



Configuring Cisco Nexus 1000V for VMware VSAN

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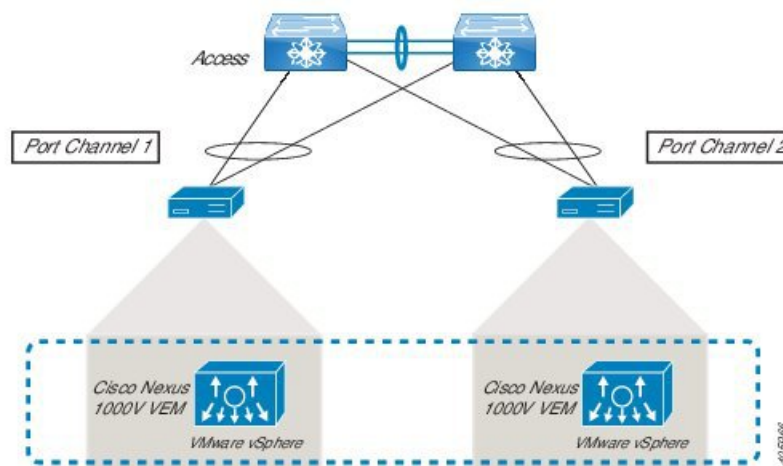
Information about VMware VSAN

Cisco Nexus 1000V supports VMware Virtual SAN (VSAN) which is a software-defined storage tier for VMware vSphere.

Topology Diagram for VMware VSAN Support

The following figure shows a sample topology diagram with two upstream switches and two Cisco Nexus 1000V VEMs.

Figure 1: Topology Diagram for VMware VSAN Support



Guidelines for VMware VSAN Support

Following are the guidelines for supporting VMware VSAN with Cisco Nexus 1000V:

- VMware VSAN is supported with VMware vSphere ESX version 5.5 and later.
- VMware VSAN is supported independent of other entities in the network.
- Upstream switches can be connected to each other through plain trunk ports or port channels.
- VMware VSAN support is implemented by creating port profiles of Ethernet and vEthernet types. Ethernet port profile is attached to the uplink ports and vEthernet port profile is used for VSAN-enabled vmkernel NIC.

For scalability, you can either use the existing Ethernet and vEthernet types port profiles or create new ones. For detailed information about how to configure and scale the support for VMware VSAN, see the *Configuring Cisco Nexus 1000V for VMware VSAN* section.

Overview of the Cisco Nexus 1000V for VMware VSAN Configuration Process

To configure Cisco Nexus 1000V for hosting the VMware VSAN environment, complete the following tasks:

1. Create a port profile of Ethernet type in Nexus 1000v VSM for the uplink ports.
2. Attach the created Ethernet port-profile to the uplink ports through VMware vCenter and verify the configuration on the Cisco Nexus 1000V CLI.
3. Add manual pinning configuration for each member interface of the port channel.
4. Create a port profile of vEthernet type for VSAN-enabled vmkernel NIC.
5. If VMware VSAN is already up and running, change the port-profile of the VSAN-enabled vmkernel NIC to the created vEthernet port profile.
6. If VMware VSAN is not running, create a new VMware VSAN and attach the created vEthernet port profile to the VSAN-enabled vmkernel NIC. For information about how to create a VMware VSAN, see the VMware VSAN documentation at <http://www.vmware.com/in/products/virtual-san>.

Configuring Cisco Nexus 1000V for VMware VSAN

To configure Cisco Nexus 1000V for hosting the VMware VSAN environment, complete the following tasks:

Before you begin

- Cisco Nexus 1000V is installed and running.
- VMware VSAN infrastructure is ready. For information about VMware VSAN, see <http://www.vmware.com/in/products/virtual-san>.
- The hosts on which VSAN is being configured are already running as Cisco Nexus 1000V VEM modules.

- At least two uplink ports are dedicated for VSAN traffic from each Cisco Nexus 1000V VEM module, with each uplink connecting to a different switch for redundancy.
- VLANs carrying the VSAN traffic are identified and allowed in upstream switches.
- If IGMP snooping is enabled on the VLAN carrying the VSAN traffic, a querier must also be configured. For more information, see the *Configuring IGMP Snooping* section in the *Cisco Nexus 1000V for VMware vSphere Layer 2 Switching Configuration Guide*.
- You are logged in to the CLI in EXEC mode.

Procedure

Step 1 Create a port profile of Ethernet type for uplink ports.

```
switch# configure terminal
switch(config)# port-profile type ethernet manual-subgroup
switch(config-port-prof)# copy running-config startup-config
```

Step 2 In the Ethernet port profile, allow VLANs that will carry the VSAN traffic.

