在使用NX-OS的vPC中，在Nexus交换机上安装升级

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简介

本文档介绍在使用Cisco NX-OS的vPC中Cisco Nexus 9000交换机的升级过程。

先决条件

要求

Cisco 建议您了解以下主题：

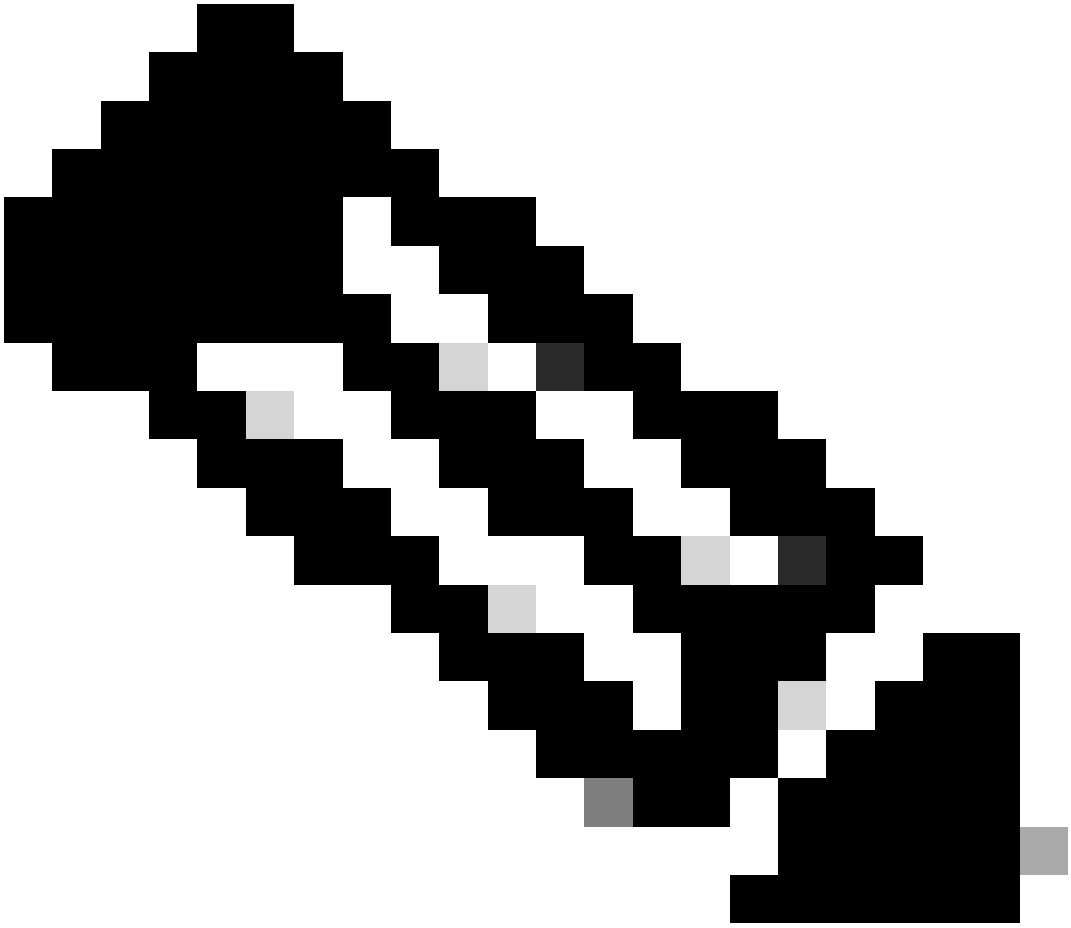
- Nexus NX-OS 软件。
- 虚拟端口通道(vPC)。
- 使用Cisco Nexus交换机上的设备文件系统、目录和文件。
- 登录软件下载。
- Cisco建议安排维护窗口，因为此过程具有破坏性。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- Cisco Nexus 9000和Cisco NX-OS。

