-NAT | 1000 with ing-nbm tcam 512 |
| Ingress/Egress NAT | 1500 with ing-nbm 512 |
| Ingress/Egress NAT | 2000 with ing-nbm 0 |
| **RTP Flow Monitoring with ACL** | |
| ACL | 128 IPv4 ACL entries or 64 IPv6 ACL entries (total 128 TCAM spaces)<br>**Note**<br>With combined IPv4 and IPv6 ACL entries, the scale limit cannot exceed 128 TCAM spaces. |

**Note** For a list of supported platforms, see Cisco Nexus 9000 Series NX-OS IP Fabric for Media Solution Guide.

***Table 11: Programmability Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| OpenFlow ports | Nexus 9300 switches | 96 |
| OpenFlow Layer 2 flows | Nexus 9300 switches | 32,000 |
| OpenFlow Layer 3 flows | Nexus 9300 switches | 3000 |
| OpenFlow IPv6 Layer 3 flows | Nexus 9300 switches | 1500 |
| **gNMI** | | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| VRF - Default | Nexus 9300, 9300-EX, 9300-FX/FX2, 9300-GX, 9500 switches and Nexus 9700-FX line cards | 16 concurrent subscriptions |
| VRF - Management | Nexus 9300, 9300-EX, 9300-FX/FX2, 9300-GX, 9500 switches and Nexus 9700-FX line cards | 16 concurrent subscriptions |
| VRF - Default and Management | Nexus 9300, 9300-EX, 9300-FX/FX2, 9300-GX, 9500 switches and Nexus 9700-FX line cards | 32 concurrent subscriptions |
| Paths | Nexus 9300, 9300-EX, 9300-FX/FX2, 9300-GX, 9500 switches and Nexus 9700-FX line cards | 48 paths in a single subscription |
| Message size | Nexus 9300, 9300-EX, 9300-FX/FX2, 9300-GX, 9500 switches and Nexus 9700-FX line cards | Less than 12 MB |
| Aggregate MO's | Nexus 9300, 9300-EX, 9300-FX/FX2, 9300-GX, 9500 switches and Nexus 9700-FX line cards | 150,000 |

***Table 12: QoS Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Class maps per policy map | Nexus 9300-GX switches | 128 |
| AFD | Nexus 9300-GX switches | 32 profiles |
| WRED | Nexus 9300-GX switches | 32 profiles |
| Ingress 1R2C | Nexus 9300-GX switches | 1280 |
| Egress 1R2C | Nexus 9300-GX switches | 256 |
| Ingress 2R3C | Nexus 9300-GX switches | 766 |
| PFC all ports | Nexus 9300-GX switches | 766 |
| Total policy maps | Nexus 9300-GX switches | 4000 |

***Table 13: Security Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Egress ACLs | Nexus 9600-R line cards | 20,000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| System ACLs | Nexus 9600-R line cards | 4000 TCAM entries in internal TCAM<br>64,000 TCAM entries in external TCAM |
| ACLs | Nexus 9300-FX3 | Ingress - 3584 IPv4, 1792 IPv6 |
| RACL Labels (maximum) | Nexus 9504 and 9508 switches | 4000 |
| DHCP snooping bindings | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX line cards | 2048 |
| IPv4 ingress access control entries (ACEs) | Nexus 9600-R and 9600-RX line cards | • RACL on LC N9K-X9636C-RX: 100,000<br>• PACL on LC N9K-X9636C-RX: 12,000<br>• RACL-2048, PACL-1024 (without TCAM Carving) IPv4 52640 ACEs per system<br>• PACL IPv4: 1024 TCAM entries in internal TCAM<br>• PACL MAC: 2048 TCAM entries in internal TCAM<br>• RACL IPv4: 2048 TCAM entries in internal TCAM |
| IPv6 ingress access control entries (ACEs) | Nexus 9600-R and 9600-RX line cards | • RACL-1024, PACL-1024 (without TCAM Carving) IPv6 25,200 ACEs per system<br>• PACL IPv6: 1024 TCAM entries in internal TCAM<br>• RACL IPv6: 1024 TCAM entries in internal TCAM |
| IPv4 ingress TCAM entries | Nexus 9200, Nexus 9300-EX/FX/FX2/FX3 switches, N9K-X9716D-GX and Nexus 9700-EX/FX line cards | 3582 (per slice of the forwarding engine) |
| | Nexus 9300-GX switches | 4608 |
| IPv4 egress TCAM entries | Nexus 9200, Nexus 9300-EX/FX/FX2/FX3/GX switches, N9K-X9716D-GX and Nexus 9700-EX/FX line cards | 1792 (per slice of the forwarding engine) |
| | Nexus 92348GC-X switches | Ingress - 3072 IPv4, 1792 IPv6 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv6 ingress TCAM entries | Nexus 9200, Nexus 9300-EX/FX/FX2/FX3 switches, N9K-X9716D-GX and Nexus 9700-EX/FX line cards | 1792 (per slice of the forwarding engine) |
| | Nexus 9300-GX switches | 2302 (per slice of the forwarding engine) |
| IPv6 egress TCAM entries | Nexus 9200, Nexus 9300-EX/FX/FX2/FX3/GX switches, N9K-X9716D-GX and Nexus 9700-EX/FX line cards | 896 (per slice of the forwarding engine) |
| | Nexus 92348GC-X switches | Ingress - 3072 IPv4, 1792 IPv6 |



**Note**

- The TCAM entries scalability limits also apply to policy-based TCAM entries (PBACLs).
- Only 62 unique ACLs can be configured. Each ACL takes one label. If the same ACL is configured on multiple interfaces, the same label is shared. If each ACL has unique entries, the ACL labels are not shared, and the label limit is 62.

***Table 14: SRv6 Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| ARP | Nexus 9300-GX switches | 48,000 |
| Host and LPM IPv4 routes | Nexus 9300-GX switches | 470,000 |
| Host and LPM IPv6 routes | Nexus 9300-GX switches | 256,000 |
| Leaf | Nexus 9300-GX switches | 256 |
| SID DB | Nexus 9300-GX switches | 2000 |
| SRv6 and VXLAN Peer | Nexus 9300-GX switches | 256 |
| VRF | Nexus 9300-GX switches | 1000 |
| ND | Nexus 9300-GX switches | 24,000 |
| SRv6 Traffic Engineering policies | Nexus 9300-GX switches | 1000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Number of prefixes (IPv4 and IPv6) that use SRv6 Traffic Engineering policies | Nexus 9300-GX switches | 50,000 |
| Maximum number of preferences per policy | Nexus 9300-GX switches | 3 |
| Maximum number of segment lists | Nexus 9300-GX switches | 3000 |

***Table 15: System Management Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| **MPLS Stripping** | | |
| Labels | Nexus 9300 and 9500 switches | 12,000 |
| Ingress interfaces | Nexus 9200 and 9300 switches | 48 |
| | Nexus 9500 switches | 400 |
| Egress interfaces | Nexus 9200 and 9300 switches | 16 |
| | Nexus 9500 switches | 64 |
| **PTP** | | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| PTP ports | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2, and 9500 switches | 64 per system<br>**Note** The verified limit for Nexus 9336C-FX2 switch is 144 per system. |
| | N9K-C93180YC-FX3 and N9K-C93180YC-FX3S switches | 20 per system |
| | N9K-C93108TC-FX3P switches | 25 per system |
| | Nexus 9300-GX switches | 64 per system |
| | N9K-C92160YC-X line cards | 44 per system |
| | Nexus 9500 switches with Nexus 9700-EX line cards | 1305 per chassis<br>The per line card limit is based on the maximum physical ports supported.<br>**Note** PTP Offload is supported on 9700-EX line cards. |
| | Nexus 9508 switches with -R line cards | 64 per line card<br>300 per chassis<br>**Note** PTP Offload is supported on 9508-R line cards. |
| | Nexus 9500 switches with Nexus 9600-RX line cards | 128 per line card<br>512 per chassis |
| PTP offload [17] | N9K-X9564PX line cards | 32 PTP sessions per line card. |
| | N9K-X9636PQ line cards | 24 PTP session per line card. |
| PTP clients per port | Nexus 9200, 9300, 9300-EX/FX/FX2/FX3/GX switches, N9K-C92160YC-X line cards, Nexus 9500 switches with 9700-EX, 9508-R and 9600-RX line cards | 2 |
| **sFlow** | | |
| sFlow ports | Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2 switches | 64 |
| | Nexus 9300-FX3 switches | 30 |
| | Nexus 9500 switches and Nexus 9700-EX line cards | 256 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| **SPAN and ERSPAN** | | |
| Configurable SPAN or ERSPAN sessions | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9600-R and 9600-RX line cards | 32 |
| Active SPAN or ERSPAN sessions[18] | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 4 sessions (per chassis/ToR or based on the number of the line cards in the EoR.[19] |
| Active localized SPAN or ERSPAN sessions per line card[20] | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 4 |
| | Nexus 9600-R and 9600-RX line cards | 32 sessions across ports on single-line card |
| Active localized SPAN or ERSPAN session (Rx and Tx, Rx, or Tx) | Nexus 9600-R and 9600-RX line cards | 32 sessions, 128 sources, and 1 destination |
| Source interfaces per SPAN or ERSPAN session (Rx and Tx, Rx, or Tx) | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX line cards | 48 |
| Destination interfaces per SPAN session | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX line cards | 1 (physical/PO interface) |
| Source VLANs per SPAN or ERSPAN session | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX line cards | 32 |
| **Tap Aggregation** | | |
| Redirect interfaces in the redirect port list | Nexus 9300-EX, 9300-FX/FX2, and Nexus 9500-CloudScale platform switches | 32 |
| | Nexus 9300, 9300-FX3 and 9500 Merchant Silicon platform switches | 12 |
| Redirect port lists (or fan outs) per system | Nexus 9300, 9300-FX3, and 9500 switches | 100 |
| **NetFlow** | | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Flow monitors | Nexus 9300-EX switches and Nexus 9500 switches with 9700-EX and FM-E fabric line cards | 2 flow monitors per type (2 IPv4 flow monitors and 2 IPv6 flow monitors).<br>1 flow monitor for CE flows<br>2 exporters for each flow monitor. Hence, a total of 4 different exporters can be configured. |
| | Nexus 9300-FX/FX2/GX switches and 9500 with FX LC cards | 30 IPv4 flow monitor and each flow monitor with two exporters<br>28 IPv6 flow monitor and each flow monitor with two exporters<br>32 Layer2 Flow monitor and each flow monitor with two exporters<br>Maximum number of exporters supported per flow monitor is 2 |
| Layer 3 interfaces (Layer 3 ports, port channels, and SVIs) to which IPv4 flow monitors can be applied | Nexus 9300-EX switches | 1024 (with members on just one ASIC slice): 922 for IPv4/IPv6 flow monitors, while 32 are reserved for the Layer 2 flow monitors.<br>Maximum number of SVIs supported:<br>• 492 with IPv4 flow monitors only<br>• 246 with IPv6 flow monitors only<br>• 165 with both IPv4 flow monitor and IPv6 flow monitors attached<br>Number of Layer 3 interfaces (Layer 3 ports, port channels, and SVIs) to which IPv4 flow monitors can be applied. You can use the **show interface hardware-mappings** command to check if the interface belongs to ASIC slice 0 or slice 1. |
| Layer 3 interfaces (Layer 3 ports, port channels, and SVIs) to which IPv6 flow monitors can be applied | Nexus 9300-EX switches | 252 (with members on just one ASIC slice) or 126 (with members on both ASIC slices). You can use the **show interface hardware-mappings** command to check if the interface belongs to ASIC slice 0 or slice 1. |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Maximum number of flows in the software table (IPv4 or IPv6 or CE flows) | Nexus 9000 switches | 100,000 flows using the **show flow cache** command on 9500 modular chassis per line card<br><br>1,000,000 flows (1 Million) using the **show flow cache** command on 9300 switches |
| Maximum number of concurrent flows supported (IPv4 or IPv6 or CE flows) | Nexus 9300-EX/FX/FX2 switches | 6000 traffic flows.<br><br>By increasing LCPU-PG-SIZE using the following command one can achieve Max 18000 concurrent flows, after modifying LCPU-PG-SIZE, the switch needs reboot after saving configuration<br><br>`switch(config)# hardware qos lcpu-pg-size ?`<br>`<200-10000>  Pool Group size`<br><br>`switch(config)# hard qos lcpu-pg-size 5000`<br>`Warning:Reload required for configured PG size to take effect. Save configuration and reload the system.`<br>`switch(config)# copy running-config startup-config`<br><br>In Cisco Nexus Release 9.3(3), the **hardware qos** command is not supported. |

