

# **Cisco Nexus 5596 switch migration**

Cluster and storage switches

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# Cisco Nexus 5596 switch migration

# Migrate from Nexus 5596 switches to Nexus 3132Q-V switches workflow

Follow these workflow steps to migrate your Cisco Nexus 5596 switches to Cisco Nexus 3132Q-V switches.



#### Migration requirements

Review the requirements and example switch information for the migration process.



#### **Prepare for migration**

Prepare your Nexus 5596 switches for migration to Nexus 3132Q-V switches.



#### **Configure your ports**

Configure your ports for migration to the new Nexus 3132Q-V switches.



#### **Complete your migration**

Complete you migration to the new Nexus 3132Q-V switches.

## Migration requirements

Cisco Nexus 3132Q-V switches can be used as cluster switches in your AFF or FAS cluster. Cluster switches allow you to build ONTAP clusters with more than two nodes.



The procedure requires the use of both ONTAP commands and Cisco Nexus 3000 Series Switches commands; ONTAP commands are used unless otherwise indicated.

For more information, see:

- Cisco Ethernet Switch description page
- Hardware Universe

### **Cisco Nexus 5596 requirements**

The cluster switches use the following ports for connections to nodes:

- Nexus 5596: ports e1/1-40 (10 GbE)
- Nexus 3132Q-V: ports e1/1-30 (10/40/100 GbE)

The cluster switches use the following Inter-Switch Link (ISL) ports:

- Nexus 5596: ports e1/41-48 (10 GbE)
- Nexus 3132Q-V: ports e1/31-32 (40/100 GbE)

The *Hardware Universe* contains information about supported cabling to Nexus 3132Q-V switches:

- Nodes with 10 GbE cluster connections require QSFP to SFP+ optical fiber breakout cables or QSFP to SFP+ copper breakout cables.
- Nodes with 40/100 GbE cluster connections require supported QSFP/QSFP28 optical modules with fiber cables or QSFP/QSFP28 copper direct-attach cables.

The cluster switches use the appropriate ISL cabling:

- Beginning: Nexus 5596 (SFP+ to SFP+)
  - 8x SFP+ fiber or copper direct-attach cables
- Interim: Nexus 5596 to Nexus 3132Q-V (QSFP to 4xSFP+ break-out)
  - 1x QSFP to SFP+ fiber break-out or copper break-out cables
- Final: Nexus 3132Q-V to Nexus 3132Q-V (QSFP28 to QSFP28)
  - 2x QSFP28 fiber or copper direct-attach cables
- On Nexus 3132Q-V switches, you can operate QSFP/QSFP28 ports in either 40/100 Gigabit Ethernet or 4 x10 Gigabit Ethernet modes.

By default, there are 32 ports in the 40/100 Gigabit Ethernet mode. These 40 Gigabit Ethernet ports are numbered in a 2-tuple naming convention. For example, the second 40 Gigabit Ethernet port is numbered as 1/2.

The process of changing the configuration from 40 Gigabit Ethernet to 10 Gigabit Ethernet is called *breakout* and the process of changing the configuration from 10 Gigabit Ethernet to 40 Gigabit Ethernet is called *breakin*.

When you break out a 40/100 Gigabit Ethernet port into 10 Gigabit Ethernet ports, the resulting ports are numbered using a 3-tuple naming convention. For example, the break-out ports of the second 40/100 Gigabit Ethernet port are numbered as 1/2/1, 1/2/2, 1/2/3, and 1/2/4.

- On the left side of Nexus 3132Q-V switches are 2 SFP+ ports, called 1/33 and 1/34.
- You have configured some of the ports on Nexus 3132Q-V switches to run at 10 GbE or 40/100 GbE.



You can break out the first six ports into 4x10 GbE mode by using the <code>interface</code> breakout module 1 port 1-6 map 10g-4x command. Similarly, you can regroup the first six QSFP+ ports from breakout configuration by using the no <code>interface</code> breakout module 1 port 1-6 map 10g-4x command.

- You have done the planning, migration, and read the required documentation on 10 GbE and 40/100 GbE connectivity from nodes to Nexus 3132Q-V cluster switches.
- The ONTAP and NX-OS versions supported in this procedure are on the Cisco Ethernet Switches page.

#### About the examples used

The examples in this procedure describe replacing Cisco Nexus 5596 switches with Cisco Nexus 3132Q-V switches. You can use these steps (with modifications) for other older Cisco switches.