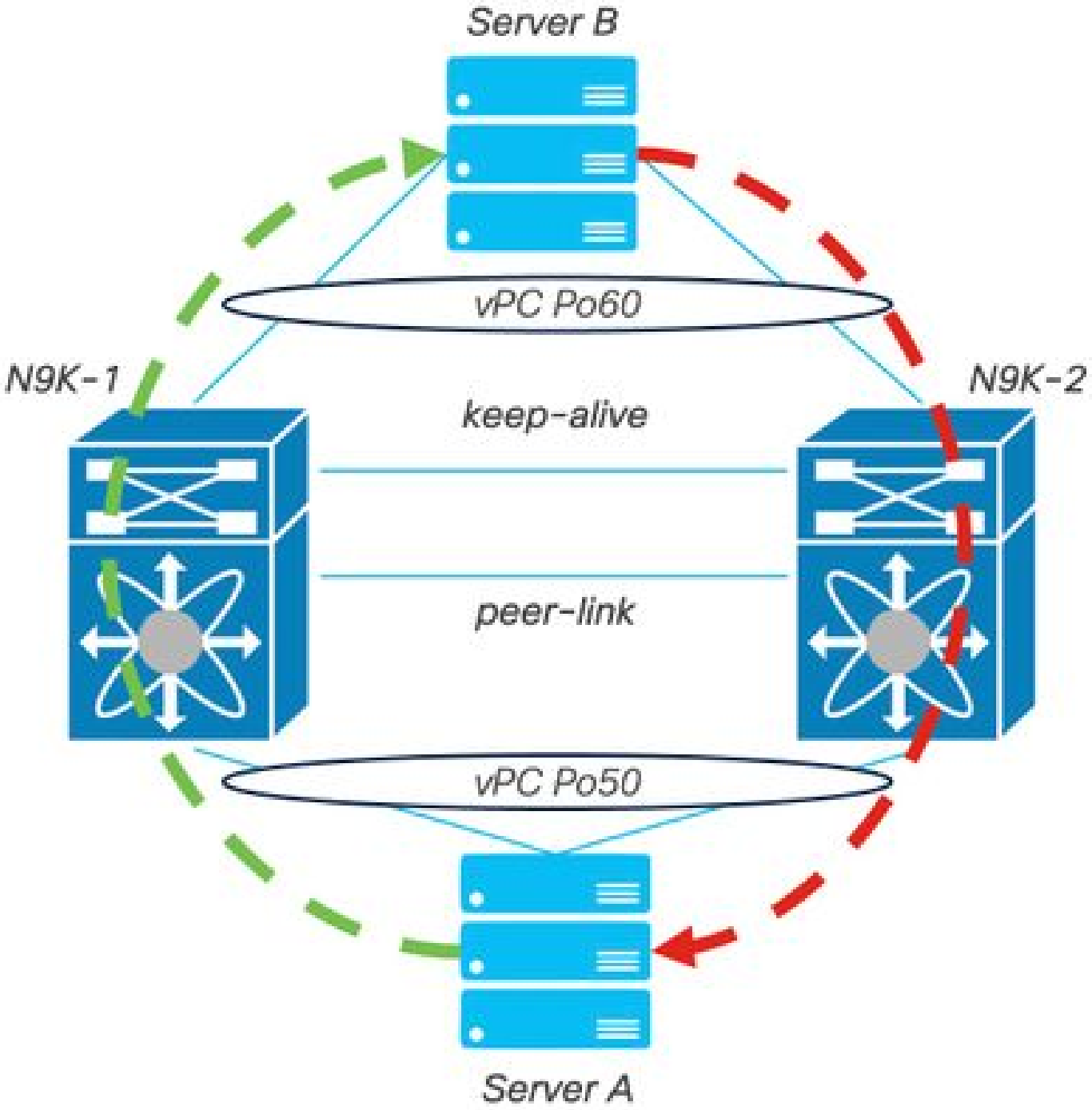
本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。



注意：Cisco Nexus 7000交换机的升级过程可基于本文档，但命令和输出会有所不同。有关详情，请参阅特定于Cisco Nexus交换机的官方思科指南。

配置

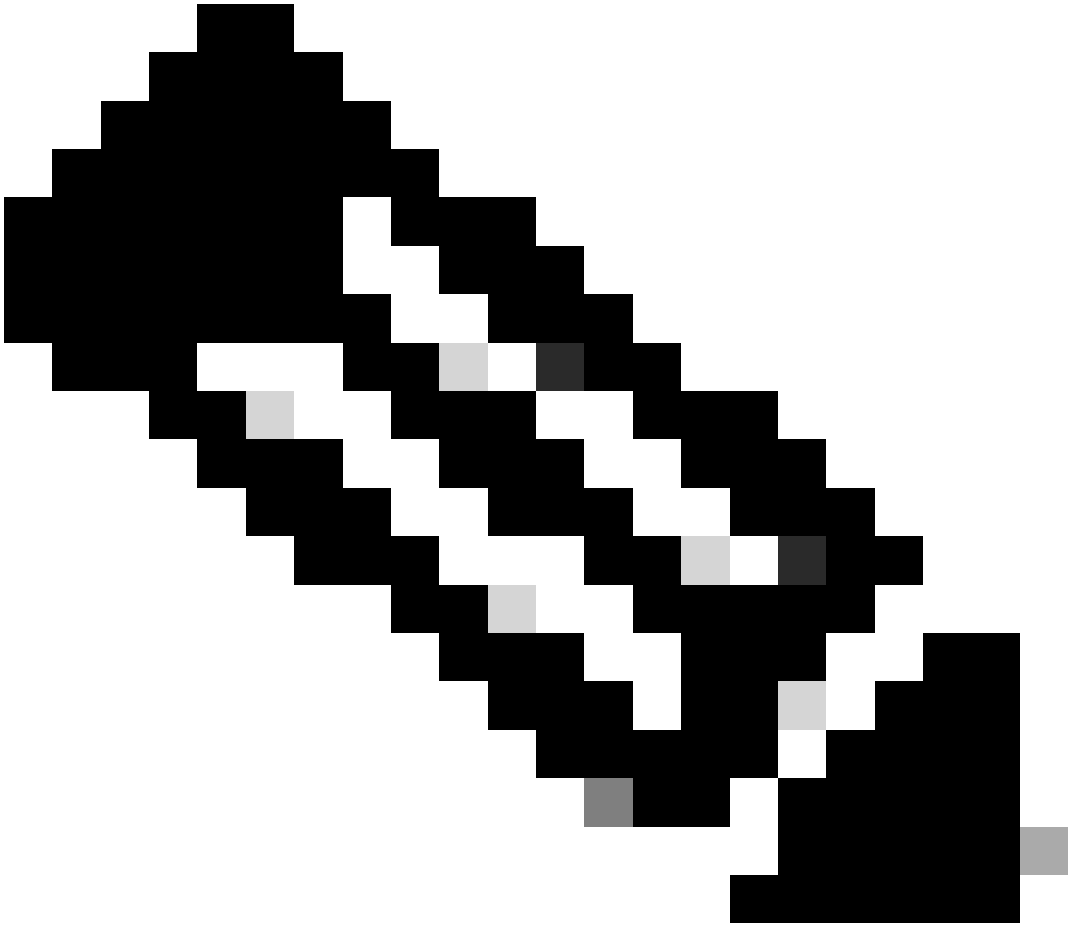
网络图



网络图

背景信息

- 假设您是数据中心的网络管理员，其中有两台N9K-C93180YC-FX-24。
- N9K-1和N9K-2使用NX-OS 9.3(11)。
- 服务器A和B正在发送生产流量。
- 目标是将两台Nexus交换机升级到NX-OS 10.2(5)。