[17] An EPLD upgrade is necessary before you use PTP offload.

[18] A single forwarding engine instance supports four SPAN or ERSPAN sessions. For Cisco Nexus 9300 Series switches, if the first three sessions have bidirectional sources, the fourth session has hardware resources only for Rx sources. This limitation might also apply to Cisco Nexus 9500 Series switches, depending on the SPAN or ERSPAN source's forwarding engine instance mappings.

[19] If the source interface configured for a monitor session is on the same line card, the maximum supported active SPAN sessions are 4. Based on the number of line cards in the EoR, the total number of active SPAN sessions are 4 x n, where n is the number of line cards on EoR, provided the source and destination interface are on the same line module.

[20] The number of SPAN or ERSPAN sessions per line card reduces to two if the same interface is configured as the bidirectional source in more than one session.



**Note** PTP is supported for all Cisco Nexus 9000 Series switches hardware except for the 100G 9408PC line card and the 100G M4PC generic expansion module (GEM).

*Table 16: NetFlow Scalability Support (Flows) for Cisco Nexus 9500 Family Switches*

| Feature | Platform | Scale Limitper Slice (Flows) |
|---|---|---|
| IP flow monitor | Nexus 9500-EX Line cards | 2 |
| IPv6 flow monitor | | 2 |
| Layer 2 Flow monitor | | 1 |
| Maximum number of exporters per each flow monitor | | 2 |
| Flow Scale | | 24,000 per ASIC slice |
| IP flow monitor | Nexus 9500-FX Line cards | 30 |
| IPv6 flow monitor | | 28 |
| Layer 2 Flow monitor | | 1 |
| Maximum number of exporters per each flow monitor | | 2 |
| Flow Scale | | 24,000 per ASIC slice |



**Note** NetFlow scale limits are determined based on the interfaces of the line cards where the NetFlow configurations are attached in the modular switches.

*Table 17: NetFlow SVI Verified Scalability Limits (Unidimensional)*

| Platform (VLAN Ports) | SVI | | | VLAN | | | SVI + VLAN | | |
|---|---|---|---|---|---|---|---|---|---|
| | IPv4 | IPv6 | IPv4 + IPv6 | IPv4 | IPv6 | IPv4 + IPv6 | IPv4 | IPv6 | IPv4 + IPv6 |
| Member ports from Cisco Nexus 9300-EX switches | 474 | 118 | 94 | 474 | 118 | 94 | 237 | 61 | 38 |
| Member ports from Cisco Nexus 9300-FX switches | Total interfaces supported in the system | | | | | | | | |

| Platform (VLAN Ports) | SVI | | | VLAN | | | SVI + VLAN | | |
|---|---|---|---|---|---|---|---|---|---|
| | IPv4 | IPv6 | IPv4 + IPv6 | IPv4 | IPv6 | IPv4 + IPv6 | IPv4 | IPv6 | IPv4 + IPv6 |
| Member ports from Cisco Nexus 9300-EX and Nexus 9300-FX switches (EOR chassis) | 474 | 118 | 94 | 474 | 118 | 94 | 237 | 61 | 38 |

**Note** The scale numbers are based on the TCAM space available on the Cisco Nexus 9300-EX and Nexus 9300-FX switches. A IPv4 flow monitor uses 2 and 4 TCAM space for the Cisco Nexus 9300-EX and Nexus 9300-FX switches respectively. Similarly, a IPv6 flow monitor uses 8 and 2 TCAM space for the Cisco Nexus 9300-EX and Cisco Nexus 9300-FX switches respectively.

For port channels, SVIs, and VLANs that have port from both 9300-EX and 9300-FX switches, the lower common denominator limit of the 9300-EX and 9300-FX switches is applied.

***Table 18: Unicast Routing Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| **Unicast Routing** | | |
| BFD sessions (echo mode) | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2, and 9300-GX switches | 128<br>**Note** Cisco Nexus 9300 (EX, FX, FX2, and 9364C) platform switches support up to 512 BFD sessions, when the BFD intervals are relaxed to 300 ms. |
| | Nexus 9300-FX3 and 9500 switches | 512 |
| | Nexus 9700-EX /FX line cards | 512[21] |
| | Nexus 9600-R and 9600-RX line cards | 288 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| BGP neighbors | Nexus 9200 switches | 512 (IPv4), 512 (IPv6), or 256 (IPv4 + IPv6) |
| | Nexus 92348GC-X switches | 141 |
| | Nexus 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 1024 |
| | Nexus 9500 switches and Nexus 9700-EX /FX line cards | 2000 |
| | Nexus 9600-R and 9600-RX line cards | 960 |
| EIGRP routes | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX /FX line cards | 20,000 |
| EIGRP neighbors | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 256 |
| | Nexus 9500 switches and Nexus 9700-EX /FX line cards | 512 |
| HSRP groups | Nexus 9200, 9300, 9364C, 9300-EX, 9300-GX, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 490 |
| | Nexus 9300-EX and FX2 switches | 1000 [22] |
| | Nexus 9600-R and 9600-RX line cards | 16 [23] |
| IPv4 ARP | Nexus 9200 and 9364C switches | 32,000 |
| | Nexus 9300 and 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 48,000 |
| | Nexus 9300-EX and 9300-FX2 switches | 48,000 (without URPF)<br>32,000 (with URPF enabled) |
| | Nexus 9300-FX and 9300-GX switches | 98,000 (Hash Table: Shared between IPv6 ND, IPv4 ARP)) |
| | Nexus 9300-FX3 switches | 98,000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv4 host routes [24] | Nexus 9200 switches | 96,000 (hash table and there will be more collisions after 80%) |
| | Nexus 9300 and 9500 switches | Default System Routing Mode: 208,000 (hash table and there will be more collisions after 80%) |
| | Nexus 9364C switches | 96,000 (default system routing mode without system routing layer 3 scale)<br>128,000 (default system routing mode with system routing layer 3 scale) |
| | Nexus 9300-EX switches | 458,000 (default); 786,000 / 720,000 (with system routing template - lpm - heavy mode) |
| | Nexus 9300-FX2 switches | 524,000 / 471,000 (without / with urpf enabled) (default); 786,000 / 734,000 (without / with urpf enabled) (with system routing template - lpm -heavy mode) |
| | Nexus 9300-FX and 9300-GX switches | 1,153,000(default); 786,000 / 734,000 (with out / with urpf enabled) (with system routing template - lpm -heavy mode) |
| | Nexus 9300-FX3 switches | 1,119,000 |
| | Nexus 9700-EX line card | 1,000,000 (default); 786,000 (with system routing template - lpm -heavy mode)<br>589,000 (default); 786,000 (with system routing template - lpm -heavy mode) |
| | Nexus 9600-R line cards | 750,000 (default routing template) |
| | Nexus 9600-RX line cards | 1,000,000 (default routing template) |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv6 host routes [25] | Nexus 9200 switches | 48,000 (hash table and there will be more collisions after 80%) |
| | Nexus 9300 and 9500 switches | Default System Routing Mode: 104,000 (hash table and there will be more collisions after 80%); ALPM Routing Mode: 16,000 with host Routes Programmed in the LPM Table. |
| | Nexus 9364C switches | 48,000 (default system routing mode without system routing layer 3 scale)<br>64,000 (default system routing mode with system routing layer 3 scale) |
| | Nexus 9300-EX switches | 24,000 / 16,000 (with out/with urpf enabled) |
| | Nexus 9300-FX2 switches | 265,000 (default), 442,000 / 412,000 (without / with urpf enabled) (with system routing template -lpm - heavy mode) |
| | Nexus 9300-FX and 9300-GX switches | 628,000 (default), 442,000 / 412,000 (without / with urpf enabled) (with system routing template -lpm - heavy mode) |
| | Nexus 9300-FX3 switches | 600,000<br>442,000 (LPM heavy mode) |
| | Nexus 9700-EX/FX line cards | 32,000 (FM-E), 235,000 (FM-E2) |
| | Nexus 9600-RX line cards | 256,000 (default routing template) |
| IPv6 ND | Nexus 9200, 9364C, 9300-EX and 9300-FX2 switches | 32,000 (default), 16,000 (lpm heavy) |
| | Nexus 9300 and 9500 switches | 48,000 |
| | Nexus 9300-FX and 9300-GX switches | 98,000 (in default routing mode, Hash Table: Shared between IPv6 ND, IPv4 ARP) |
| | Nexus 9300-FX3 switches | 98,000 (default), 16,000 (lpm heavy) (Hash Table: Shared between IPv6 ND, IPv4 ARP) |
| | Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 32,000 |

