

排除NX-OS交换机上的vPC不一致问题

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简介

本文档介绍常见的虚拟端口通道(vPC)不一致问题及其故障排除步骤。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档不限于特定的软件和硬件版本。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始(默认)配置。如果您的网络处于活动状态,请确保您了解所有命令的潜在影响。

背景信息

vPC允许物理上连接到两台不同交换机的链路通过第三台设备显示为单个端口通道。

排除NX-OS设备上的vPC故障

检查输出 `show vpc brief` 并查看其中一个vPC成员端口是否存在任何兼容性问题。

使用列出的命令检查特定vPC的不一致性：

```
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
```

问题#1:vPC成员端口不兼容

检查vPC成员端口之间是否存在任何兼容性问题，如中所述。 `show vpc`

如果存在任何问题，则会报告为“Compatibility check failed”，如以下输出所示

```
<#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), (64, 50-6b-4b-46-39-6a, 1, 0, 0)]	[(0, 50-6b-4b-46-3a-fa, 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	-	-	-

故障排除

- 确保vPC接口和远程端（服务器/第三台交换机）配置了相同的速度。使用 `show vpc consistency-parameters vpc vpc-id` 检查与对等vPC接口的速度不匹配。
- 此外，请确认vPC中的所有成员接口配置了相同的速度。

问题#2：对等链路关闭

检查Peer status is peer link is down `show vpc`

如果对等链路状态存在任何问题，则对于“对等状态”，必须将其报告为“对等链路已关闭”，如以下输

出所示：

<#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
```

故障排除

- 检查对等链路中配置的端口通道接口和成员接口的状态。如果它们已关闭但未连接，请检查物理连接，如电缆/SFP等。
- 需要将vPC对等链路port-channel配置为生成树协议(STP)端口类型网络，以便在两台vPC对等交换机上的所有vPC对等链路上启用网桥保证。
- 验证vPC对等链路是否配置为仅允许vPC VLAN的第2层端口通道中继。
- 在对等体之间的vPC对等链路最初建立之前，所有vPC端口通道都保持挂起状态。如果vPC对等链路联机后出现一段时间的故障，辅助链路上的vPC将暂停，直到对等链路恢复为止。

问题#3：无法通过对等保持连接访问对等体

检查vPC keep-alive status is peer is not reachable through peer-keepalive in `show vpc`

输出报告vPC对等保持连接已关闭，原因是对等设备无法通过对等保持连接访问，如下所示：

```
<#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
```

故障排除

- 验证第3层接口是否与vPC对等交换机之间用于对等保持连接的正确虚拟路由转发(VRF)关联。
 - 如果管理VRF用于对等保持连接，请确保将管理交换机连接到两个vPC对等设备上的管理端口。
- 验证用于对等保持连接消息的源IP地址和目标IP地址是否可从与vPC对等保持连接链路关联的VRF到达。

- 确保地址解析协议(ARP)已解析，并且您可以在对等保持连接地址之间执行ping操作以测试连通性。 如果不存在可达性，请检查路径沿途的问题 (L1、STP等)。

问题#4：类型1不一致

检查Type-1一致性状态是否在 `show vpc`

如果检测到配置一致性问题，命令结果会报告失败的原因，如下所示：

<#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
```

故障排除

- 检验两台对等交换机是否控制相同的生成树模式。例如，如果对等交换机使用多生成树 (MST)生成树模式，而另一个对等交换机使用快速每VLAN生成树 (快速PVST)。在两台交换机上将生成树模式更改为相同以清除此错误。
- 使用以下命令更改生成树模式：

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

或者

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

要查看第1类VPC全局配置故障的其他类型，请使用此命令确定类别以及本地和对等体值：

```
<#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 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 - - -

```

此示例显示如何显示特定vPC端口通道的vPC一致性参数：

<#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

- 使用全局和端口通道vPC一致性参数以及当前配置来确定vPC对等体之间的任何差异。

问题#5：类型2不一致

检查Type-2一致性状态是否在 `show vpc`

.

如果检测到配置不一致，此命令结果将报告失败原因：

<#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 inc

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

```

此命令可用于深入挖掘，以查看所有类型2不一致情况，以及对等体和本地值的配置，以查看配置是否不匹配：

<#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: 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	-	-	-

故障排除

- 交换虚拟接口(SVI)第2类配置不一致可能是由于vPC对等交换机之间配置的许多不一致SVI造成的。例如，当一台交换机上配置了特定VLAN SVI，但对等交换机上不存在该VLAN SVI。
- 使用 `show running-config` 命令，以识别所配置的SVI之间的任何差异。
- 如果仍需进一步帮助来识别配置的SVI中的差异，请打开TAC案例。

问题#6：接口编号和vPC ID不一致

检查是否有任何成员端口在vPC状态下报告一致性故障。 `show vpc` 命令结果。

<#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

故障排除

- 验证vPC接口与 `show vpc consistency-parameters vpc vpc-id`.

检查STP端口类型不匹配的步骤：

<#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.

- 在两个对等体上配置STP端口类型以匹配vPC接口。生成树端口可以配置为边缘端口、网络端口或普通端口。端口在给定时间只能处于其中一种状态。默认生成树端口类型是正常的。
- STP端口类型可以全局配置，也可以在接口级别配置。

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