

Supported Topologies for Routing over Virtual Port Channel on Nexus Platforms

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Introduction

This document describes supported and unsupported topologies when peering external Layer 3 (L3) devices with unicast routing protocols in a Nexus Virtual Port Channel (vPC) environment.

Prerequisites

Requirements

Cisco recommends that you have a basic understanding of how routing protocols are configured on Nexus switches and other L3 devices.

Components Used

The information in this document is based on these software and hardware versions:

- A pair of similar Nexus switches configured in a vPC environment.
- L3 devices connected to a pair of Nexus switches.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Supported Topologies for Routing in a vPC Environment

The topology diagram in this section shows a Nexus switch pair with three L3 devices connected (L3-A, L3-B, and L3-C). The Nexus switches are in a vPC domain with a peer link configured between them as well as a Layer 2 (L2) and L3 connection.

Table 1 describes which physical links support peering between the two Nexus switches and between a Nexus switch and an L3 device connected to its vPC peer.

Table 2 describes which routing protocol adjacencies are supported over vPC VLANs.

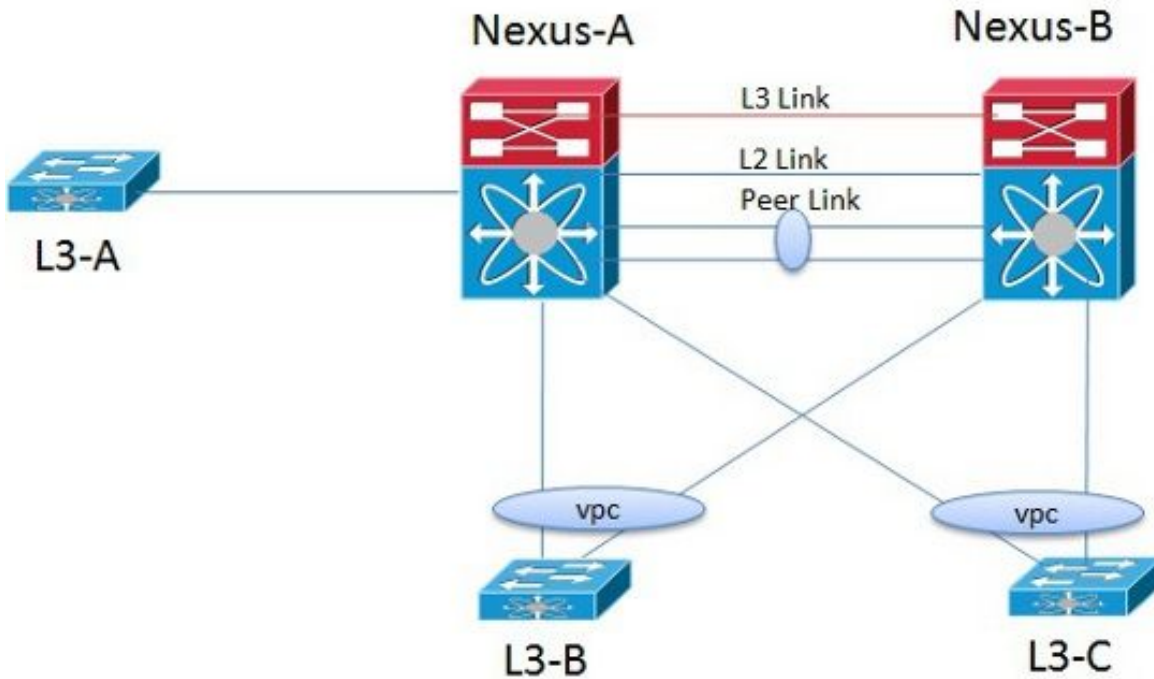


Table 1: Routing Protocol Adjacencies Support over Physical Interfaces

| Nexus Switch Series | Nexus-A and Nexus-B | L3-A and Nexus-B |
|-------------------------------|------------------------|--------------------------|
| | L3 link: supported | L3 link: N/A. |
| Nexus 3000/3100 Series | L2 link: supported* | L2 link: supported* |
| | Peer Link: supported | Peer Link: not supported |
| | L3 link: supported | L3 link: N/A |
| Nexus 3500 Series | L2 link: supported | L2 link: supported |
| | Peer Link: supported | Peer Link: supported |
| | L3 link: supported | L3 link: N/A |
| Nexus 5000 Series | L2 link: not supported | L2 link: unsupported |
| | Peer Link: supported | Peer Link: supported |
| | L3 link: supported | L3 link: N/A |
| Nexus 6000 Series | L2 link: not supported | L2 link: unsupported |
| | Peer Link: supported | Peer Link: supported |
| | L3 link: supported | L3 link: N/A |
| Nexus 7000 Series | L2 link: supported | L2 link: supported |
| | Peer Link: supported | Peer Link: not supported |
| | L3 link: supported | L3 link: N/A |
| Nexus 9000 Series | L2 link: supported* | L2 link: supported* |
| | Peer Link: supported | Peer Link: not supported |

* Configure user defined MAC address for VLAN Switch Virtual Interface (SVI).

Table 2: Routing Protocols Adjacencies Support over vPC VLANs

| Nexus Switch Series | L3-A to L3-B or L3-A to L3-C | L3-B or L3-C to Nexus-A or Nexus-B |
|-------------------------------|------------------------------------|--|
| Nexus 3000/3100 Series | Yes | * 7.0(3)I5(1)+ |
| Nexus 3500 Series | Yes | * 6.0(2)A8+ |
| Nexus 5000 Series | Yes | * 7.3(0)N1(1)+ |
| Nexus 6000 Series | Yes | * 7.3(0)N1(1)+ |

| | | |
|--------------------------|-----|-------------------|
| Nexus 7000 Series | Yes | * ** 7.2(0)D1(1)+ |
| Nexus 9000 Series | Yes | * 7.0(3)I5(1)+ |

* Feature requires explicit configuration "layer3 peer-router".

** Feature called "Layer 3 over vPC for F2E and F3 Modules" and is hardware dependant.

Important Notes and Caveats

- L3-A to Nexus-A peering is always supported for L2/L3.
- L3-B to L3-C peering is always supported for L2/L3.
- Open Shortest Path First (OSPF) over vPC and Bidirectional Forwarding Detection (BFD) with OSPF are supported on Cisco Nexus 3000 and 3100 Series switches. However, BFD with OSPF over vPC peer links is not currently supported.
- Nexus 2000 Fabric Extender (FEX) supports routed ports when used with parent Nexus 7000 switch. Nexus 2000 does not support routed ports when used with any other parent Nexus device.
- If the vPC peer link is configured on a Cisco Nexus 32-port 1/10 Gigabit Ethernet (F1-Series) module (N7K-F132XP-15), you must include the L3 backup routing VLAN in the VLAN list specified by the **peer-gateway exclude-vlan** command.
- For the Nexus 5000 switches, since a parallel non-vPC is not supported for multicast over the vPC Peer Link (that is, PIM adjacency over the vPC Peer Link), Layer 3 from the router to each of the Nexus 5000 switches is required. Additionally, the command **vpc bind vrf <default> VLAN_ID** is still required.

Related Information

- [vPC Layer 3 Backup Routing with F1 and Peer-Gateway](#)
- [Technical Support & Documentation - Cisco Systems](#)