| Feature | Supported Platforms | Verified Limits |
| --- | --- | --- |
| IPv4 unicast routes (LPM)* | Nexus 9200 switches | • Default values: 6000 (IPv4), 1900 (IPv6), and 2000 (multicast)<br>• With hardware profile multicast max-limit lpm-entries 0 configured: 8000 (IPv4), 1900 (IPv6), and 0 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 0 configured: 14,000 (IPv4), 0 (IPv6), and 2000 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 4096 and hardware profile multicast max - limit lpm - entries 0 configured: 0 (IPv4), 4096 (IPv6), and 0 (multicast)<br>• When you allocate the entire table for IPv4 or IPv6 LPM unicast routes, the other address family cannot be used |
| | Nexus 9300 switches | 12,000 (default system routing mode); 128,000 (ALPM routing mode) |
| | Nexus 9364C switches | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| | | Default system routing mode without system routing layer 3 scale:<br>• Default values: 8000 (IPv4), 1900 (IPv6), and 2000 (multicast)<br>• With hardware profile multicast max-limit lpm-entries 0 configured: 10,000 (IPv4), 1900 (IPv6), and 0 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 0 configured: 14,000 (IPv4), 0 (IPv6), and 2000 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 4096 and hardware profile multicast max - limit lpm - entries 0 configured: 4000 (IPv4), 4096 (IPv6), and 0 (multicast)<br>• When you allocate the entire table for IPv4 or IPv6 LPM unicast routes, the other address family cannot be used.<br><br>128,000 (default system routing mode with system routing layer 3 scale) |
| | Nexus 9300-EX switches | 458,000 (default) |
| | Nexus 9300-FX switches | 1,153,000 / 996,000 (without / with urpf enabled) (default), 786,000 / 734,000 (without / with urpf enabled) (with system routing template - lpm - heavy - mode) |
| | Nexus 9300-FX2 switches | 524,000 / 471,000 (default); 786,000 / 734,000 (without / with urpf enabled) (with system routing template - lpm -heavy mode) |
| | Nexus 9300-GX switches | 1,153,000 (default), 786,000 / 734,000 (without / with urpf enabled) (with system routing template - lpm - heavy mode) |
| | Nexus 9300-FX3 switches | 1,119,000 |
| | Nexus 9300 switches | 128,000 (default system routing mode); 16,000 (max-host routing mode) |
| | Nexus 9500 switches | 128,000 with no IPv6 routes (64-bit ALPM routing mode) |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| | Nexus 9700-EX /FX line cards | 589,000 (default) |
| | Nexus 9600-R line cards | 192,000 (Default system routing template) |
| | Nexus 9600-RX line cards | 1,000,000 (Default system routing template) |