注意：从主交换机开始升级，或者从交换机没有任何功能区别。但是，启动主交换机可以保证两台设备恢复其初始配置的主要和辅助角色。 尽管了解Nexus作为vPC中的主要运营功能非常重要。

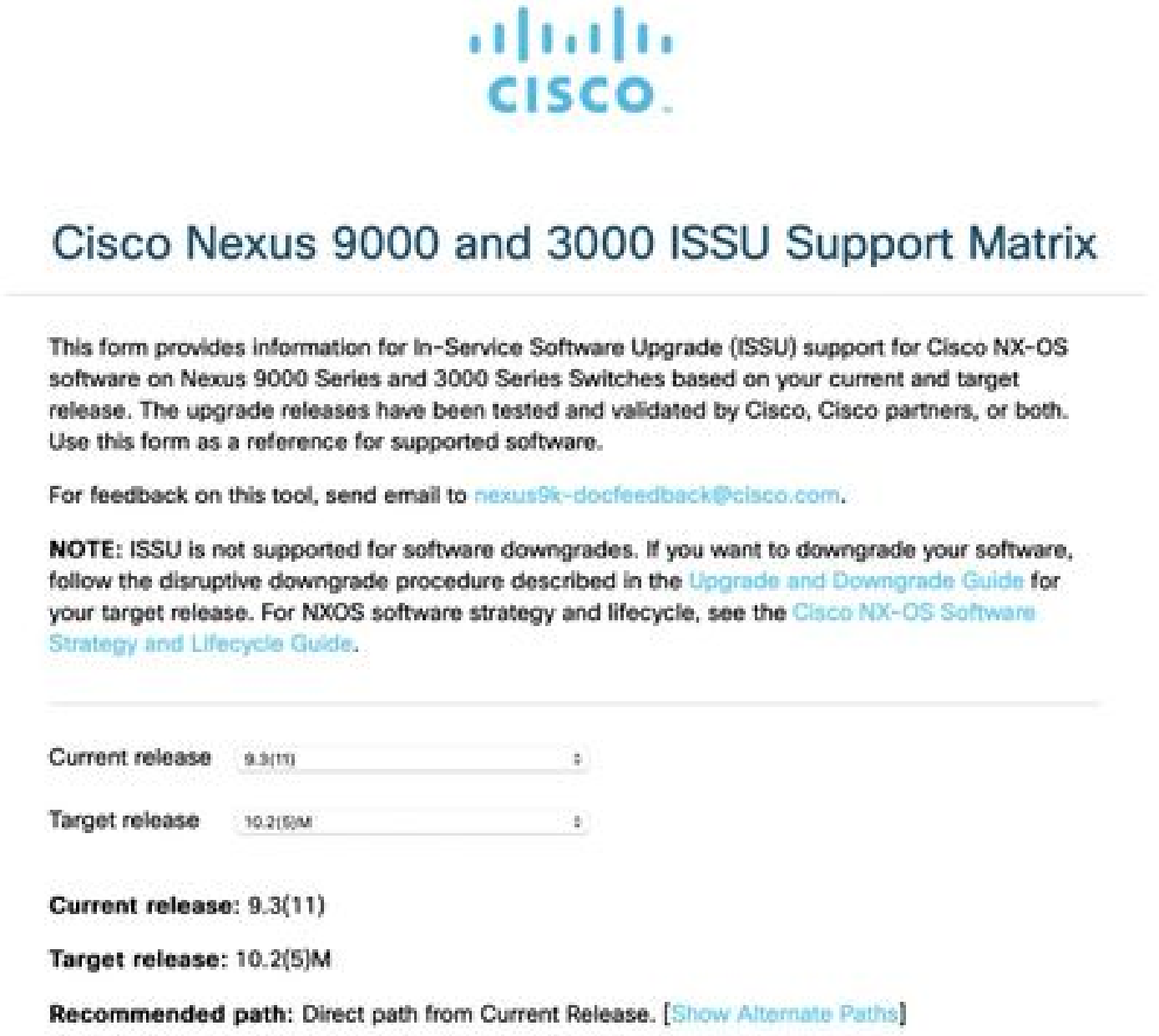
vPC运行的主要任务

- 即使使用FHRP也应答ARP请求。
- 处理网桥协议数据单元(BPDU)。
- 转发PIM组播流量。
- IGMP的控制平面数据包。
- 对等链路关闭时vPC成员端口不关闭。

