Nexus 1000V Series Switches Port Channel Configuration Examples

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Introduction

This document describes the best practices to use when you deploy port channels on the Cisco Nexus 1000V Series switch (N1KV). The N1KV requires port channels for port profiles that contain more than one interface per host.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- N1KV
- Cisco Unified Computing System (UCS)
- Cisco Nexus and Catalyst Series Switches

Components Used

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

- N1KV
- UCS

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.

Configure

This section contains these configurations:

- N1KV on UCS B−Series Servers in End−Host Mode
- N1KV on UCS C−Series Servers or Rack Mount Servers Connected to Nexus 5000/7000 Switches with vPC
- N1KV on UCS C−Series Servers or Rack Mount Servers Connected to Switches without vPC
- N1KV on UCS C−Series Servers or Rack Mount Servers Connected to 6500 Virtual Switching System (VSS) or Stacking Switches
- N1KV on UCS C−Series Servers or Rack Mount Servers Connected to a Single Upstream Switch with a Static Port Channel

N1KV on UCS B−Series Servers in End−Host Mode

Cisco UCS uses two diverse paths between the blade and the upstream network. Currently, the Fabric Interconnects do not support Link Aggregation Control Protocol (LACP)/Virtual Port Channel (vPC) southbound toward the blades. This means that a static port channel from the N1KV perspective must be used. MAC Pinning is required, since the upstream switches do not support multichassis EtherChannel.

```
# VSM configuration
port−profile type ethernet system−uplink
 vmware port−group
 switchport mode trunk
 switchport trunk allowed vlan 100, 101, 102, 103, 200 − 300
 channel−group auto mode on mac−pinning
no shutdown
system vlan 100,101,102,103
state enabled

# Upstream switch configuration
−None required
```

N1KV on UCS C−Series Servers or Rack Mount Servers Connected to Nexus 5000/7000 Switches with vPC

In this topology, each rack server is physically connected to two different Nexus switches − one cable to each switch. LACP is the preferred mode, because it allows the best traffic distribution and non−disruptive addition/subtraction of links. It is assumed that the upstream Nexus switches already have a vPC peer link configured.

```
# VSM configuration
feature lacp
lacp offload
port−channel load−balance ethernet source−mac
port−profile type ethernet system−uplink
 vmware port−group
 switchport mode trunk
 switchport trunk allowed vlan 100, 101, 102, 103, 200 − 300
 channel−group auto mode active
 no shutdown
 system vlan 100,101,102,103
 state enabled
```

```
# Nexus 5k/7k switches #1 & #2 configuration
interface port−channel1000
 switchport mode trunk
 vpc 1000
 switchport trunk allowed vlan 100−103,200−300
 spanning−tree port type edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable

 no lacp suspend−individual <− Nexus 7k only!!!
!
interface Ethernet1/11
 description ESX−Host1
 switchport mode trunk
 switchport trunk allowed vlan 100−103,200−300
 spanning−tree port type edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable
 channel−group 1000 mode active
```

N1KV on UCS C−Series Servers or Rack Mount Servers Connected to Switches without vPC

In this topology, each rack server is physically connected to two different switches, but vPC is not available. The only supported configuration is MAC Pinning. This configuration is identical to that used on UCS B−Series servers. A static port channel (mode on) is not supported, since the upstream switches do not support a multichassis EtherChannel technology.

```
# VSM configuration
port−profile type ethernet system−uplink
 vmware port−group
 switchport mode trunk
 switchport trunk allowed vlan 100, 101, 102, 103, 200 − 300
 channel−group auto mode on mac−pinning
 no shutdown
 system vlan 100,101,102,103
 state enabled

# Upstream switch configuration
−None required
```

N1KV on UCS C−Series Servers or Rack Mount Servers Connected to 6500 VSS or Stacking Switches

In this topology, the upstream switches act as a single chassis. This allows the N1KV to connect with LACP.

```
# VSM configuration
feature lacp
lacp offload
port−profile type ethernet system−uplink
 vmware port−group
 switchport mode trunk
 switchport trunk allowed vlan 100, 101, 102, 103, 200 − 300
 channel−group auto mode active
 no shutdown
 system vlan 100,101,102,103
 state enabled

# 6500 VSS configuration
interface Port−channel1000
 switchport
```

```
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 100−103,200−300
 switchport mode trunk
 spanning−tree portfast edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable
!
interface GigabitEthernet1/1/1
 description ESX−Host1 adapter 1
 switchport
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 100−103,200−300
 switchport mode trunk
 spanning−tree portfast edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable
 channel−group 1000 mode active
!
interface GigabitEthernet2/1/1
 description ESX−Host1 adapter 2
 switchport
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 100−103,200−300
 switchport mode trunk
 spanning−tree portfast edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable
 channel−group 1000 mode active
```

N1KV on UCS C−Series Servers or Rack Mount Servers Connected to a Single Upstream Switch with a Static Port Channel

In this topology, the servers are single−homed to an upstream switch. This topology provides no switch redundancy and is not a best practice.

```
# VSM configuration
port−profile type ethernet system−uplink
 vmware port−group
 switchport mode trunk
 switchport trunk allowed vlan 100, 101, 102, 103, 200 − 300
 channel−group auto mode on
 no shutdown
 system vlan 100,101,102,103
 state enabled

# Upstream Nexus switch
interface port−channel 1000
 switchport mode trunk
 switchport trunk allowed vlan 100−103,200−300
 spanning−tree port type edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable
!
interface Ethernet1/11
 description ESX−Host1
 switchport mode trunk
 switchport trunk allowed vlan 100−103,200−300
 spanning−tree port type edge trunk
 spanning−tree bpduguard enable
 spanning−tree bpdufilter enable
 channel−group 1000 mode on
```

Verify

Use this section in order to confirm that your configuration works properly.

```
show run interface po{X} membership
show port−channel summary
```

Troubleshoot

This section provides information you can use in order to troubleshoot your configuration.

```
show port−channel summary
show port−channel internal event−history [all|errors]debug lacp all
```

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