The procedure also uses the following switch and node nomenclature:

- The command outputs might vary depending on different releases of ONTAP.
- The Nexus 5596 switches to be replaced are CL1 and CL2.
- The Nexus 3132Q-V switches to replace the Nexus 5596 switches are C1 and C2.
- n1\_clus1 is the first cluster logical interface (LIF) connected to cluster switch 1 (CL1 or C1) for node n1.
- n1\_clus2 is the first cluster LIF connected to cluster switch 2 (CL2 or C2) for node n1.
- n1\_clus3 is the second LIF connected to cluster switch 2 (CL2 or C2) for node n1.
- n1\_clus4 is the second LIF connected to cluster switch 1 (CL1 or C1) for node n1.
- The number of 10 GbE and 40/100 GbE ports are defined in the reference configuration files (RCFs) available on the Cisco® Cluster Network Switch Reference Configuration File Download page.
- The nodes are n1, n2, n3, and n4.

The examples in this procedure use four nodes:

- Two nodes use four 10 GbE cluster interconnect ports: e0a, e0b, e0c, and e0d.
- The other two nodes use two 40 GbE cluster interconnect ports: e4a and e4e.

The *Hardware Universe* lists the actual cluster ports on your platforms.

#### Scenarios covered

This procedure covers the following scenarios:

- The cluster starts with two nodes connected and functioning in a two Nexus 5596 cluster switches.
- The cluster switch CL2 to be replaced by C2 (steps 1 to 19):
  - Traffic on all cluster ports and LIFs on all nodes connected to CL2 are migrated onto the first cluster ports and LIFs connected to CL1.
  - Disconnect cabling from all cluster ports on all nodes connected to CL2, and then use supported breakout cabling to reconnect the ports to new cluster switch C2.
  - Disconnect cabling between ISL ports between CL1 and CL2, and then use supported break-out cabling to reconnect the ports from CL1 to C2.
  - Traffic on all cluster ports and LIFs connected to C2 on all nodes is reverted.
- The cluster switch CL2 to be replaced by C2.
  - Traffic on all cluster ports or LIFs on all nodes connected to CL1 are migrated onto the second cluster ports or LIFs connected to C2.
  - Disconnect cabling from all cluster port on all nodes connected to CL1 and reconnect, using supported break-out cabling, to new cluster switch C1.
  - Disconnect cabling between ISL ports between CL1 and C2, and reconnect using supported cabling, from C1 to C2.
  - Traffic on all cluster ports or LIFs connected to C1 on all nodes is reverted.
- Two FAS9000 nodes have been added to cluster with examples showing cluster details.

#### What's next?

Prepare for migration.

# Prepare for migration from Nexus 5596 switches to Nexus 3132Q-V switches

Follow these steps to prepare your Cisco Nexus 5596 switches for migration to Cisco Nexus 3132Q-V switches.

#### **Steps**

1. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message: system node autosupport invoke -node \* -type all -message MAINT=xh

x is the duration of the maintenance window in hours.



The message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

2. Display information about the devices in your configuration:

network device-discovery show

#### Show example

The following example shows how many cluster interconnect interfaces have been configured in each node for each cluster interconnect switch:

	Local			
Node 	Port	Device	Interface	Platform
n1	/cdp			
	e0a	CL1	Ethernet1/1	N5K-C5596UP
	e0b	CL2	Ethernet1/1	N5K-C5596UP
	e0c	CL2	Ethernet1/2	N5K-C5596UP
	e0d	CL1	Ethernet1/2	N5K-C5596UP
n2	/cdp			
	e0a	CL1	Ethernet1/3	N5K-C5596UP
	e0b	CL2	Ethernet1/3	N5K-C5596UP
	e0c	CL2	Ethernet1/4	N5K-C5596UP
	e0d	CL1	Ethernet1/4	N5K-C5596UP

- 3. Determine the administrative or operational status for each cluster interface:
  - a. Display the network port attributes:

network port show

The following example displays the network port attributes on a system:

```
cluster::*> network port show -role cluster
 (network port show)
Node: n1
Ignore
                                  Speed (Mbps)
Health Health
Port
    IPspace Broadcast Domain Link MTU Admin/Oper
Status Status
______
e0a Cluster Cluster up 9000 auto/10000 -
                          up 9000 auto/10000 -
e0b Cluster Cluster
                          up 9000 auto/10000 -
     Cluster Cluster
e0c
e0d Cluster Cluster up 9000 auto/10000 -
Node: n2
Ignore
                                  Speed (Mbps)
Health Health
Port
     IPspace Broadcast Domain Link MTU Admin/Oper
Status Status
_____ ____
-----
e0a Cluster Cluster up 9000 auto/10000 -
_
e0b
     Cluster Cluster up 9000 auto/10000 -
                              9000 auto/10000 -
e0c
     Cluster Cluster
                          up
                              9000 auto/10000 -
e0d Cluster Cluster
                          up
8 entries were displayed.
```