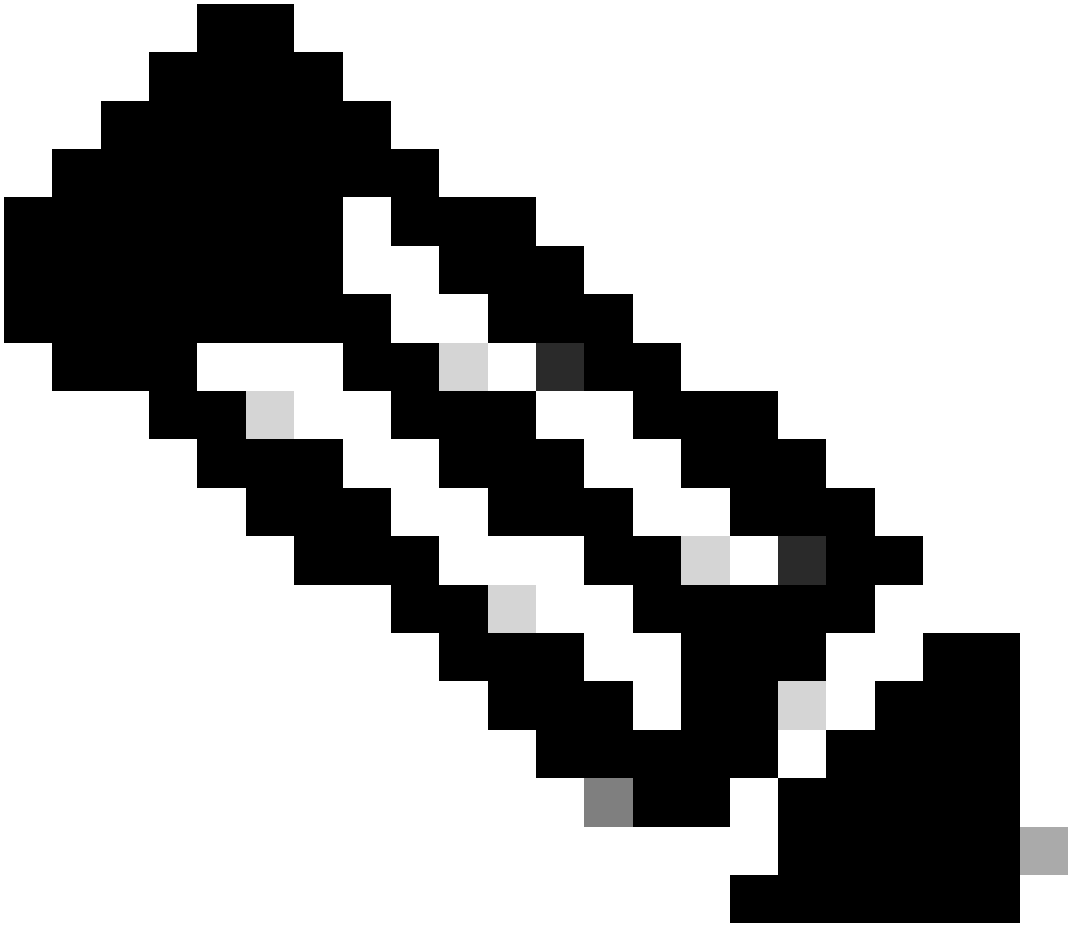
升级方法

步骤1:开放式Cisco Nexus 9000和3000 ISSU支持表

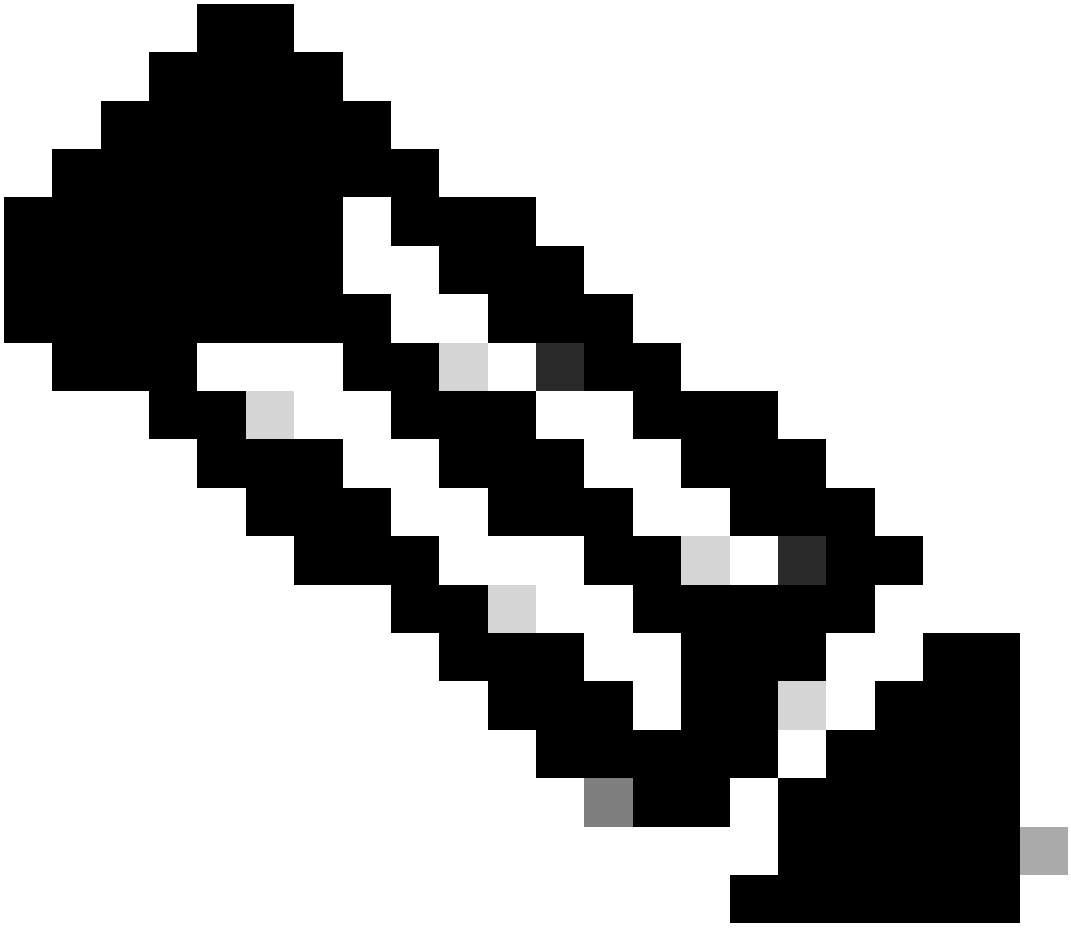
1. 选择当前版本。
2. 选择Target release。



Cisco Nexus 9000和3000 ISSU支持表



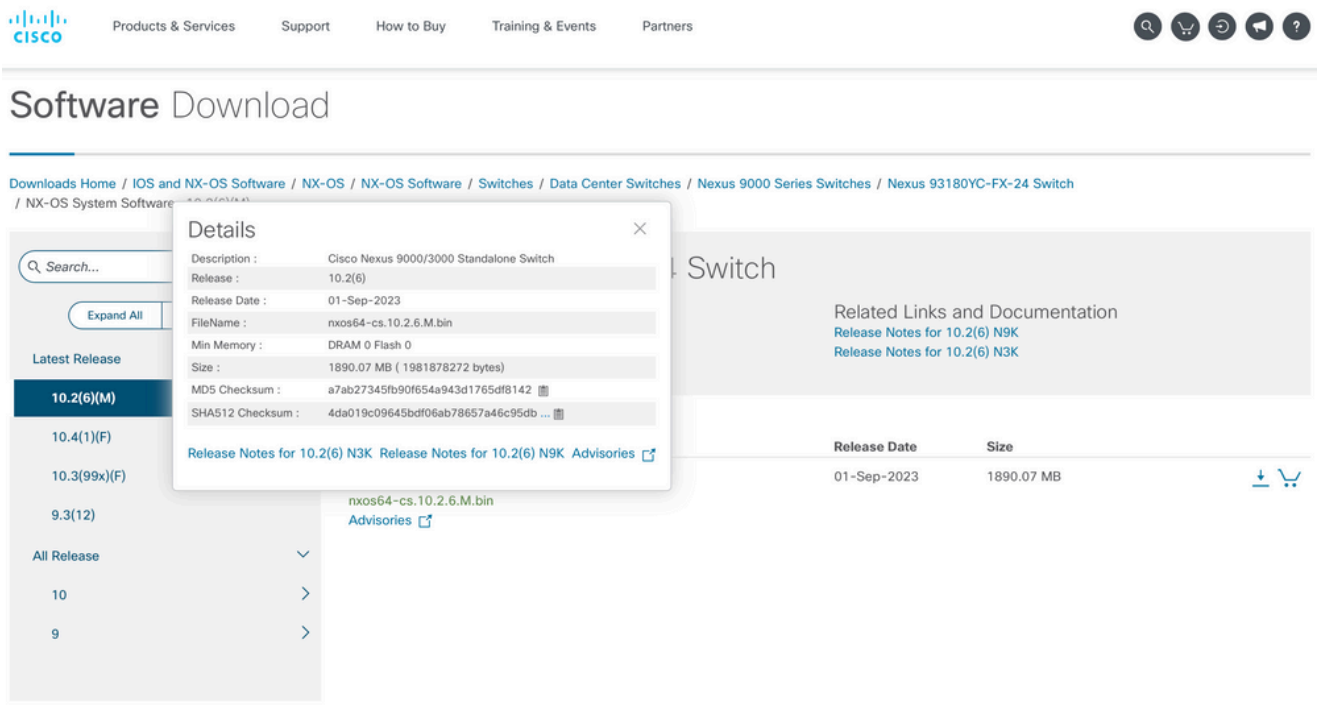
注意：Cisco TAC建议始终使用中断性（重新加载）升级选项和建议的路径。



注意：建议的路径可以显示多个跳跃。对于每一跳，必须重复第2步至第11步，直到两台Cisco Nexus交换机均具有目标NX-OS版本。

第二步：根据您的Cisco Nexus交换机线卡，下载推荐路径中所述的所有Cisco NX-OS文件。

1. 登录软件下载
2. 导航到下载和升级部分并打开访问下载。
3. 点击Browse all > Cisco IOS and NX-OS Software > NX-OS - NX-OS Software > Switches > Data Center Switches > Select your Nexus series > Select your linecard > NX-OS System Software > Select NX-OS version to download。
4. 将光标移到文件名上方以显示文件详细信息，复制MD5校验和值并下载NX-OS文件。



软件下载

5. 通过SCP、SFTP、TFTP或USB将NX-OS文件传输到vPC中的两台Cisco Nexus交换机上的bootflash。 如果选择了前三个选项之一，请通过指定预期的VRF来验证是否对服务器执行ping操作。在本例中，SFTP服务器可通过虚拟路由转发(VRF)管理访问IP地址192.168.9.9。

```
N9K-1(config)# ping 192.168.9.9 vrf management

N9K-1(config)# copy sftp: bootflash:
Enter source filename: nxos64-cs.10.2.5.M.bin
Enter vrf (If no input, current vrf 'default' is considered): management
Enter hostname for the sftp server: 192.168.9.9
Enter username: admin
The authenticity of host '192.168.9.9 (192.168.9.9)' can't be established.
RSA key fingerprint is SHA256:ABCDEFGHIJK.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.9.9' (RSA) to the list of known hosts.
Inbound-ReKey for 192.168.9.9
User Access Verification
Password: cisco
```