| Feature | Supported Platforms | Verified Limits |
| --- | --- | --- |
| IPv6 unicast routes (LPM)* | Nexus 9200 switches | • Default values: 6000 (IPv4), 1900 (IPv6), and 2000 (multicast)<br>• With hardware profile multicast max-limit lpm-entries 0 configured: 8000 (IPv4), 1900 (IPv6), and 0 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 0 configured: 14,000 (IPv4), 0 (IPv6), and 2000 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 4096 and hardware profile multicast max - limit lpm - entries 0 configured: 0 (IPv4), 4096 (IPv6), and 0 (multicast)<br>• When you allocate the entire table for IPv4 or IPv6 LPM unicast routes, the other address family cannot be used. |
| | Nexus 9300 switches | 7000 (6000 routes < /64, 1000 routes > /64) (default system routing mode); 20,000 (ALPM routing mode) |
| | Nexus 9364C switches | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| | | Default system routing mode without system routing layer 3 scale<br>• Default values: 8000 (IPv4), 1900 (IPv6), and 2000 (multicast)<br>• With hardware profile multicast max-limit lpm-entries 0 configured: 10,000 (IPv4), 1900 (IPv6), and 0 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 0 configured: 14,000 (IPv4), 0 (IPv6), and 2000 (multicast)<br>• With hardware profile ipv6 lpm-entries maximum 4096 and hardware profile multicast max - limit lpm - entries 0 configured: 4000 (IPv4), 4096 (IPv6), and 0 (multicast)<br>• When you allocate the entire table for IPv4 or IPv6 LPM unicast routes, the other address family cannot be used<br>64,000 (default system routing mode with system routing layer 3 scale) |
| | Nexus 9300-EX switches | 206,000 (/64 prefix length); 1900 (non /64 prefix length) |
| | Nexus 9300-FX switches | 628,000 / 560,000 (without / with urpf enabled) (default) ; 442,000 / 412,000 (without / with urpf enabled) (with system routing template - lpm - heavy mode) |
| | Nexus 9300-FX2 switches | 294,000 / 265,000 (without / with urpf enabled) (default) ; 442,000 / 412,000 (with out / with urpf enabled) (with system routing template - lpm - heavy mode) |
| | Nexus 9300-GX switches | 628,000 / 628,000 (without/with urpf enabled) (default) ; 442,000 / 412,000 (without / with urpf enabled) (with system routing template - lpm - heavy mode) |
| | Nexus 9300-FX3 switches | 600,000 |
| | Nexus 9500 switches | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| | | 20,000 (default system routing mode)<br>4000 (max-host routing mode)<br>80,000 with no IPv4 routes (64-bit ALPM routing mode) |
| | Nexus 9700-EX /FX line cards | 176,000 (/64 prefix length); 3900 (non /64 prefix length) (FM-E) and 235,000 (any prefix length) (FM-E2 ) |
| | Nexus 9600-R line cards | 62,000 (Default system routing template) |
| | Nexus 9600-RX line cards | 256,000 (Default system routing template) |
| IPv4 and IPv6 unicast routes (LPM) in 64-bit ALPM routing mode | Nexus 9500 switches | 128,000 (IPv4) and 80000 (IPv6) |
| IPv4 host routes (LPM heavy mode) | Nexus 9236C, 9272Q, and 92304QC switches | 262,000 |
| | Nexus 92160YC-X switches | 650,000 |
| | Nexus 9364C switches | 262,000 |
| | Nexus 9300-EX switches | 786,000 / 720,000 (with out/with urpf enabled) |
| | Nexus 9300-FX switches | 786,000 / 734,000 (with out/with urpf enabled) |
| | Nexus 9300-FX2/FX3 and 9300-GX switches | 786,000 / 734,000 (with out/with urpf enabled) |
| | Nexus 9700-EX /FX line cards | 786,000 |
| IPv6 host routes (LPM heavy mode) | Nexus 9200 switches | 16,000 |
| | Nexus 9364 switches | 131,000 |
| | Nexus 9300-EX switches | 24,000 / 16,000 (with out/with urpf enabled) (protocol learned host) |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 442,000 / 412,000 (with out/with urpf enabled) (protocol learned host) |
| | Nexus 9700-EX/FX line cards | 32,000 (shared between IPv6 ND and protocol learned host) (FM-E ) and 235,000 (FM-E2) |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv4 LPM routes (LPM heavy mode) | Nexus 9236C, 9272Q, and 92304QC switches | 262,000 |
| | Nexus 92160YC-X switches | 650,000 |
| | Nexus 9364C switches | 262,000 |
| | Nexus 9300-EX switches | 786,000 / 720,000 (with out/with urpf enabled) |
| | Nexus 9300-FX switches | 786,000 / 734,000 (with out/with urpf enabled) |
| | Nexus 9300-FX2 and 9300-GX switches | 786,000 / 734,000 (with out/with urpf enabled) |
| | Nexus 9300-FX3 switches | 786,000 |
| | Nexus 9700-EX/FX line cards | 786,000 |
| IPv6 LPM routes (LPM heavy mode) | Nexus 9236C, 9272Q, and 92304QC switches | 131,000 (/64 prefix length); 1900 (non /64 LPM scale) |
| | Nexus 92160YC-X switches | 294,000 (/64 prefix length); 1900 (non /64 LPM scale) |
| | Nexus 9364C switches | 131,000 |
| | Nexus 9300-EX switches | 353,000 / 324,000 (with out/with urpf enabled) (/64 prefix length); 1900 (non /64 prefix length) |
| | Nexus 9300-FX/FX2 and 9300-GX switches | 442,000 / 412,000 (with out/with urpf enabled) |
| | Nexus 9300-FX3 switches | 442,000 / 412,000 (without / with urpf enabled) (protocol learned host) |
| | Nexus 9700-EX /FX line cards | 235,000 (/64 prefix length); 3900 (non /64 prefix length) (FM-E) and 235,000 (any prefix len) (FM-E2) |
| IPv4 host routes (dual-host mode) | Nexus 9200 and 9364C switches | 163,000 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3, and 9300-GX switches | 262,000 |
| IPv6 host routes (dual-host mode) | Nexus 9200 and 9364C switches | 81,000 |
| | Nexus 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 131,000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv4 LPM routes (dual-host mode) | Nexus 9200 and 9300-EX switches | 6000 |
| | Nexus 9300-FX and 9364C switches | 8000 |
| | Nexus 9300-FX2 and 9300-GX switches | 10,000 |
| | Nexus 9300-FX3 switches | 7000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | Not supported |
| IPv6 LPM routes (dual-host mode) | Nexus 9200, 9300-EX, 9364C, and 9300-FX/FX3 switches | 1900 |
| | Nexus 9300-FX2 and 9300-GX switches | 3900 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | Not supported |
| IPv4 LPM routes (l3-heavy mode) | Nexus 9500 switches and Nexus 9600-RX line cards | 1,800,000 |
| IPv6 LPM routes (l3-heavy mode) | Nexus 9500 switches and Nexus 9600-RX line cards | 750,000 |
| IPv4 ARP (dual-host mode) | Nexus 9200, 9300, 9364C and 9300-EX switches | 64,000 |
| | Nexus 9300-FX/FX2/FX3, and 9300-GX switches | 98,000 |
| IPv6 ND (dual-host mode) | Nexus 9200, 9300, 9364C and 9300-EX switches | 64,000 |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 98,000 |
| IPv4 host routes (internet-peering mode)<br>**Note**<br>The combined IPv4 and IPv6 route prefixes of internet-peer which was working in the internet-peering routing mode may not work forever because the global internet tables are growing. This occurs as hardware resource to accommodate IPv4 and IPv6 route prefixes do not change once the hardware/software is shipped. | Nexus 9300-EX and 9300-FX2 switches | 1 Million (protocol learned host) |
| | Nexus 9300-FX/FX3 and 9300-GX switches | 1,256,000 (protocol learned host) |
| | Nexus 9500 switches with the Nexus 9700-EX /FX line cards | 1 Million (protocol learned host) |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv6 host routes (internet-peering mode)<br>**Note**<br>The combined IPv4 and IPv6 route prefixes of internet-peer which was working in the internet-peering routing mode may not work forever because the global internet tables are growing. This occurs as hardware resource to accommodate IPv4 and IPv6 route prefixes do not change once the hardware/software is shipped. | Nexus 9300-EX switches | 16,000 (Hash Table: Shared between IPv6 ND and protocol learned IPv6 host) |
| | Nexus 9300-EX and 9300-FX2 switches | 500,000 (protocol learned host) |
| | Nexus 9300-FX/FX3 and Nexus 9300-GX switches | 628,000 (Protocol learned host) |
| | Nexus 9500 switches and Nexus 9700-EX line cards | 16,000 (Hash Table: Shared between IPv6 ND and protocol learned IPv6 host) |
| | Nexus 9500 switches and Nexus 9700-FX line cards | 500,000 (protocol learned) |
| IPv4 LPM routes (internet-peering mode)<br>**Note**<br>The combined IPv4 and IPv6 route prefixes of internet-peer which was working in the internet-peering routing mode may not work forever because the global internet tables are growing. This occurs as hardware resource to accommodate IPv4 and IPv6 route prefixes do not change once the hardware/software is shipped. | Nexus 9300-EX and 9300-FX2 switches | 1 Million (protocol learned) |
| | Nexus 9300-FX/FX3 and 9300-GX switches | 1,256,000 (protocol learned) |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 1 Million (protocol learned ) |
| IPv6 LPM routes (internet-peering mode)<br>**Note**<br>The combined IPv4 and IPv6 route prefixes of internet-peer which was working in the internet-peering routing mode may not work forever because the global internet tables are growing. This occurs as hardware resource to accommodate IPv4 and IPv6 route prefixes do not change once the hardware/software is shipped. | Nexus 9300-EX switches | 500,000 (Prefix length 0-83) protocol learned<br>1900 (Prefix length /84-127) |
| | Nexus 9300-FX2 switches | 500,000 (protocol learned) |
| | Nexus 9300-FX/FX3 and 9300-GX switches | 628,224 |
| | Nexus 9500 switches and Nexus 9700-EX line cards | 500,000 (Prefix length 48-83) protocol learned<br>1900 (Prefix length /84-127) |
| | Nexus 9500 switches and Nexus 9700-FX line cards | 500,000 (Prefix length 48-128) protocol learned |
| | Nexus 9500 switches with the FM-E and FM-E2 fabric line cards | 176,000 (Prefix length 0–47 ) protocol learned host |
| Routes (internet-peering mode) | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards | 1 Million[26] |
| IPv4 routes (internet-peering mode) | Nexus 9500 switches and Nexus 9600-R and 9600-RX line cards | 852,000[27] |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv6 routes (internet-peering mode) | Nexus 9500 switches and Nexus 9600-R line cards | 175,000[28] |
| Routes (internet-peering mode) | Nexus 9500 switches and Nexus 9600-R line cards | 852,000 |
| IPv4 routes (internet-peering mode) | Nexus 9500 switches and Nexus 9600-R line cards | 781,000 |
| IPv6 routes (internet-peering mode) | Nexus 9500 switches and Nexus 9600-R line cards | 71,000 |
| IPv4 ARP (internet peering mode) | Nexus 9300-EX switches and Nexus 9700-EX/FX line cards | 32,000 (Hash Table: Shared between IPv6 ND, IPv4 ARP, and protocol learned IPv6 host) |
| | Nexus 9300-FX/FX2 and 9300-GX switches | 32,000 (Hash Table: Shared between IPv6 ND, IPv4 ARP, and protocol learned IPv6 host) over L3 interface and 16,000 over a SVI/VLAN (as the upper limit of the dynamic learned MAC address in the "internet Peering" mode is 16,000 |
| | Nexus 9300-FX/FX3 sand 9300-GX switches | 32,000 (Hash Table: Shared between IPv6 ND, IPv4 ARP, and protocol learned IPv6 host) over L3 interface and 16,000 over a SVI/VLAN (as the upper limit of the dynamic learned MAC address in the "internet Peering" mode is 16,000 |
| IPv6 ND (internet-peering mode) | Nexus 9300-EX switches and Nexus 9700-EX/FX line cards | 16,000 (Hash Table: Shared between IPv6 ND, IPv4 ARP, and protocol learned IPv6 host) |
| | Nexus 9300-FX2 switches | 16,000 (Hash Table: Shared between IPv6 ND, IPv4 ARP) |
| | Nexus 9300-FX3 switches | 32,000 over an L3 interface and 16,384 over an SVI / VLAN (as the upper limit of the dynamically learned MAC address upper limit in "Internet Peering" mode is 16,384) |
| IS-ISv4 adjacencies (either L1, L2, or sum of L1 and L2 with default timers) | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX /FX line cards | 255 |
| IS-ISv4 BFD sessions (with default timers) | Nexus 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 255 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IS-ISv4 routes | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX /FX line cards | 10,000 |
| IS-ISv4 network type | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | Point to point, broadcast |
| Groups with default timers (3s/10s) and multiple group optimizations. [There are 2 primary, one for IPv4 and the other for IPv6, and 7926 secondary] | X9636C-R/RX and X9636Q-R line cards | 7928 |
| Groups with aggressive timers (1s/3s) and multiple groups optimization. [There are 2 primary, one for IPv4 and the other for IPv6, and 7926 secondary][29] | X9636C-R/RX and X9636Q-R line cards | 7928 |
| Groups per interface or I/ module | X9636C-R/RX and X9636Q-R line cards | Maximum 16 (Because 16 is the unique virtual MAC address limit) |
| OSPF/OSPFv3 LSA/LSDB size | Nexus 9600-R and 9600-RX line cards | 250,000 |
| | Nexus 9300-FX3 switches | 100,000 |
| OSPF/OSPFv3 areas | Nexus 9600-R and 9600-RX line cards | 15 |
| | Nexus 9300-FX3 switches | 100 |
| OSPFv2 neighbors | Nexus 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX /FX line cards | 1000 |
| | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, and 9500 switches | 256 |
| OSPFv3 neighbors | Nexus 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX /FX line cards | 1000 |
| | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, and 9500 switches | 256 |
| OSPF/OSPFv3 LSA/LSDB size | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 100,000 |
| OSPF/OSPFv3 areas | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX, 9300-FX2/FX3, 9300-GX, and 9500 switches and Nexus 9700-EX/FX line cards | 100 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Static routes | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX, 9300-FX2, 9300-FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 8000 |
| VRFs | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, and 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| | Nexus 9600-R and 9600-RX line cards | 3967 |
| VRRP groups per interface or I/O module | Nexus 9200, 9300, 9364C, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and 9700-EX/FX line cards | 250 |
| **Policy-based routing (PBR)** | | |
| Configured sequences per policy | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX/FX line cards | 128 |
| | Nexus 9300 and 9500 switches | 256 |
| Next-hop addresses per policy | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 32 |
| IPv4 ACEs (unidimensional) | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX /FX line cards | 3582 (per network forwarding engine) |
| | Nexus 9300 and 9500 switches | 3072 (per network forwarding engine) |
| IPv6 ACEs (unidimensional) | Nexus 9200, 9300-EX, and 9300-FX/FX2 switches | 1792 (per network forwarding engine) |
| | Nexus 9300 and 9500 switches | 1536 (per network forwarding engine) |
| IPv4 and IPv6 ACEs | Nexus 9200, 9300-EX, and 9300-FX/FX2 switches | 1024 IPv4 + 128 IPv6 |
| | Nexus 9300 and 9500 switches | 2048 IPv4 + 256 IPv6 |
| | Nexus 9700-EX/FX line cards | 1024 IPv4 |
| Interfaces with PBR policy | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX/FX line cards | 512 |
| | Nexus 9300 and 9500 switches | 256 |
| **VRRPv3** | | |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| VRRPv3 groups per interface | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches and Nexus 9700-EX /FX line cards | 255 |
| VRRPv3 groups with default timers (1 s) | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 490 |
| VRRPv3 groups with relaxed timers (3 s) | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX /FX line cards | 490 |
| Pathways with one VRRPv3 group with default timer (1 s) | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 489 |
| VRRPv3 groups and pathways combined | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 490 |
| **ECMP** | | |
| ECMP Paths | Nexus 9200, 9300-EX, 9300-FX/FX2/FX3/FXP, 9300-GX switches and Nexus 9504/9508 switches with -R/ RX line cards | 64 |

[21] The limit of supported BFD sessions for each EoR line card is 75.
[22] If you have more than 490 groups, then only one group per SVI. SVIs cannot have a user defined MAC or any VRRP group with it.
[23] For vPC configuration, HSRP maximum scale is 16 groups, 15 groups with vPC peer-gateway configured.
[24] The hash table is subject to collisions. Depending on the host route pattern, collisions might occur.
[25] The hash table is subject to collisions. Depending on the host route pattern, collisions might occur.
[26] Contains internet peering profile with additional IPv4 and IPv6 routes.
[27] Internet profile with additional IPv4 routes (total of 914K routes consisting of IPv4 and 62K of IPv6)
[28] Internet profile with additional IPv6 routes (total of 871K routes consisting of IPv6 and 696K of IPv4)
[29] If the user has Multi-protocol configuration, user should configure appropriate CoPP policies to avoid any control plane traffic drops.

For the Cisco Nexus 9200 Platform switches, the default value for LPM unicast routes is 6000 (IPv4) or 1900 (IPv6). You can use the **hardware profile multicast max-limit lpm-entries 0** command to increase the number of IPv4 LPM unicast routes to 8000. The **hardware profile ipv6 lpm-entries maximum 0** command reserves the entire LPM table for IPv4. With this configuration, the IPv4 LPM scale is 14,000 (with 2000 reserved for multicast by default). This value can be increased to 16,000 with the **hardware profile multicast max-limit lpm-entries 0** command. The **hardware profile ipv6 lpm-entries maximum 4096** command reserves the entire LPM table for IPv6. With this configuration, the IPv6 LPM scale is 3900. When you allocate the entire table for IPv4 or IPv6 LPM unicast routes, the other address family cannot be used.