#### b. Display information about the logical interfaces:

network interface show

The following example displays the general information about all of the LIFs on your system:

(networ	ck lr	nterface sh	•		
Q	т	Logical	Status	Network	Current
Current		Interface	Admin/Oper	Address/Mask	Node
Port			Admin Open	AddIC55/ Mask	Node
Cluster					
		n1_clus1	up/up	10.10.0.1/24	n1
e0a	true	9			
		n1_clus2	up/up	10.10.0.2/24	n1
e0b	true				
		_	up/up	10.10.0.3/24	n1
e0c	true		/	10 10 0 4/04	1
e0d	true	_	up/up	10.10.0.4/24	n1
eva	crue		un/un	10.10.0.5/24	n2
e0a	true	_	αρ, αρ	10.10.0.0,21	112
		n2 clus2	up/up	10.10.0.6/24	n2
e0b	true	_			
		n2_clus3	up/up	10.10.0.7/24	n2
e0c	true	9			
		n2_clus4	up/up	10.10.0.8/24	n2
e0d	true	Э			

## c. Display information about the discovered cluster switches:

system cluster-switch show

The following example displays the cluster switches that are known to the cluster, along with their management IP addresses:

```
cluster::*> system cluster-switch show
                                                Address
Switch
                              Type
Model
CL1
                              cluster-network 10.10.1.101
NX5596
     Serial Number: 01234567
      Is Monitored: true
            Reason:
  Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version
                    7.1(1)N1(1)
    Version Source: CDP
CL2
                             cluster-network 10.10.1.102
NX5596
     Serial Number: 01234568
      Is Monitored: true
            Reason:
  Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version
                    7.1(1)N1(1)
    Version Source: CDP
2 entries were displayed.
```

4. Set the -auto-revert parameter to false on cluster LIFs clus1 and clus2 on both nodes:

network interface modify

```
cluster::*> network interface modify -vserver node1 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node1 -lif clus2 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus2 -auto
-revert false
```

Verify that the appropriate RCF and image are installed on the new 3132Q-V switches as necessary for your requirements, and make the essential site customizations, such as users and passwords, network addresses, and so on.

You must prepare both switches at this time. If you need to upgrade the RCF and image, follow these steps:

- a. Go to the Cisco Ethernet Switches page on the NetApp Support Site.
- b. Note your switch and the required software versions in the table on that page.
- c. Download the appropriate version of the RCF.
- d. Select **CONTINUE** on the **Description** page, accept the license agreement, and then follow the instructions on the **Download** page to download the RCF.
- e. Download the appropriate version of the image software.

See the ONTAP 8.x or later Cluster and Management Network Switch Reference Configuration Files Download page, and then select the appropriate version.

To find the correct version, see the ONTAP 8.x or later Cluster Network Switch Download page.

6. Migrate the LIFs associated with the second Nexus 5596 switch to be replaced:

```
network interface migrate
```

The following example shows n1 and n2, but LIF migration must be done on all of the nodes:

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus2
-source-node n1 -
destination-node n1 -destination-port e0a
cluster::*> network interface migrate -vserver Cluster -lif n1_clus3
-source-node n1 -
destination-node n1 -destination-port e0d
cluster::*> network interface migrate -vserver Cluster -lif n2_clus2
-source-node n2 -
destination-node n2 -destination-port e0a
cluster::*> network interface migrate -vserver Cluster -lif n2_clus3
-source-node n2 -
destination-node n2 -destination-port e0d
```

#### 7. Verify the cluster's health:

network interface show

The following example shows the result of the previous  ${\tt network}$  interface  ${\tt migrate}$  command:

(		nterface sh Logical	Status	Network	Current
Current	Is	3			
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	е			
Cluster					
		n1 clus1	up/up	10.10.0.1/24	n1
e0a	tru	e e			
		n1_clus2	up/up	10.10.0.2/24	n1
e0a					
		_	up/up	10.10.0.3/24	n1
e0d	_				
0.1		_	up/up	10.10.0.4/24	n1
e0d	tru		/	10 10 0 5 /04	0
e0a	tru	<del>_</del>	up/up	10.10.0.5/24	n2
eva	CLU		110/110	10.10.0.6/24	n2
e0a	fal	_	սք/ սք	10.10.0.0/24	112
Coa			מנו/מנו	10.10.0.7/24	n2
e0d		_			
			up/up	10.10.0.8/24	n2
e0d		_			

8. Shut down the cluster interconnect ports that are physically connected to switch CL2:

network port modify

The following commands shut down the specified ports on n1 and n2, but the ports must be shut down on all nodes:

```
cluster::*> network port modify -node n1 -port e0b -up-admin false
cluster::*> network port modify -node n1 -port e0c -up-admin false
cluster::*> network port modify -node n2 -port e0b -up-admin false
cluster::*> network port modify -node n2 -port e0c -up-admin false
```

9. Verify the connectivity of the remote cluster interfaces:

#### **ONTAP 9.9.1 and later**

You can use the network interface check cluster-connectivity command to start an accessibility check for cluster connectivity and then display the details:

 $\hbox{network interface check cluster-connectivity start} \ \textbf{and} \ \hbox{network interface check cluster-connectivity show}$ 

cluster1::\*> network interface check cluster-connectivity start

**NOTE:** Wait for a number of seconds before running the show command to display the details.

		Source	Destination	
Packet	t			
Node	Date	LIF	LIF	
Loss				
n1				
	3/5/2022 19:21:18 -06:	00 n1_clus2	n2_clus1	none
	3/5/2022 19:21:20 -06:	00 n1_clus2	n2_clus2	none
n2				
	3/5/2022 19:21:18 -06:	00 n2_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:	00 n2 clus2	n1 clus2	none

#### **All ONTAP releases**

For all ONTAP releases, you can also use the cluster ping-cluster -node <name> command to check the connectivity:

cluster ping-cluster -node <name>

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1_clus1 n1 e0a 10.10.0.1
Cluster n1 clus2 n1
                     e0b 10.10.0.2
Cluster n1_clus3 n1 e0c 10.10.0.3
Cluster n1 clus4 n1
                     e0d 10.10.0.4
Cluster n2 clus3 n2
                     e0c 10.10.0.7
Local = 10.10.0.1 10.10.0.2 10.10.0.3 10.10.0.4
Remote = 10.10.0.5 10.10.0.6 10.10.0.7 10.10.0.8
Cluster Vserver Id = 4294967293
Ping status:
Basic connectivity succeeds on 16 path(s)
Basic connectivity fails on 0 path(s)
. . . . . . . . . . . . . . . .
Detected 1500 byte MTU on 16 path(s):
   Local 10.10.0.1 to Remote 10.10.0.5
   Local 10.10.0.1 to Remote 10.10.0.6
   Local 10.10.0.1 to Remote 10.10.0.7
   Local 10.10.0.1 to Remote 10.10.0.8
   Local 10.10.0.2 to Remote 10.10.0.5
   Local 10.10.0.2 to Remote 10.10.0.6
   Local 10.10.0.2 to Remote 10.10.0.7
   Local 10.10.0.2 to Remote 10.10.0.8
   Local 10.10.0.3 to Remote 10.10.0.5
   Local 10.10.0.3 to Remote 10.10.0.6
   Local 10.10.0.3 to Remote 10.10.0.7
   Local 10.10.0.3 to Remote 10.10.0.8
   Local 10.10.0.4 to Remote 10.10.0.5
   Local 10.10.0.4 to Remote 10.10.0.6
   Local 10.10.0.4 to Remote 10.10.0.7
   Local 10.10.0.4 to Remote 10.10.0.8
Larger than PMTU communication succeeds on 16 path(s)
RPC status:
4 paths up, 0 paths down (tcp check)
4 paths up, 0 paths down (udp check)
```

10. Shut down the ISL ports 41 through 48 on the active Nexus 5596 switch CL1:

The following example shows how to shut down ISL ports 41 through 48 on the Nexus 5596 switch CL1:

```
(CL1) # configure
(CL1) (Config) # interface e1/41-48
(CL1) (config-if-range) # shutdown
(CL1) (config-if-range) # exit
(CL1) (Config) # exit
(CL1) #
```

If you are replacing a Nexus 5010 or 5020, specify the appropriate port numbers for ISL.

11. Build a temporary ISL between CL1 and C2.

#### Show example

The following example shows a temporary ISL being set up between CL1 and C2:

```
C2# configure
C2(config)# interface port-channel 2
C2(config-if)# switchport mode trunk
C2(config-if)# spanning-tree port type network
C2(config-if)# mtu 9216
C2(config-if)# interface breakout module 1 port 24 map 10g-4x
C2(config)# interface e1/24/1-4
C2(config-if-range)# switchport mode trunk
C2(config-if-range)# mtu 9216
C2(config-if-range)# channel-group 2 mode active
C2(config-if-range)# exit
C2(config-if)# exit
```

#### What's next?

Configure your ports.