6. 文件传输完成后，请使用dir命令验证NX-OS文件是否位于bootflash中。
7. 使用show file bootflash命令从NX-OS文件获取MD5校验和。
8. 将此值与从软件下载复制的值进行比较。 两个值必须匹配，否则NX-OS文件已损坏或不合法。

```
N9K-1(config)# dir | include nxos
 1978203648    Mar 31 01:36:06 2023  nxos.9.3.11.bin
 1943380992    Mar 17 09:54:16 2023  nxos64-cs.10.2.5.M.bin
Usage for bootflash://
20548902912 bytes used
96040308736 bytes free
116589211648 bytes total
```

```
N9K-1(config)# show file bootflash:nxos64-cs.10.2.5.M.bin md5sum
2f60a186cb9c2d55c90086302e51f655
```

第三步：确定每个Cisco Nexus交换机在vPC中的操作角色。

1. 使用命令show vpc role。

```
N9K-1(config)# show vpc role

vPC Role status
----------------------------------------
vPC role                        : primary
Dual Active Detection Status    : 0
vPC system-mac                  : 00:23:04:ee:be:01
vPC system-priority             : 32667
vPC local system-mac            : 44:b6:be:11:17:67
vPC local role-priority         : 32667
vPC local config role-priority  : 32667
vPC peer system-mac             : f8:a7:3a:4e:40:07
vPC peer role-priority          : 32667
vPC peer config role-priority   : 32667
```

```
N9K-2(config)# show vpc role

vPC Role status
----------------------------------------
vPC role                        : secondary
Dual Active Detection Status    : 0
vPC system-mac                  : 00:23:04:ee:be:01
vPC system-priority             : 32667
vPC local system-mac            : f8:a7:3a:4e:40:07
vPC local role-priority         : 32667
vPC local config role-priority  : 32667
vPC peer system-mac             : 44:b6:be:11:17:67
vPC peer role-priority          : 32667
vPC peer config role-priority   : 32667
```

第四步：验证vPC中两台Cisco Nexus交换机上的Cisco NX-OS不兼容。

1. 使用命令show incompatibility-all nxos bootflash。

```
N9K-1(config)# show incompatibility-all nxos bootflash:nxos64-cs.10.2.5.M.bin
Checking incompatible configuration(s) for vdc 'N9K-1':
------------------------------------------------------------
No incompatible configurations

Checking dynamic incompatibilities:
-----------------------------------
```

```
No incompatible configurations
```

第五步：验证vPC中两台Cisco Nexus交换机对Cisco NX-OS的影响。

1. 使用命令show install all impact nxos bootflash。这将执行初步诊断，以验证Cisco NX-OS版本是否兼容且可以完成安装。

```
N9K-1(config)# show install all impact nxos bootflash:nxos64-cs.10.2.5.M.bin
Installer will perform impact only check. Please wait.

Verifying image bootflash:/nxos64-cs.10.2.5.M.bin for boot variable "nxos".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Preparing "nxos" version info using image bootflash:/nxos64-cs.10.2.5.M.bin.
[####################] 100% -- SUCCESS

Preparing "bios" version info using image bootflash:/nxos64-cs.10.2.5.M.bin.
[####################] 100% -- SUCCESS

Performing module support checks.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS

Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes      disruptive         reset  default upgrade is not hitless

Images will be upgraded according to following table:
Module       Image                  Running-Version(pri:alt)           New-Version  Upg-Required
------  ----------  ----------------------------------------  --------------------
     1        nxos                                  9.3(11)                                10.2(5)
     1        bios     v05.47(04/28/2022):v05.43(11/22/2020)    v05.47(04/28/2022)            no

Additional info for this installation:
--------------------------------------

Service "vpc" in vdc 1: Vpc is enabled, Please make sure both Vpc peer switches have same boot mode usi
```

第 6 步（可选）：从vPC中的两台Cisco Nexus交换机导出运行配置的备份。

```
N9K-1(config)# copy running-config sftp:running-config-backup
Enter vrf (If no input, current vrf 'default' is considered): default
Enter hostname for the sftp server: 192.168.9.9
Enter username: admin

The authenticity of host '192.168.9.9 (192.168.9.9)' can't be established.
```