The maximum number of PBR next-hops based on 4 FM-E supported is 192 per slice of the forwarding engine

**Note**

- The IPv4/IPv6 host routes and the IPv4 multicast routes share the same hardware table. Limits are provided for both the default line card mode and the max host line card mode.
- The IPv4 and IPv6 unicast routes share the same hardware table. Limits are provided for both the default line card mode and the max host line card mode.
- High availability (graceful restart and stateful switchover) is not supported when unicast or multicast aggressive timers are configured at any scale.

Guidelines and Limitations for OSPF Verified Scalability Limits

- To achieve the highest scale, we recommend that you use a single OSPF instance instead of multiple instances.
- Each OSPFv2 and OSPFv3 scale value might vary when combined with other parameters.
- The graceful restart timeout value might be increased in multidimensional scenarios.

***Table 19: PVLAN VXLAN Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Primary VLANs | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 16 |
| Secondary VLANs | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 20 |
| Ports in community host mode | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 40 |
| Port in Isolated host mode | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 40 |
| Ports in isolated trunk mode | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 40 |
| Ports in promiscuous mode | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 5 |
| PVLANs allowed on a PVLAN port | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 16 |

***Table 20: VXLAN Verified Scalability Limits (Unidimensional)***

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| **IGMP snooping over VXLAN** | | |
| VXLAN VLANs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 1000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| VTEP Peers[30] | Nexus 9200 and 9300 switches | 256 |
| | Nexus 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX/FX line cards | 512 |
| Underlay multicast groups | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 128 |
| **Multi-Site** [31] | | |
| Asymmetric VNIs per peer | Nexus 9332C, 9364C, 9300-EX, 9300-FX/FX2/FXP, 9500 switches and Nexus 9700-EX/FX line cards | 4000 |
| Number of Tunnel Encryption sessions | Nexus 9300, N9336C-FX2, N93240YC-FX2, N93360YC-FX2, N93216TC-FX2 | 128[32] |
| Number of BGWs per site for Secure VXLAN EVPN Multi-Site using CloudSec | N9336C-FX2, N93240YC-FX2, N93360YC-FX2, N93216TC-FX2 switches | 6 per 10 sites |
| Number of sites | Nexus 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9332C, 9364C, 9500 switches and Nexus 9700-EX/FX line cards | 25 |
| Number of sites for Secure VXLAN EVPN Multi-Site using CloudSec | Nexus 9300-FX2 switches | 10 |
| Number of sites for TRM | Nexus 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9332C, 9364C, 9500 switches and Nexus 9700-EX/FX line cards | 15 sites |
| Number of BGWs per site[33] | Nexus 9332C, 9364C, and 9500 switches and Nexus 9700-EX/FX line cards | 2 (Anycast), 2(vPC) |
| | Nexus 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 6 (Anycast), 2 (vPC) |
| Number of BGWs per site with TRM enabled[34] | Nexus 9332C, 9364C, 9500 switches and Nexus 9700-EX/FX line cards | 2 (Anycast), 2 (vPC) |
| | Nexus 9300-EX, 9300-FX/FX2/FX and 9300-GX switches | 6 (Anycast), 2 (vPC) |
| Number of BGWs for TRM | Nexus 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9332C, 9364C, 9500 switches and Nexus 9700-EX/FX line cards | 06 BGW |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Number of Secure VXLAN EVPN Multi-Site using CloudSec sessions | Nexus 9300-FX2 switches | 128 [35] |
| Multisite-PIP ECMP | Nexus 9300-FX2 switches | 1000[36] |
| VTEPs per Site | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 256 |
| **Tenant Route Multicast Layer 3 Mode with VXLAN BGP eVPN** | | |
| VXLAN Layer 2 VNI | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 1000 |
| VXLAN Layer 3 VNI/VRFs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 250 |
| VTEP Peers | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 256 |
| Underlay Multicast Group (PIM ASM Underlay) | Nexus 9200, 9300,9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 128[37] |
| Overlay Multicast Group (PIM ASM & PIM SSM) | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9700-EX/FX line cards | 7200[38] |
| **VXLAN Flood and Learn** | | |
| Virtual network identifiers (VNIs) or VXLAN-mapped VLANs | Nexus 9200, 9300, 9300-EX,and 9300-FX/FX2/FX3 switches | 2000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| Underlay multicast groups | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 128 |
| Overlay MAC addresses | Nexus 9200, 9300, and 9500 switches | 64,000 |
| | Nexus 9300-EX, 9300-FX switches and Nexus 9700-EX/FX line cards | 90,000 |
| | Nexus 9300-FX2/FX3 switches | 60,000 |
| Remote VXLAN tunnel endpoints (VTEPs Multicast) | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9364C-EX, 9500 switches and Nexus 9700-EX/FX line cards | 512 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Ingress replication peers [39] | Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2/FX3 switches | 512 |
| Ingress replication Layer 2 VNIs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| MAC addresses for ingress replication | Nexus 9200, 9300, and 9500 switches | 64,000 |
| | Nexus 9300-EX, 9300-FX/FX2/FX3 switches and Nexus 9700-EX/FX line cards | 90,000 |
| Port VLAN translations under an interface | Nexus 9300, 9500 switches and Nexus 9700-EX/FX line cards | 100 |
| | Nexus 9300-EX/FX/FX2/FX3 switches | 3967 |
| Port VLAN translations in a switch | Nexus 9300 switches and Nexus 9700-EX/FX line cards | 2000 |
| | Nexus 9300-EX/FX/FX2/FX3 switches | 24,000 |
| | Nexus 9500 switches | 200 |
| Static MAC addresses pointing to a remote VTEP | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| VXLAN VLAN logical port VP count | Nexus 9300, and 9500 switches | 7000 |
| VXLAN VLANs per FEX port (host interface) | Nexus 9300, 9300-FX3, and 9500 switches | 75 |
| | Nexus 93180YC-EX | 75[40] |
| Layer 2 routed VNIs for vPC-centralized gateway | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 450 |
| IGMP groups | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9500 switches and Nexus 9700-EX/FX line cards | 8192 |
| **VXLAN BGP eVPN** | | |
| Layer 2 VNIs | Nexus 9200, 9300, 9300-GX switches and Nexus 9600-R and 9600-RX line cards | 2000 |
| | Nexus 9300-EX and 9300-FX/FX2/FX3 switches | 2000, 4000 (with no Layer 3 VNIs) |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 1000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| Xconnect VLANs | Nexus 9300, 9332C, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 40 |
| SVI with Distributed Anycast Gateway; Layer 2 VNI extended | Nexus 9300-EX switches | 2000[41] |
| | Nexus 9300, 9300-FX/FX2/FX3, and 9300-GX switches | 2000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| Layer 3 VNIs / VRFs[42] | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX switches and Nexus 9600-R and 9600-RX line cards | 900 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 750 |
| Underlay multicast groups | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 128 |
| VTEPs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9600-R, 9600-RX, and 9700-EX / FX, line cards | 512 |
| MAC addresses | Nexus 9200, 9300, and 9500 switches | 64,000 |
| | Nexus 9300-EX, 9300-FX/FX2, 9300-GX switches and Nexus 9700-EX /FX line cards | 90,000 |
| | Nexus 9300-FX3 switches | 90,000 |
| | Nexus 92348GC-X switches | 97,000 |
| Port VLAN translations under an interface | Nexus 9300, 9500 switches and Nexus 9700-EX/FX line cards | 100 |
| | Nexus 9300-EX/FX/FX2/FX3/GX switches | 3967 |
| Port VLAN translations in a switch | Nexus 9300, 9300-GX switches and Nexus 9700-EX/FX line cards | 2000 |
| | Nexus 9300-EX/FX/FX2/FX3/GX switches | 24,000 |
| | Nexus 9500 switches | 200 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv4 host routes | Nexus 9200, 9300, and 9500 switches | 60,000 |
| | Nexus 92348GC-X switches | 16,000 |
| | Nexus 9300-EX switches | 458,000 |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 471,000 |
| | Nexus 9700-EX/FX line cards | 656,000 |
| | Nexus 9600-R and 9600-RX line cards | 128,000 |
| IPv6 host routes | Nexus 9200, 9300, and 9500 switches | 7000 |
| | Nexus 9300-EX switches | 24,000 |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 265,000 |
| | Nexus 9700-EX/FX line card | 34,000 |
| | Nexus 9600-R and 9600-RX line cards | 32,000 |
| Overlay IPv4 LPM routes | Nexus 9200 switches | 8000 |
| | Nexus 9300 and 9500 switches | 12,000 |
| | Nexus 9300-EX switches | 458,000 |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 471,000 |
| | Nexus 9700-EX/FX line cards | 656,000 |
| Overlay IPv6 LPM routes | Nexus 9200 switches | 2000 |
| | Nexus 9300 and 9500 switches | 7000 |
| | Nexus 9300-EX switches | 206,000[43] |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 265,000[44] |
| | Nexus 9700-EX/FX line cards | 174,000[45] |
| VXLAN VLAN logical port VP count | Nexus 9300 switches | 10,000 |
| | Nexus 9500 switches | 7000 |
| VXLAN VLANs per FEX port (host interface) | Nexus 9300-FX3 and 9500 switches | 75 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IGMP groups | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 8192 |
| **VXLAN BGP eVPN Ingress Replication** | | |
| Layer 2 VNIs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 2000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| Xconnect VLANs | Nexus 9300, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 40 |
| Selective Qinvni with multiprovider tag | Nexus 93180YC-EX, 93180YC-FX, 9336C-FX2, and 9300-FX3 switches | 4000 mappings, 10 provider VLANs; System wide: 48,000 mappings, 512 Provider VLANs |
| SVI with Distributed Anycast Gateway; Layer 2 VNI extended | Nexus 9200 and 9300-EX switches | 2000[46] |
| | Nexus 9300, 9300-FX/FX2/FX3, and 9300-GX switches | 2000 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 1000 |
| Layer 3 VNIs / VRFs[47] | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, and 9300-GX switches | 900 |
| | Nexus 9500 switches and Nexus 9700-EX/FX line cards | 750 |
| VTEPs | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 512 |
| MAC addresses | Nexus 9200, 9300, and 9500 switches | 64,000 |
| | Nexus 9300-EX, 9300-FX/FX2, 9300-GX switches and Nexus 9700-EX/FX line cards | 90,000 |
| | Nexus 9300-FX3 switches | 90,000 |
| IPv4 host routes | Nexus 9200, 9300, and 9500 switches | 32,000 |
| | Nexus 9300-EX switches | 458,000 |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 471,000 |
| | Nexus 9700-EX/FX line cards | 656,000 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| IPv6 host routes | Nexus 9200, 9300, and 9500 switches | 7000 |
| | Nexus 9300-EX switches | 24,000 |
| | Nexus 9300-FX/FX2 and 9300-GX switches | 265,000 |
| | Nexus 9300-FX3 switches | 500,000 |
| | Nexus 9700-EX/FX line cards | 34,000 |
| Overlay IPv4 LPM routes | Nexus 9200 switches | 8000 |
| | Nexus 9300 and 9500 switches | 12,000 |
| | Nexus 9300-EX switches | 458,000 |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 471,500 |
| | Nexus 9700-EX/FX line cards | 656,000 |
| Overlay IPv6 LPM routes | Nexus 9200 switches | 2000 |
| | Nexus 9300 and 9500 switches | 7000 |
| | Nexus 9300-EX switches | 206,000[48] |
| | Nexus 9300-FX/FX2/FX3 and 9300-GX switches | 265,000[49] |
| | Nexus 9700-EX/FX line cards | 174,000[50] |
| VXLAN VLAN logical port VP count | Nexus 9300 and 9500 switches | 7500 |
| VXLAN VLANs per FEX port (host interface) | Nexus 9300, 9300-FX3, and 9500 switches | 75 |
| IGMP groups | Nexus 9200, 9300, 9300-EX, 9300-FX/FX2/FX3, 9300-GX, 9500 switches and Nexus 9700-EX/FX line cards | 8192 |
| **VXLAN and IP-in-IP Tunneling** | | |
| IP-in-IP tunnels | Nexus 9300-FX2 switches | 16 |
| **VXLAN Static Tunnels** | | |
| VNIs | Nexus 9300-EX, 9300-FX/FX2/FX3, 9300-GX, and 9364C switches | 100 |
| VRFs | Nexus 9300-EX, 9300-FX/FX2/FX3, and 9364C switches | 100 |

