

Troubleshoot vPC Inconsistency Issues on NX-OS Switches

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Introduction

This document describes commonly seen virtual port channel (vPC) inconsistency issues and steps to troubleshoot them.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

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, ensure

that you understand the potential impact of any command.

Background Information

A vPC allows links physically connected to two different switches to appear as a single port-channel by a third device.

Troubleshoot vPC on NX-OS Devices

Check the output of `show vpc brief` and see if there is any compatibility issue in one of the vPC member ports.

Use the commands listed to check the specific vPC inconsistency:

```
show vpc consistency-parameters global
```

```
show vpc consistency-parameters interface Ethernet x/y
```

```
show vpc consistency-parameters vlans
```

```
show vpc consistency-parameters vpc vpc-id
```

Issue #1: vPC Member Ports Incompatible

Check if there is any compatibility issue between the vPC member ports, as reported with the **show vpc** command.

If there is any issue, it is reported as "Compatibility check failed", as shown in this output:

```
<#root>
```

```
~show vpc~
```

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

vPC domain id : 1

Peer status : peer adjacency formed ok

vPC keep-alive status : peer is alive

Configuration consistency status : success

Per-vlan consistency status : success

Type-2 consistency status : success

vPC role : secondary

Number of vPCs configured : 18

Peer Gateway : Enabled

Dual-active excluded VLANs : -

Graceful Consistency Check : Enabled

Auto-recovery status : Enabled, timer is off.(timeout = 240s)

Delay-restore status : Timer is off.(timeout = 50s)

Delay-restore SVI status : Timer is off.(timeout = 10s)

vPC Peer-link status

```
-----  
id Port Status Active vlans
```

```
--  
1 Po100 up 1,5,10,118,121-132,150,160,253
```

vPC status

```

-----
id Port Status Consistency Reason Active vlans
--
1 Po1 up success success 1,5,10,118, 121-132,150
2 Po2 down* failed Compatibility check failed - <--- for speed

```

<#root>

```

~show vpc consistency-parameters vpc 2~

```

Legend:

Type 1 : vPC will be suspended in case of mismatch

Name	Type	Local Value	Peer Value
-----	----	-----	-----
delayed-lacp	1	disabled	disabled
mode	1	active	active
Switchport Isolated	1	0	0
Interface type	1	port-channel	port-channel
LACP Mode	1	on	on
Virtual-ethernet-bridge	1	Disabled	Disabled
Speed	1	10 Gb/s	100 Gb/s <--- speed mismatch
Duplex	1	full	full
MTU	1	9216	9216
Port Mode	1	trunk	trunk
Native Vlan	1	20	20
Admin port mode	1	trunk	trunk
STP Port Guard	1	Default	Default
STP Port Type	1	Edge Trunk Port	Edge Trunk Port
STP MST Simulate PVST	1	Default	Default
lag-id	1	[(64, 0-23-4-ee-be-6d, 806b, 0, 0), (ffff, 50-6b-4b-46-3a-fa, 0, 0, 0), (64, 50-6b-4b-46-39-6a, 1, 0, 0)]	[(0, 50-6b-4b-46-3a-fa, 0, 0, 0), (64, 0-23-4-ee-be-6d, 806b, 0, 0)]
Vlan xlt mapping	1	Disabled	Disabled
vPC card type	1	N9K TOR	N9K TOR
Allowed VLANs	-	1,5,10,118	1,5,10,118
Local suspended VLANs	-	-	-

Troubleshoot

- Make sure the vPC interfaces and remote side (server/third switch) are configured with the same speeds. Use **show vpc consistency-parameters vpc vpc-id** to check speed mismatch with the peer vPC interfaces.
- Additionally, confirm all the member interfaces in the vPC are configured with the same speeds.

Issue #2: Peer-link Down

Check if Peer status is peer link is down using the **show vpc** command.