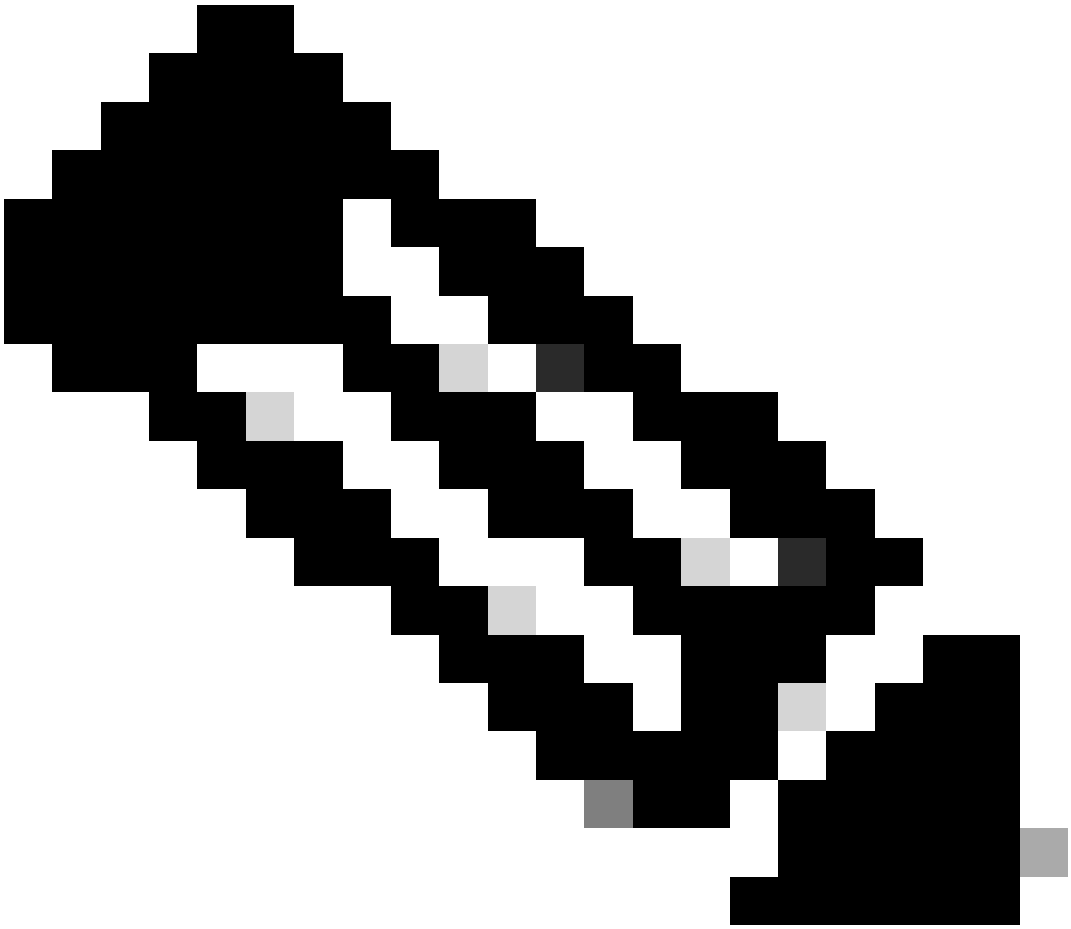
```
RSA key fingerprint is SHA256:ABDCEFGHI.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.9.9' (RSA) to the list of known hosts.
Inbound-ReKey for 192.168.9.9:22
User Access Verification
Password:
Connected to 192.168.9.9.
```

步骤 7.在具有vPC主要角色的Nexus交换机上安装NX-OS。

1. 使用命令install all nxos bootflash。

```
N9K-1(config)# install all nxos bootflash:nxos64-cs.10.2.5.M.bin
Installer will perform compatibility check first. Please wait.
Installer is forced disruptive

Verifying image bootflash:/nxos64-cs.10.2.5.M.bin for boot variable "nxos".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Preparing "nxos" version info using image bootflash:/nxos64-cs.10.2.5.M.bin.
[####################] 100% -- SUCCESS

Preparing "bios" version info using image bootflash:/nxos64-cs.10.2.5.M.bin.
[####################] 100% -- SUCCESS

Performing module support checks.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes      disruptive         reset  default upgrade is not hitless



Images will be upgraded according to following table:
Module       Image                 Running-Version(pri:alt)           New-Version  Upg-Required
------  ----------  ------------------------------------------------------------
     1        nxos                                  9.3(11)                                10.2(5)
     1        bios     v05.47(04/28/2022):v05.43(11/22/2020)    v05.47(04/28/2022)            no


Additional info for this installation:
--------------------------------------

Service "vpc" in vdc 1: Vpc is enabled, Please make sure both Vpc peer switches have same boot mode usin
```

```
Switch will be reloaded for disruptive upgrade.
Do you want to continue with the installation (y/n)?  [n] y
```