| Feature | Supported Platforms | Verified Limits |
|---|---|---|
| VTEP peers | Nexus 9300-EX, 9300-FX/FX2/FX3, and 9364C switches | 256 |
| V4 routes | Nexus 9300-EX, 9300-FX/FX2/FX3, 9300-GX, and 9364C switches | 10,000 |

[30] In case of IR, each VNI can have a max of 64 peers.
[31] All the other BGW numbers (number of supported L2VNIs, L3VNIs, MAC addresses, IP addresses, and so on) match the values supported on a generic VXLAN EVPN VTEP node.
[32] Total number of Cloudsec Security Associations in hardware = 128 (M *N*L) where (M = no. of Cloudsec peers, N = no. of uplinks on each Cloudsec endpoint, L is number of border gateway nodes)
[33] Multi-Site enabled with TRM supported number of L2VNIs –1000 and L3VNIs –100. Maximum supported multicast underlay and overlay route is 8000.
[34] Multi-Site enabled with TRM supported number of L2VNIs –1000 and L3VNIs –100. Maximum supported multicast underlay and overlay route is 8000.
[35] Total number of Cloudsec Security Associations in hardware = 128 (M *N*L) where (M = no. of Cloudsec peers, N = no. of uplinks on each Cloudsec endpoint, L is number of border gateway nodes)
[36] Number of vrfs * number of sites = 1000
[37] VXLAN underlay and overlay multicast routes shares the same hardware table. Maximum Multicast routes is 8000 in the default mode. If you want more overlay route scale, reduce the underlay multicast control group.
[38] VXLAN underlay and overlay multicast routes shares the same hardware table. Maximum Multicast routes is 8000 in the default mode. If you want more overlay route scale, reduce the underlay multicast control group.
[39] In case of IR, each VNI can have a maximum number of 64 peers; 512 peers supported on 100 VNIs only.
[40] This is the limit for the Cisco Nexus 93180YC-EX and other fiber based switches. All copper based 9300-EX switches are not applicable.
[41] Only 1900 SVI are supported if dual stack is used/IPv6 is used.
[42] ECMP objects are not shared across multiple VRFs.
[43] All /64 routes + 4000 for non /64 routes.
[44] All /64 routes + 4000 for non /64 routes.
[45] All /64 routes + 4000 for non /64 routes.
[46] Only 1900 SVI are supported if dual stack is used/IPv6 is used.
[47] ECMP objects are not shared across multiple VRFs.
[48] All /64 routes + 4000 for non /64 routes.
[49] All /64 routes + 4000 for non /64 routes.
[50] All /64 routes + 4000 for non /64 routes.

*Table 21: Tetration Verified Scalability Limits (Unidimensional)*

| Feature | Supported Platforms | Verified Limit |
|---|---|---|
| TCAM size | Nexus 92160YC-X, 9300-EX, and 9300-FX switches | 1024 entries |
| | Nexus 92160YC-X switches | IPv4 –4 entries per rule (TCP, UDP, ICMP, and IP) |
| | Nexus 9300-EX, and 9300-FX switches | IPv4 –2 entries per rule (ICMP and IP) |
| | Nexus 92160YC-X switches | IPv6 –8 entries per rule (4 entries per ICMP and IPv6 for a total of 8 entries) |
| | Nexus 9300-EX and 9300-FX switches | IPv6 –8 entries per rule (4 entries per ICMP and IPv6 for a total of 8 entries) |
| | Nexus 92160YC-X, 9300-EX, and 9300-FX switches | 24 entries out of 1000 is consumed for default. |
| TCAM | Nexus 92160YC-X switches | 250 (IPv4) or 62 (IPv6) |
| | Nexus 9300-EX and 9300-FX switches | 500 (IPv4) or 125 (IPv6) |

The entire Cisco Tetration Analytics documentation set is available at the following URL:
https://www.cisco.com/c/en/us/support/data-center-analytics/tetration-analytics/tsd-products-support-series-home.html

## Spanning Tree Protocol scale considerations

Spanning Tree Protocol (STP) scalability is assessed using two main metrics, each representing a different dimension of scale:

1. **STP Virtual Port Scale**

   **Definition**: Represents the total number of STP entities managed, considering both internal STP data structures and port-level MAC programming/VLAN allow lists.

   **Calculation**: Virtual Port Scale = (Number of physical STP-managed ports) × (Number of VLANs carried by those ports)

   **Example (RPVST)**:

   - 100 VLANs
   - 4 individual L2 interfaces
   - 2 L2 port-channels (each with 8 member interfaces)
   - Calculation:

     (4 individual interfaces + 2 port-channels × 8 members each) × 100 VLANs

     = (4 + 16) × 100 = 2000 Virtual Ports



**Note** All port-channel members are included in this calculation.

**MST Scenario**:

For Multiple Spanning Tree (MST), multiply the number of physical interfaces by the number of VLANs in the carried MST instances. If all 100 VLANs are in the same instance, the result is the same (2000 Virtual Ports).

2. **STP Logical Port Scale**

   **Definition**: Measures the maximum STP BPDU load per hello interval, especially relevant for RPVST, which generates a BPDU per VLAN. This metric helps evaluate control plane scalability. Hence, MST is recommended for large-scale environments, as it reduces Logical Port Scale concerns.

   **Calculation**: Logical Port Scale = (Number of individual L2 interfaces + Number of port-channels) × (Number of VLANs carried)

   **Example**:

   - 100 VLANs
   - 4 individual L2 interfaces
   - 2 L2 port-channels
   - Calculation:

     (4 interfaces + 2 port-channels) × 100 VLANs

     = 6 × 100 = 600 Logical Ports



**Note** Port-channel members are not included in this calculation.



**Note**

- All computation will vary if interfaces have unique VLAN pruning lists or have different MST instances with unique VLAN counts. Always review STP scalability against actual hardware/software limits.
- For large deployments, prefer MST to minimize BPDU processing overhead.

# Verified Scalability Limits - Multidimensional

The tables in this section list the verified scalability limits for the Cisco Nexus 9508 switch with an X9636C-R, X9636C-RX, or X9636Q-R line card or a C9508-FM-R fabric module and Cisco Nexus 9504 with -R line cards for Cisco NX-OS Release 9.3(10). These limits are validated with a multidimensional configuration. The values provided in these tables focus on the scalability of all listed features at the same time.

Each number is the absolute maximum currently supported by this Cisco NX-OS release for the corresponding feature. If the hardware is capable of a higher scale, future software releases might increase this verified maximum limit. Results might differ from the values listed here when trying to achieve maximum scalability with multiple features enabled.



**Attention** These numbers are not the maximum verified values if each feature is viewed in isolation. For these numbers, see the "Verified Scalability Limits" section.

*Table 22: eBGP/IS-IS Profile Verified Scalability Limits (Multidimensional)*

| Feature | Verified Limits |
|---|---|
| Number of 100G ports | 288 |
| ECMP | 16-way (Upstream) |
| BGP neighbors | 960 |
| BGP IPv4 /32 unicast routes | 30,000 |
| BGP IPv4 VLSM unicast routes | 18,000 |
| BGP IPv6 /128 unicast routes | 16,000 |
| BGP IPv6 VLSM unicast routes | 1000 |
| IS-IS v2 neighbors | 255 |
| IS-IS v3 neighbors | 255 |
| IS-IS Layer 2 adjacency | 16 |
| IS-IS IPv4 /32 unicast routes | 20,000 |
| IS-IS IPv4 VLSM unicast routes | 1000 |
| IS-IS IPv6 /128 unicast routes | 20,000 |
| IS-IS IPv6 VLSM unicast routes | 1000 |
| BFD sessions | 272 |
| PIM neighbors | 256 |
| ACL ACEs | 15,000<br>500 |
| Sub-interfaces | 712 |
| SPAN sessions | 1 local SPAN session |
| Multicast SSM | 20,000 |

*Table 23: iBGP/OSPF Profile Verified Scalability Limits (Multidimensional)*

| Feature | Verified Limits |
|---|---|
| Number of 100G ports | 180 |
| Number of 40G ports | 108 |
| ECMP | 8-way (Upstream) |
| BGP neighbors | 8 |

| Feature | Verified Limits |
|---|---|
| BGP IPv4 VLSM unicast routes | 40,000 |
| BGP IPv6 VLSM unicast routes | 10,000 |
| OSPFv2 neighbors | 108 |
| OSPFv3 neighbors | 30 |
| OSPF IPv4 /32 unicast routes | 100,000 |
| OSPF IPv4 VLSM unicast routes | 155,000 |
| OSPFv3 IPv6 /128 unicast routes | 1000 |
| OSPFv3 IPv6 VLSM unicast routes | 9000 |
| BFD sessions | 108 |
| VRF | 250 |
| PIM neighbors | 108 |
| IPv4 (*,G) multicast routes | 2000 |
| IPv4 (S,G) multicast routes | 10,000 |
| ACL ACEs | 500 (IPv4)<br>500 (IPv6) |
| SPAN sessions | 1 local SPAN session |