If there is any issue with the peer link status, it must be reported as "peer link is down" for "Peer status", as shown in this output:

```
<#root>
```

```
`show vpc brief`
```

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id                : 100

Peer status                   : peer link is down      <--- peer-link is down then vPC is down

vPC keep-alive status         : peer is alive
Configuration consistency status : success
Per-vlan consistency status    : success
Type-2 consistency status     : failed
Type-2 inconsistency reason    : SVI type-2 configuration incompatible
vPC role                      : secondary
Number of vPCs configured     : 1
Peer Gateway                  : Disabled
Dual-active excluded VLANs    : -
Graceful Consistency Check    : Enabled
Auto-recovery status          : Disabled
Delay-restore status          : Timer is off.(timeout = 30s)
Delay-restore SVI status      : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode         : Disabled
vPC Peer-link status

-----
id    Port    Status Active vlans
--    --
1     Po1     down   -

vPC status
-----
Id    Port          Status Consistency Reason              Active vlans
--    --
123   Po123         down   failed   Peer-link is down              -          <--- Reason: Peer-link down
```

Troubleshoot

- Check the status of the port-channel interface and member interfaces configured in the peer link. If they are down and not connected, please check the physical connectivity, such as cable/SFP, and so on.
- It is required that the vPC peer link port-channel is configured as Spanning-Tree Protocol (STP) port type network, so Bridge Assurance is enabled on all vPC peer links on both vPC peer switches.
- Verify the vPC peer link is configured as a Layer-2 port-channel trunk that allows only vPC VLANs.
- Until the vPC peer link between the peers is initially established, all the vPC port-channels stay in suspended state. If the vPC peer link fails once online for some time, vPCs on the secondary link suspends until the peer link is recovered.

Issue #3: Peers Not Reachable through peer-keepalive

Check if vPC keep-alive status is peer is not reachable through peer-keepalive using `show vpc` command.

The output reports that vPC peer-keepalive is down with the reason peer is not reachable through peer-keepalive, as shown:

```
<#root>
```

```
`show vpc brief`
```

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id          : 100
Peer status            : peer adjacency formed ok
vPC keep-alive status  : peer is not reachable through peer-keepalive
```

```
<--- keep-alive is down
```

```
Configuration consistency status : success
Per-vlan consistency status      : success
Type-2 consistency status       : failed
Type-2 inconsistency reason     : SVI type-2 configuration incompatible
vPC role                        : secondary
Number of vPCs configured       : 1
Peer Gateway                   : Disabled
Dual-active excluded VLANs      : -
Graceful Consistency Check      : Enabled
Auto-recovery status           : Disabled
Delay-restore status           : Timer is off.(timeout = 30s)
Delay-restore SVI status       : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode          : Disabled
vPC Peer-link status
```

```
-----
id   Port   Status Active vlans
--   -
1    Po1    up     1,10
```

```
vPC status
```

```
-----
Id   Port           Status Consistency Reason           Active vlans
--   -
123  Po123            up     success    success                    1,10
```

```
<-- vpc is still up
```

Troubleshoot

- Verify the Layer 3 interface is associated to the correct Virtual Route Forwarding (VRF) used for peer-keepalive between the vPC peer switches.
- If the management VRF used for peer-keepalive, make sure a management switch is connected to the management ports on both vPC peer devices.
- Verify that both the source and destination IP addresses used for the peer-keepalive messages are reachable from the VRF associated with the vPC peer-keepalive link.
- Ensure Address Resolution Protocol (ARP) is resolved and you can ping between the peer-keepalive

addresses to test reachability. If no reachability exists, check for issues along the path (L1, STP, and so on).

Issue #4: Type-1 Inconsistency

Check if Type-1 consistency status is failed using `show vpc` command.

The command results report the reason for the failure if configuration consistency issues are detected, as this shows:

```
<#root>
```

```
`show vpc`
```

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id          : 1
Peer status             : peer adjacency formed ok
vPC keep-alive status   : peer is alive

Configuration consistency status : failed      <--- consistency check failed
```

```
Per-vlan consistency status      : success
```

```
Configuration inconsistency reason: vPC type-1 configuration incompatible - STP Mode inconsistent <---
```

```
Type-2 consistency status      : success
vPC role                      : primary
Number of vPCs configured      : 0
Peer Gateway                  : Enabled
Dual-active excluded VLANs     : -
Graceful Consistency Check     : Enabled
Auto-recovery status          : Enabled, timer is off.(timeout = 360s)
Delay-restore status           : Timer is on.(timeout = 150s, 30s left)
Delay-restore SVI status       : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Enabled
Virtual-peerlink mode          : Disabled
```

Troubleshoot

- Verify both peer switches control the same spanning-tree mode. For example, if the peer switch uses Multiple Spanning-Tree (MST) spanning-tree mode and the other peer switch uses Rapid Per VLAN Spanning Tree (Rapid-PVST). Change the spanning-tree mode to be the same on both switches to clear this error.
- Change the spanning tree mode with this commands:

```
Switch(config)# spanning-tree mode mst or
```

```
Switch(config)# spanning-tree mode rapid-pvst
```

To see other types of Type-1 VPC Global configuration failures, use this command to identify the category, as well as, the local and peer value:

<#root>

`show vpc consistency-parameters global`

Legend:

Type 1 : vPC will be suspended in case of mismatch

Name -----	Type ----	Local Value -----	Peer Value -----
STP MST Simulate PVST	1	Enabled	Enabled
STP Port Type, Edge	1	Normal, Disabled,	Normal, Disabled,
BPDUFILTER, Edge BPDUGuard		Disabled	Disabled
STP MST Region Name	1	""	""
STP Disabled	1	None	None
STP Mode	1	Rapid-PVST	Rapid-PVST
STP Bridge Assurance	1	Enabled	Enabled
STP Loopguard	1	Disabled	Disabled
STP MST Region Instance to	1		
VLAN Mapping			
STP MST Region Revision	1	0	0
Interface-vlan admin up	2		10
Interface-vlan routing capability	2	1	1,10
QoS (Cos)	2	([0-7], [], [], [], [], [])	([0-7], [], [], [], [], [])
Network QoS (MTU)	2	(1500, 1500, 1500, 1500, 1500, 1500)	(1500, 1500, 1500, 1500, 1500, 1500)
Network QoS (Pause: T->Enabled, F->Disabled)	2	(F, F, F, F, F, F)	(F, F, F, F, F, F)
Input Queuing (Bandwidth)	2	(0, 0, 0, 0, 0, 0)	(0, 0, 0, 0, 0, 0)
Input Queuing (Absolute Priority: T->Enabled, F->Disabled)	2	(F, F, F, F, F, F)	(F, F, F, F, F, F)

Output Queuing (Bandwidth Remaining)	2	(0, 0, 0, 0, 0, 0)	(0, 0, 0, 0, 0, 0)
Output Queuing (Absolute Priority: T->Enabled, F->Disabled)	2	(T, F, F, F, F, F)	(T, F, F, F, F, F)
Allowed VLANs	-	1,10	1,10
Local suspended VLANs	-	-	-

This example shows how to display the vPC consistency parameters for a specific vPC port-channel:

```
<#root>
```

```
`show vpc consistency-parameters interface port-channel 10`
```

Legend:

Type 1 : vPC will be suspended in case of mismatch

Name	Type	Local Value	Peer Value
STP Mode	1	Rapid-PVST	Rapid-PVST
STP Disabled	1	None	None
STP MST Region Name	1	""	""
STP MST Region Revision	1	0	0
STP MST Region Instance to	1		
VLAN Mapping			
STP Loopguard	1	Disabled	Disabled
STP Bridge Assurance	1	Enabled	Enabled
STP Port Type	1	Normal	Normal
STP MST Simulate PVST	1	Enabled	Enabled
Allowed VLANs	-	1-10,15-20,30,37,99	1-10,15-20,30,37,9

- Use the global and port-channel vPC consistency-parameters, along with the current configuration to identify any disparities between the vPC peers.

Issue #5: Type-2 Inconsistency

Check if Type-2 consistency status is failed using **show vpc** command.

This command results report the reason of failure if configuration inconsistency is detected:

```
<#root>
```

```
`show vpc`
```

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id          : 1
Peer status             : peer adjacency formed ok
vPC keep-alive status   : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success

Type-2 consistency status : failed      <--- Type-2 inconsistency found
```


Type-2 inconsistency reason : SVI type-2 configuration incompatible <--- Reason for Type-2 inconsistency

vPC role : primary
Number of vPCs configured : 0
Peer Gateway : Enabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status : Enabled, timer is off.(timeout = 360s)
Delay-restore status : Timer is off.(timeout = 150s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Enabled
Virtual-peerlink mode : Disabled

This command can be used to dig deeper to see all of the Type-2 inconsistencies, as well as the configuration for the peer and local values to see if the configuration is mismatched:

<#root>

`show vpc consistency-parameters global`

Legend:

Type 1 : vPC will be suspended in case of mismatch

Name	Type	Local Value	Peer Value
-----	----	-----	-----
STP MST Simulate PVST	1	Enabled	Enabled
STP Port Type, Edge	1	Normal, Disabled,	Normal, Disabled,
BPDUFILTER, Edge BPDUGuard		Disabled	Disabled
STP MST Region Name	1	""	""
STP Disabled	1	None	None
STP Mode	1	Rapid-PVST	Rapid-PVST
STP Bridge Assurance	1	Enabled	Enabled
STP Loopguard	1	Disabled	Disabled
STP MST Region Instance to VLAN Mapping	1		
STP MST Region Revision	1	0	0
Interface-vlan admin up	2		10 <--- mismatch for SVIs between peers
Interface-vlan routing	2	1	1,10 <--- mismatch for SVIs between peers
capability			
QoS (Cos)	2	([0-7], [], [], [],	([0-7], [], [], [],
		[], [])	[], [])
Network QoS (MTU)	2	(1500, 1500, 1500,	(1500, 1500, 1500,

		1500, 1500, 1500)	1500, 1500, 1500)
Network Qos (Pause:	2	(F, F, F, F, F, F)	(F, F, F, F, F, F)
T->Enabled, F->Disabled)			
Input Queuing (Bandwidth)	2	(0, 0, 0, 0, 0, 0)	(0, 0, 0, 0, 0, 0)
Input Queuing (Absolute	2	(F, F, F, F, F, F)	(F, F, F, F, F, F)
Priority: T->Enabled,			
F->Disabled)			
Output Queuing (Bandwidth	2	(0, 0, 0, 0, 0, 0)	(0, 0, 0, 0, 0, 0)
Remaining)			
Output Queuing (Absolute	2	(T, F, F, F, F, F)	(T, F, F, F, F, F)
Priority: T->Enabled,			
F->Disabled)			
Allowed VLANs	-	1,10	1,10
Local suspended VLANs	-	-	-

Troubleshoot

- A switched virtual interface (SVI) Type-2 configuration inconsistency can be due to many inconsistent SVIs configured between the vPC peer switches. For example, when a particular VLAN SVI is configured on one switch, but not present on the peer switch.
- Verify with the **show running-config** command on both switches to identify any difference between the SVI configured.
- If further assistance is still needed to identify differences in the configured SVI, open a TAC case.

Issue #6: Interface Number and vPC ID Inconsistency

Check if there is any member port with consistency failure reported under **vPC status** in the `show vpc` command results.

<#root>

``show vpc``

Legend:

(*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id           : 100
Peer status              : peer adjacency formed ok
vPC keep-alive status    : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                 : secondary
Number of vPCs configured : 1
Peer Gateway             : Disabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status     : Disabled
Delay-restore status     : Timer is off.(timeout = 30s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode    : Disabled
vPC Peer-link status
```

```
-----
id   Port   Status Active vlans
--   -
1    Po1    up      1
```

vPC status

```
-----
Id   Port           Status Consistency Reason           Active vlans
--   -
123  Po123           down*  failed      vPC type-1           -
```

<--- type-1 incor

configuration

incompatible - STP

interface port type

inconsistent

Troubleshoot

- Verify the exact port-type mismatch between the vPC interface with the **show vpc consistency-parameters vpc vpc-id** command.

Steps to check STP port types mismatch:

<#root>

```
`show vpc consistency-parameters vpc 123`
```

Legend:

Type 1 : vPC will be suspended in case of mismatch

Name	Type	Local Value	Peer Value
-----	----	-----	-----
Interface type	1	port-channel	port-channel
LACP Mode	1	on	on
STP Port Guard	1	Default	Default
STP Port Type	1	Edge Trunk Port	Default

<--- this VPC port-channel is configured as Edge Trunk port while peer has Default STP port type.

- Configure the STP port-type on both peers to match the vPC interfaces. A spanning tree port can be configured as an edge port, a network port, or a normal port. A port can be in only one of these states at a given time. The default spanning tree port type is normal.
- STP port-type can be configured globally or at the interface level.

Related Information

- [Cisco Technical Support & Downloads](#)