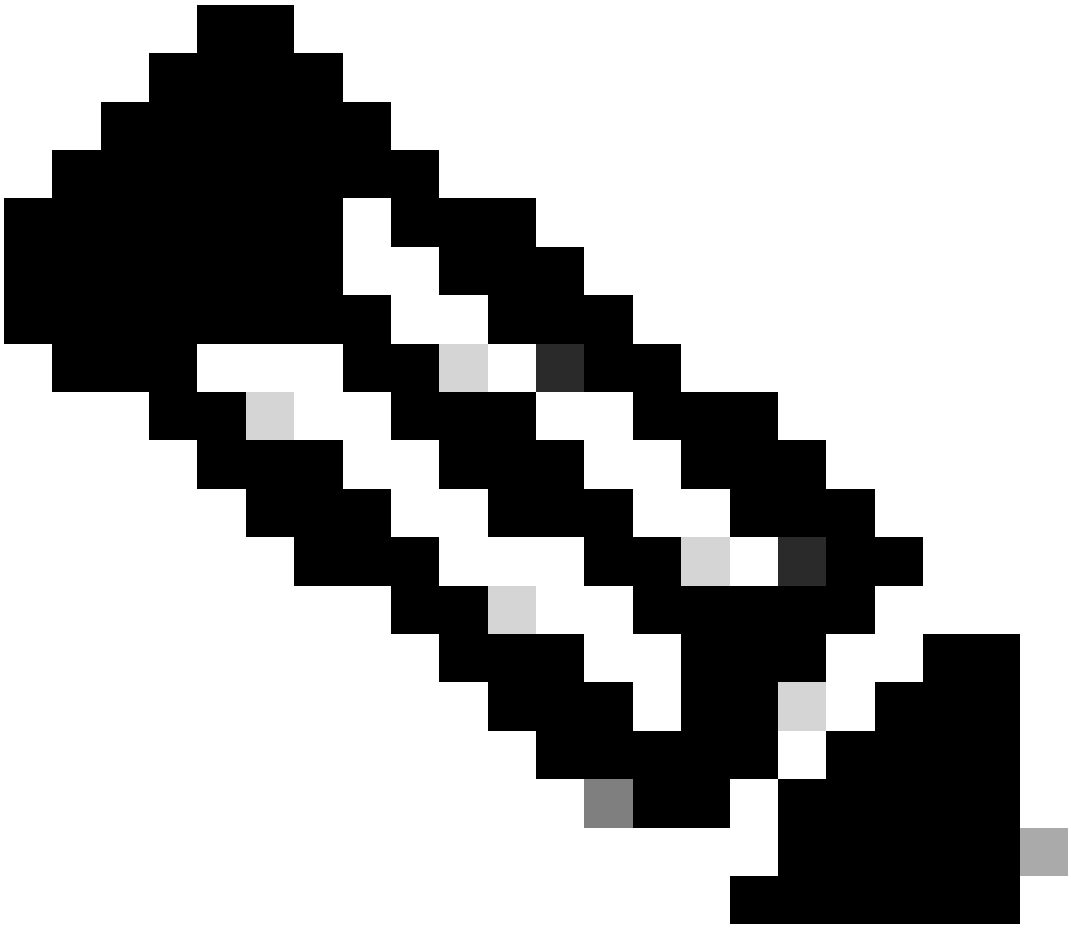
注意：您必须阅读成功且没有任何错误。之后，Cisco Nexus交换机重新启动，安装过程可能需要几分钟。每个Cisco Nexus交换机的配置可能不同。

步骤 8等待Cisco Nexus交换机上的状态变为活动状态。

1. 使用命令show module。

```
N9K-1(config)# show module
Mod Ports             Module-Type                       Model           Status
--- ----- ------------------------------------ ------------------------------
1    54   24x10/25G/32G + 6x40/100G Ethernet/FC N9K-C93180YC-FX-24    active *

Mod  Sw                     Hw    Slot
---  ---------------------- ------ ----
```

```
1    9.3(11)                1.0    NA


Mod  MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    44-b6-aa-aa-aa-aa to 44-b6-be-bb-bb-bb  ABCDEFGHIJK

Mod  Online Diag Status
---  ------------------
1    Pass

* this terminal session
```



注意：请注意，vPC保持连接和/或对等链路可能不能处于运行状态。这是预期结果，因为vPC中的Cisco Nexus交换机具有不受支持的不同版本Cisco NX-OS。

步骤 9在vPC对等Cisco Nexus交换机上安装Cisco NX-OS。

```
N9K-2(config)# install all nxos bootflash:nxos64-cs.10.2.5.M.bin
Installer will perform compatibility check first. Please wait.
Installer is forced disruptive

Verifying image bootflash:/nxos64-cs.10.2.5.M.bin for boot variable "nxos".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Preparing "nxos" version info using image bootflash:/nxos64-cs.10.2.5.M.bin.
[####################] 100% -- SUCCESS

Preparing "bios" version info using image bootflash:/nxos64-cs.10.2.5.M.bin.
[####################] 100% -- SUCCESS

Performing module support checks.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes      disruptive         reset  default upgrade is not hitless



Images will be upgraded according to following table:
Module       Image                  Running-Version(pri:alt)           New-Version  Upg-Required
------  ----------  ------------------------------------------------------------
     1        nxos                                    9.3(11)                              10.2(5)
     1        bios     v05.47(04/28/2022):v05.42(06/14/2020)    v05.47(04/28/2022)            no


Additional info for this installation:
--------------------------------------

Service "vpc" in vdc 1: Vpc is enabled, Please make sure both Vpc peer switches have same boot mode usi



Switch will be reloaded for disruptive upgrade.
Do you want to continue with the installation (y/n)?  [n] y
```

步骤 10等待Cisco Nexus交换机上的状态变为活动状态。

1. 使用命令show module。

```
N9K-2(config)# show module
Mod Ports             Module-Type                       Model           Status
--- ----- ------------------------------------ ---------------------- ---------
1    54   24x10/25G/32G + 6x40/100G Ethernet/FC N9K-C93180YC-FX-24    active *
```

```
Mod  Sw                     Hw    Slot
---  ---------------------- ------ ----
1    9.3(11)                 1.0    NA


Mod  MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    f8-a7-3a-nn-nn-nn to f8-a7-3a-n1-n1-n1  98765432109

Mod  Online Diag Status
---  ------------------
1    Pass

* this terminal session
```

步骤 11验证keep-alive、peer-link和vPC端口通道是否处于UP状态。

1. 使用命令show vpc。

```
N9K-1(config)# 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                          : primary
Number of vPCs configured         : 2
Peer Gateway                      : Enabled
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    : Enabled
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
--    ------------  ------ ----------- ------  ---------------
50    Po50          up     success     success               1

60    Po60          up     success     success               1
```

```
N9K-2(config)# 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         : 2
Peer Gateway                      : Enabled
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    : Enabled
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
--    ------------  ------ ----------- ------                ---------------
50    Po50          up     success     success               1

60    Po60          up     success     success               1
```

相关信息

- 思科技术支持和下载

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