***Table 24: iBGP/EIGRP Profile Verified Scalability Limits (Multidimensional)***

| Feature | Verified Limits |
|---|---|
| Number of 100G ports | 180 |
| Number of 40G ports | 108 |
| ECMP | 16-way (Upstream) |
| BGP neighbors | 8 |
| BGP IPv4 VLSM unicast routes | 40,000 |
| BGP IPv6 VLSM unicast routes | 10,000 |
| EIGRP v4 neighbors | 276 |
| EIGRP v6 neighbors | 276 |
| EIGRP IPv4 /32 unicast routes | 30,000 |

| Feature | Verified Limits |
|---|---|
| EIGRP IPv4 VLSM unicast routes | 1000 |
| EIGRP IPv6 /128 unicast routes | 30,000 |
| EIGRP IPv6 VLSM unicast routes | 1000 |
| BFD sessions | 276 |
| VRF | 250 |
| PIM neighbors | 276 |
| IPv4 (*,G) multicast routes | 6000 |
| IPv4 (S,G) multicast routes | 16,000 |
| ACL ACEs | 500 (IPv4)<br>500 (IPv6) |
| SPAN sessions | 1 local SPAN session |

***Table 25: MPLS Verified Scalability Limits (Multidimensional)***

| Feature | Verified Limits |
|---|---|
| MPLS L3VPN | 3967 |
| VPE | 3967 |
| PE nodes | 3 |
| PE routes | 20,000 |
| X9636C-RX line card: ACL scale-IPv4 | 95,000 |
| X9636C-RX line card: ACL scale-IPv6 | 20,000 |
| HSRP, HSRP VIP | 3967 each for v4 and v6 |
| vPC uRPF | 3967 |
| Strict uRPF | Yes |
| VRF | 3967 |
| SVI | 3967 |
| Layer 3 VPN routes IP ECMP | 2000 |
| MPLS LSR ECMP | 2000 |
| VPNv4 routes | 400,000 |

| Feature | Verified Limits |
|---|---|
| VPNv6 routes | 90,000 |
| EBGP neighbors | 750 |

*Table 26: Layer 2/Layer 3 Boundary Verified Scalability Limits (Multidimensional)*

| Feature | Verified Limits |
|---|---|
| MAC addresses | 19,000 |
| Number of sub-interfaces | 500 |
| vPC Port channels | 46 |
| ECMP | 16-way (Upstream) |
| OSPFv2 neighbors | 47 |
| OSPFv3 neighbors | 47 |
| OSPF IPv4 /32 unicast routes | 45,000 |
| OSPF IPv4 VLSM unicast routes | 1000 |
| OSPF IPv6 /128 unicast routes | 20,000 |
| OSPF IPv6 VLSM unicast routes | 1000 |
| BFD sessions | 49 |
| VRF | 250 |
| VLAN | 3750 |
| SVI | 3750 |
| VRRP v4 groups | 1996 VRRS / 4 VRRPv3 |
| VRRP v6 groups | 1996 VRRS / 4 VRRPv3 |
| HSRP IPv4 | 1743 Secondary groups / 7 Primary groups |
| HSRP IPv6 | 1743 Secondary groups / 7 Primary groups |
| PIM neighbors | 396 |
| IPv4 (*,G) multicast routes | 3080 |
| IPv4 (S,G) multicast routes | 26,600 |
| IGMP snooping database entries | 6400 |
| sFlow enabled interfaces | 83 |

| Feature | Verified Limits |
|---|---|
| UDLD enabled interfaces | 93 |
| SPAN sessions | 1 local SPAN session |

***Table 27: Segment Routing Verified Scalability Limits (Multidimensional)***

| Feature | Verified Limits |
|---|---|
| VLAN | 100 |
| SVI | 100 |
| MAC entries | 10,000 |
| ARP entries | 70 |
| HSRPv4 VIPs | 100 |
| HSRpv6 VIPs | 100 |
| LACP | 11 |
| LACP members | 4 |
| eBGP IPv6 neighbors | 9 |
| eBGP IPv4 LU neighbors | 9 |
| IPv4 (LU) routes | 6888 |
| IPv4 (LU) paths | 17,580 |
| IPv6 routes | 6663 |
| IPv4 (LU) routes | 17,338 |
| SR ECMP | 18 (dual-homed) |
| MPLS HW entries | 11,957 |

***Table 28: VXLAN Profile Verified Scalability Limits (Multidimensional)***

| Feature | Verified Limits |
|---|---|
| Ports | 16 |
| ECMP | 8-way (Upstream) |
| BGP neighbors | 200 |
| BGP EVPN Layer 2 VPN host routes | 64,000 |
| BGP IPv4 VLSM unicast routes or OSPF | 10,000 |

| Feature | Verified Limits |
|---|---|
| BGP IPv6 VLSM unicast routes or OSPF | 6000 |
| BFD sessions | 20 |
| PIM neighbors | 20 |
| IPv4 (*, G) multicast routes (co-existing) | 4000 |
| IPv4 (S,G) multicast routes (co-existing) | 2000 |
| Layer 3 VNI | 900 |
| Layer 2 VNI | 2000 |
| Local VTEP | 1 |
| Remote VTEPs | 256 |
| VLAN | 3600 |
| SVI | 900 |
| MAC | 90,000 |

# Deployment Case Studies

This section provides sample topologies for some common deployments. For each topology, the scalability numbers are the limits with all of the listed features enabled at the same time.



**Attention** These numbers are not the maximum verified values if each feature is viewed in isolation. For these numbers, see the "Verified Scalability Limits" section.

## Layer 2/Layer 3 Aggregation Topology (Max-Host Routing Mode)

This Layer 2/Layer 3 aggregation topology consists of Cisco Nexus 9508 switches as virtual port channel (vPC) aggregation pairs. These aggregation nodes are fully loaded with N9K-X9564TX, N9K-X9564PX, and N9K-X9636PQ line cards. The N9K-X9636PQ line cards are used in normal mode and breakout mode. Cisco Nexus 9396PX and 93128TX switches are used as top-of-rack units with Cisco Nexus 3000 Series switches to achieve the desired vPC scale.

The Cisco Nexus 9508 switch is also used as a core Layer 3 node that connects to a pair of vPC aggregation nodes. The focus of the topology is to test IPv4 ARP, IPv6 neighbor discovery (ND), and Layer 2 scalability and other routing, switching, and Layer 4 through Layer 7 features for management and operations. All Layer 3 interfaces are configured for dual stack, and the traffic is dual stack for all VLANs.

In the following table, the Verified Limit column lists the verified scaling capabilities with all listed features enabled at the same time. The scale numbers listed here exceed those used by most customers in their topologies. These numbers are not the maximum verified values if each feature is viewed in isolation.

*Table 29: Layer 2/Layer 3 Aggregation Topology (Max-Host Routing Mode)*

| Feature | 9508 Verified Limit (Max-Host Routing Mode) |
|---|---|
| Fully loaded chassis | 1 N9K-X9636PQ, 1 N9K-X9564TX, 2 N9K-X9564PX, 1 N9K-X9432PQ, 1 N9K-X9536PQ |
| Physical interfaces enabled | 276 |
| Multicast S,G routes | 653 |
| Multicast *,G routes | 500 |
| IPv4 unicast routes (LPM) | 5000 |
| IPv6 unicast routes (LPM) | 850 |
| IPv4 ARP | 65,000 |
| IPv6 ND | 40,000 |
| MAC addresses | 90,000 |
| VLANs | 490 |
| vPCs* | 200 |
| OSPFv2 neighbors | 20 |
| OSPFv3 neighbors | 4 |
| BGP (IPv4) neighbors | 65 |
| BGP (IPv6) neighbors | 65 |
| SVIs | 490 |
| STP logical ports | 2800 (RPVST) |
| HSRP VLANs (IPv4/IPv6) | 490 |
| Virtual ports | 700 |
| Port channel links | 8 |

* The number of VLANs per vPC supported should be within the MST or RPVST virtual port count specified in this table, depending on the topology.

## Layer 2/Layer 3 Aggregation Topology (Default Routing Mode)

This Layer 2/Layer 3 aggregation topology consists of Cisco Nexus 9516 switches as virtual port channel (vPC) aggregation pairs. These aggregation nodes are fully loaded with N9K-X9564TX, N9K-X9564PX, and N9K-X9536PQ line cards. The chassis is fully loaded with five line cards configured for breakout mode. The Cisco Nexus 9396PX and 93128TX switches are used as top-of-rack units with Cisco Nexus 3000 Series switches to achieve the desired vPC scale. The Cisco Nexus 9516 nodes are running in default routing mode. The Cisco Nexus 3164Q switch is also used as a core Layer 3 node that connects to a pair of vPC aggregation nodes.

The focus of the topology is to test IPv4 ARP, IPv6 neighbor discovery (ND), Layer 2 scalability, IPv4 and IPv6 LPM routing, Layer 2 and Layer 3 multicast routing for IPv4, and Layer 4 through Layer 7 features for management and operations. All Layer 3 interfaces are configured for dual stack, and the traffic is dual stack for all VLANs.

In the following table, the Verified Limit column lists the verified scaling capabilities with all listed features enabled at the same time. These numbers are not the maximum verified values if each feature is viewed in isolation.