The following example shows the configuration of the **manual-subgroup** Ethernet port profile created in the previous step. In this example, VLAN 2490 is allowed.

```
switch# configure terminal
switch(config)# port-profile manual-subgroup
switch(config-port-prof)# switchport mode trunk
switch(config-port-prof)# no shutdown
switch(config-port-prof)# switchport trunk allowed vlan 2490
switch(config-port-prof)# vmware port-group
switch(config-port-prof)# state enabled
switch(config-port-prof)# channel-group auto mode on sub-group manual
switch(config-port-prof)# copy running-config startup-config
switch(config-port-prof)# show port-profile name manual-subgroup
port-profile type ethernet manual-subgroup
  switchport mode trunk
  switchport trunk allowed vlan 2490
  channel-group auto mode on sub-group manual
  no shutdown
  state enabled
  vmware port-group
```

Step 3 Log in to the VMware vCenter, attach the Ethernet port profile to the uplink ports through VMware vCenter, and verify the configuration on the Cisco Nexus 1000V CLI.

```
switch# show running-configuration interface
interface Ethernet3/6
  inherit port-profile manual-subgroup

interface Ethernet3/8
  inherit port-profile manual-subgroup

interface Ethernet4/6
  inherit port-profile manual-subgroup

interface Ethernet4/8
```

```
inherit port-profile manual-subgroup
```

When you attach the port profile to the uplink ports, separate port channel interfaces are automatically created for each Cisco Nexus 1000V VEM module, as shown in the following example.

```
switch# show running-config interface port-channel 3
interface port-channel3
  inherit port-profile manual-subgroup
  vem 3
```

```
Nexus-1000v# show running-config interface port-channel 4
interface port-channel4
  inherit port-profile manual-subgroup
  vem 4
```

Step 4 Add manual pinning configuration for each member interface of the port channel.

Note You must repeat this step for all port channels and their member interfaces that are carrying the VSAN traffic on each Cisco Nexus 1000V VEM module. The member interfaces of the same port channel must be configured with different subgroup IDs as shown in the following example.

```
switch# configure terminal
switch(config)# interface Ethernet3/6
switch(config-if)# inherit port-profile manual-subgroup
switch(config-if)# sub-group-id 0
switch(config-if)# end
switch#
```

```
switch# configure terminal
switch(config)# interface Ethernet3/8
switch(config-if)# inherit port-profile manual-subgroup
switch(config-if)# sub-group-id 1
switch(config-if)# end
switch#
```

Step 5 Create a port profile of vEthernet type for the VSAN-enabled VM kernel NIC.

```
switch# configure terminal
switch(config)# port-profile type ethernet vsan-vmkernel-nic
switch(config-port-prof)# copy running-config startup-config
```

Step 6 In the vEthernet port profile, pin the vEthernet traffic to a specific subgroup.

Note The pinning ID must match the subgroup ID configured on the port channel member interfaces in Step 5. The allowed VLAN is the one that is designated to carry VSAN traffic in Step 2.

The following example shows the configuration of the **vsan-vmkernel-nic** vEthernet port profile created in the previous step. In this example, pinning ID 0 is assigned.

```
switch# configure terminal
switch(config)# port-profile vsan-vmkernel-nic
switch(config-port-prof)# pinning id 0 backup 1
switch(config-port-prof)# switchport mode access
switch(config-port-prof)# no shutdown
switch(config-port-prof)# switchport access vlan 2490
switch(config-port-prof)# vmware port-group
switch(config-port-prof)# state enabled
switch(config-port-prof)# copy running-config startup-config
switch(config-port-prof)# show port-profile name manual-subgroup
```

```
port-profile type ethernet vsan-vmkernel-nic
  switchport mode access
  switchport access vlan 2490
  channel-group auto mode on sub-group manual
  pinning id 0 backup 1
  no shutdown
  state enabled
  vmware port-group
```

Step 7 If VMware VSAN is already enabled and running, complete the following tasks for all Cisco Nexus 1000V VEM modules.

Note You must repeat this step for all Cisco Nexus 1000V VEM modules.

- a) Log in to the VMware vCenter.
- b) Click **Hosts and Clusters** and select the host.
- c) Click the **Configuration** tab and then click **Networking**.
- d) Select the **vSphere Distributed Switch** view and then select **Nexus 1000v switch**.
- e) Click **Manage Virtual Adapters**.
- f) Click **Add**.
- g) Select **Migrate existing virtual network adapters** and click **Next**.
- h) Select the VSAN virtual adapter and select the VM kernel NIC vEthernet port profile that you created in Step 6; for example, vsan-vmkernel-nic.
- i) Click **Next**.
- j) Click **Finish**.

Step 8 If VMware VSAN is not running, create a new VMware VSAN. For information on how to create a VMware VSAN, see the VMware VSAN documentation.

While creating a VM kernel port, select the VM kernel NIC vEthernet port profile that you created in Step 6.

Note For scalability, if you want to add more Cisco Nexus 1000V VEM modules to support VMware VSAN, you can do either of the following:

- Reuse the Ethernet and vEthernet type port profiles that you created and used in this procedure. For this, repeat Step 3 and then Step 8 or Step 9.
- Use different Ethernet and vEthernet type port profiles. For this, repeat all steps described in this procedure.

A virtualization-enabler platform, the Cisco Nexus 1000V supports VMware VSAN independently of other entities in the network. After completing this procedure, the Cisco Nexus 1000V is configured to host the VMware VSAN environment, enabling the configuration of storage features and optimizing usage of idle infrastructure capacity.

Feature History for VSAN

Feature Name	Releases	Feature Information
VMware VSAN Support	5.2(1)SV3(1.2)	This feature was introduced.