***Table 30: Layer 2/Layer 3 Aggregation Topology (Default Routing Mode)***

| **Feature** | **9516 Switch Verified Limit (Default Routing Mode)** | **9300 Platform Verified Limit (Default Routing Mode)** |
|---|---|---|
| Chassis configuration | 5 N9K-X9432PQ line cards<br>4 N9K-X9464PX line cards<br>3 N9K-X9536PQ line cards<br>3 N9K-X9464TX line cards<br>1 N9K-X9564TX line card | 9372 |
| Physical ports | 1335 | 50 |
| vPCs | 303 | 24 |
| SVIs | 450 | 450 |
| VRFs | 100 | 100 |
| IPv4 ARP | 40,000 | 40,000 |
| IPv6 ND | 10,000 | 10,000 |
| STP logical ports | 10,000 | 6000 |
| BGP neighbors (IPv4 + IPv6) | 502 + 502 | 502 + 502 |
| IPv4 LPM routes | 50,000 | 6000 |
| IPv6 LPM routes | 10,000 | 1000 |
| BFD (IPv4 + IPv6) | 300 | 102 |
| IGP OSPFv2 neighbors | 502 | 502 |
| IGP OSPFv3 neighbors | 502 | 502 |
| HSRP (IPv4 + IPv6) | 450 + 450 | 450 + 450 |
| IGMP groups | 2000 | 2000 |
| Multicast *,G routes | 2000 | 2000 |
| Multicast S,G routes | 8000 | 6000 |
| Tracking objects | 450 | 450 |

| Feature | 9516 Switch Verified Limit (Default Routing Mode) | 9300 Platform Verified Limit (Default Routing Mode) |
|---|---|---|
| VLANs | 500 | 500 |
| PIM neighbors | 502 | 502 |
| MAC addresses | 60,000 | 60,000 |
| Network address translation (NAT) | Not applicable | 756 |
| sFlow | 256 | 32 |

## FEX System Topology

The FEX 9500 multi-dimensional scale topology consists of Cisco Nexus 9508 switches as virtual port channel (vPC) pairs. Each switch has multiple X9564PX line cards. Each switch has 32 FEX uplinks connected to them. The FEX 9300 multi-dimensional scale topology consists of two Cisco Nexus 9396PX switches used in vPC mode along with 16 FEX uplinks connected to each switch. Multiple FEXs of type Nexus 2248TP-E, 2232PP, 2248PQ, and 2348UPQ are used.

The switches are used at the Layer 2 and Layer 3 boundary and are also configured as VXLAN VTEPs. The FEX host ports are operating as Layer 2 ports. The switches are configured as gateways with the use of SVI interfaces.

In the following table, the Verified Limit column lists the verified scaling capabilities with all listed features enabled at the same time. The scale numbers listed here exceed those used by most customers in their topologies. These numbers are not the maximum verified values if each feature is viewed in isolation.

***Table 31: FEX System Topology***

| Feature | 9500 Platform Verified Limit | 9300 Platform Verified Limit |
|---|---|---|
| Fabric Extenders | 32 | 16 |
| Up interfaces | 1100 | 560 |
| Port channels | 426 | 256 |
| vPC members | 390 | 360 |
| VLANs | 744 | 416 |
| PVLAN VLANs | 56 | 56 |
| Secondary VLANs per primary VLAN | 25 | 25 |
| MAC addresses | 45,000 | 25,000 |
| HSRP | 365 | 365 |
| ARP | 12,000 | 10,000 |
| Neighbor discovery (ND) | 5000 | 5000 |
| Multicast (*,G) | 4000 | 4000 |

| Feature | 9500 Platform Verified Limit | 9300 Platform Verified Limit |
|---|---|---|
| Multicast (S,G) | 4000 | 4000 |

## Multicast System Topology

Two Cisco Nexus 9508 switches are configured as vPC peers in one domain, and two Cisco Nexus 9372PX switches are configured as vPC peers in the other domain. The chassis are fully loaded with N9K-X9432PQ, N9K-X9464PX, N9K-X9536PQ, N9K-X9564PX, N9K-X9564TX, and N9K-X9636PQ line cards. eBGP routing is used to connect these two PIM domains. OSPF is used as IGP in one domain, and EIGRP is configured in the other domain. This setup is configured with multiple rendezvous points (RPs) to serve different multicast group ranges. BSR is used to advertise RP information in both of these PIM domains. PIM anycast is used in one domain, and MSDP anycast is used in the other domain for redundancy and load balancing. Static RP configuration is also used for a range of multicast groups.

The Cisco Nexus 9516 and Cisco Nexus 7000 Series switches are used as Layer 3 core routers in one domain. The Cisco Nexus 3164Q switches are used as Layer 3 core routers in the other domain. This topology also includes the Cisco Nexus 9396PX, Cisco Nexus 9372PX, and Cisco Nexus 3016/3064T switches in the access layer.

In addition to including Layer 2/Layer 3 IPv4 multicast routing, this topology also covers IPv4 and IPv6 host and LPM routing and Layer 2 unicast forwarding. All interfaces are configured for dual stack.

In the following table, the Verified Limit column lists the verified scaling capabilities with all listed features enabled at the same time. These numbers are not the maximum verified values if each feature is viewed in isolation.

***Table 32: Multicast System Topology***

| Feature | 9500 Platform Verified Limit | 9300 Platform Verified Limit |
|---|---|---|
| Chassis configuration | N9K-X9636PQ, N9K-X9536PQ, N9K-X9564PX, N9K-X9564TX, N9K-X9432PQ, N9K-X9464PX, N9K-X9432PQ, C3164PQ | C9372PX, C9396PX, C3164PQ |
| Multicast S,G routes | 17,500 | 5000 |
| Multicast *,G routes | 2500 (IGMP)<br>12500 (snooping) | 500 (IGMP)<br>2500 (snooping) |
| Sources | 2000, 200, 100, 40, 10, 3, 2, 1 | 2000, 200, 100, 40, 10, 3, 2, 1 |
| Replications | 40 | 20 |
| ECMPs | 16 | 8 |
| SVIs | 200 | 200 |
| HSRP/VRRP | 200 HSRP | 100 VRRP |
| MAC addresses | 40,000 | 10,000 |
| ARP | 20,000 | 4000 |
| Unicast LPM IPv4 routes | 20,000 | 4000 |
| Unicast LPM IPv6 routes | 10,000 | 1000 |

| Feature | 9500 Platform Verified Limit | 9300 Platform Verified Limit |
|---|---|---|
| IPv4 ARP | 18,000 | 4000 |
| IPv6 ND | 4000 | 2000 |
| MSDP peers (fully mesh) | 4 | 4 |
| Anycast RPs (MSDP and PIM anycast) [51] | 2 MSDP | 2 PIM anycast |
| IPv4 multicast routes with PIM bidirectional groups | 8000 | 8000 |

[51] This multicast system topology consists of two multicast PIM domains. The Multicast Source Discovery Protocol (MSDP) is used to exchange multicast source information between these two domains.

## VXLAN BGP/eVPN iBGP Centric Topology

This VXLAN BGP/eVPN iBGP centric topology consists of Cisco Nexus 9300 and 9500 Platform switches acting as VXLAN vPC tunnel endpoints (VTEPs) and VXLAN non-vPC VTEPs. VXLAN VTEPs establish iBGP sessions to a Cisco Nexus 9508 switch (route reflector) acting as a spine node. VXLAN-distributed anycast gateway SVIs are configured for dual stack, and the traffic is dual stack.

The focus of this topology is to test VXLAN overlay network scale and underlay Layer 2 switching and other routing, multicast, and Layer 4 through Layer 7 features for management and operations. Underlay PIM neighbors and IS-IS adjacency were tested with the default timer and Bidirectional Forwarding Detection (BFD) enabled on all links.

In the following table, the Verified Limit column lists the verified scaling capabilities with all listed features enabled at the same time. These numbers are not the maximum verified values if each feature is viewed in isolation.

***Table 33: VXLAN BGP/eVPN iBGP Centric Topology***

| Feature | Supported Platform | Verified Limit |
|---|---|---|
| System Routing Template | Nexus 9200, 9300, 9300-EX, 9300-FX, and 9500 switches and the X9700-EX/FX line cards | default |
| | Nexus 9364C switches | Not applicable |
| VXLAN VTEPs | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 128 |
| VXLAN Layer 2 VNIs | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 2000 |
| VXLAN Layer 3 VNIs/VRFs | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 500 |

| Feature | Supported Platform | Verified Limit |
|---|---|---|
| VXLAN multicast groups | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 128 |
| VXLAN overlay MAC addresses | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 64,000 |
| VXLAN overlay IPv4 host routes | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 60,000 |
| VXLAN overlay IPv6 host routes | Nexus 9200, 9300, 9300-EX, 9300-FX, and 9500 switches and the X9700-EX/FX line cards | 16,000 |
| | Nexus 9364C switches | Not applicable |
| VXLAN overlay IGMP Snooping groups | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C and 9500 switches and the X9700-EX/FX line cards | 1000 |
| VXLAN IPv4 LPM routes | Nexus 9200, 9300-EX, 9300-FX, and 9364C switches and the X9700-EX/FX line cards | 5120 |
| VXLAN IPv6 LPM routes | Nexus 9200, 9300-EX, and 9300-FX switches and the X9700-EX/FX line cards | 1500 |
| | Nexus 9364C switches | Not applicable |
| VXLAN VLAN logical port VP count | Nexus 9364C switches | Not applicable |
| VLANs on VTEP node | Nexus 9200, 9300, 9300-EX, 9300-FX, 9364C, and 9500 switches and the X9700-EX/FX line cards | 1700 (total VLANs)<br>1500 (VXLAN VLANs)<br>200 (non-VXLAN VLANs) |
| MST instances | Nexus 9200, 9300, 9300-EX, 9300-FX, and 9500 switches and the X9700-EX/FX line cards | 20 |
| | Nexus 9364C switches | Not applicable |
| STP logical ports<br>For more information on STP scale considerations, see Spanning Tree Protocol scale considerations, on page 52 section. | Nexus 9200, 9300, 9300-EX, 9300-FX, and 9500 switches and the X9700-EX/FX line cards | 3500 |
| | Nexus 9364C switches | Not applicable |

| Feature | Supported Platform | Verified Limit |
|---|---|---|
| vPC port channels | Nexus 9200, 9300, 9300-EX, and 9300-FX switches and the X9700-EX/FX line cards | 40 |
| | Nexus 9364C switches | Not applicable |
| Underlay IS-IS neighbors | Nexus 9200, 9300, 9300-EX, and 9300-FX switches and the X9700-EX/FX line cards | 32 |
| | Nexus 9364C switches | Not applicable |
| Underlay PIM neighbors | Nexus 9200, 9300, 9300-EX, 9300-FX, and 9500 switches and the X9700-EX/FX line cards | 12 |
| | Nexus 9364C switches | Not applicable |
| Underlay HSRP groups for regular VLANs | Nexus 9364C switches | Not applicable |
| Underlay vPC SVIs | Nexus 9200, 9300, 9300-EX, 9300-FX, and 9500 switches and the X9700-EX/FX line cards | 200 |
| | Nexus 9364C switches | Not applicable |

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