# Configure your ports for migration from 5596 switches to 3132Q-V switches

Follow these steps to configure your ports for migration from the Nexus 5596 switches to the new Nexus 3132Q-V switches.

#### **Steps**

1. On all nodes, remove all cables attached to the Nexus 5596 switch CL2.

With supported cabling, reconnect disconnected ports on all nodes to the Nexus 3132Q-V switch C2.

2. Remove all the cables from the Nexus 5596 switch CL2.

Attach the appropriate Cisco QSFP to SFP+ break-out cables connecting port 1/24 on the new Cisco 3132Q-V switch, C2, to ports 45 to 48 on existing Nexus 5596, CL1.

- 3. Verify that interfaces eth1/45-48 already have channel-group 1 mode active in their running configuration.
- 4. Bring up ISLs ports 45 through 48 on the active Nexus 5596 switch CL1.

#### Show example

The following example shows ISLs ports 45 through 48 being brought up:

```
(CL1) # configure
(CL1) (Config) # interface e1/45-48
(CL1) (config-if-range) # no shutdown
(CL1) (config-if-range) # exit
(CL1) (Config) # exit
(CL1) #
```

5. Verify that the ISLs are up on the Nexus 5596 switch CL1:

```
show port-channel summary
```

Ports eth1/45 through eth1/48 should indicate (P) meaning that the ISL ports are up in the portchannel:

6. Verify that the ISLs are up on the 3132Q-V switch C2:

show port-channel summary

Ports eth1/24/1, eth1/24/2, eth1/24/3, and eth1/24/4 should indicate (P) meaning that the ISL ports are up in the port-channel:

```
C2# show port-channel summary
                P - Up in port-channel (members)
Flags: D - Down
      I - Individual H - Hot-standby (LACP only)
      s - Suspended r - Module-removed
      S - Switched R - Routed
      U - Up (port-channel)
      M - Not in use. Min-links not met
Group Port- Type Protocol Member Ports
     Channel
               Eth LACP
                              Eth1/31(D) Eth1/32(D)
   Pol(SU)
    Po2(SU)
                Eth LACP
                                Eth1/24/1(P) Eth1/24/2(P)
Eth1/24/3(P)
                                Eth1/24/4(P)
```

7. On all nodes, bring up all the cluster interconnect ports connected to the 3132Q-V switch C2:

```
network port modify
```

#### Show example

The following example shows the specified ports being brought up on nodes n1 and n2:

```
cluster::*> network port modify -node n1 -port e0b -up-admin true
cluster::*> network port modify -node n1 -port e0c -up-admin true
cluster::*> network port modify -node n2 -port e0b -up-admin true
cluster::*> network port modify -node n2 -port e0c -up-admin true
```

8. On all nodes, revert all of the migrated cluster interconnect LIFs connected to C2:

```
network interface revert
```

The following example shows the migrated cluster LIFs being reverted to their home ports on nodes n1 and n2:

```
cluster::*> network interface revert -vserver Cluster -lif n1_clus2
cluster::*> network interface revert -vserver Cluster -lif n1_clus3
cluster::*> network interface revert -vserver Cluster -lif n2_clus2
cluster::*> network interface revert -vserver Cluster -lif n2_clus3
```

9. Verify all the cluster interconnect ports are now reverted to their home:

network interface show

The following example shows that the LIFs on clus2 reverted to their home ports and shows that the LIFs are successfully reverted if the ports in the Current Port column have a status of true in the Is Home column. If the Is Home value is false, the LIF has not been reverted.

		Logical	Status	Network	Current
Current					
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	е			
Cluster					
		n1_clus1	up/up	10.10.0.1/24	n1
e0a	tru	e e			
		<del>-</del>	up/up	10.10.0.2/24	n1
e0b	tru		,	10 10 0 0 /04	
e0c	true	_	up/up	10.10.0.3/24	n1
euc			מוו/מוו	10.10.0.4/24	n1
e0d	tru	<del>-</del>	αρ, αρ	10.10.01, 21	***
		n2_clus1	up/up	10.10.0.5/24	n2
e0a	tru	e			
		n2_clus2	up/up	10.10.0.6/24	n2
e0b	tru		,	10 10 0 5 /04	
-0-		<del>-</del>	up/up	10.10.0.7/24	n2
e0c	tru		un/un	10.10.0.8/24	n2
e0d	+ 2011	_	α <sub>Γ</sub> / α <sub>Γ</sub>	10.10.0.0,21	112

#### 10. Verify that the clustered ports are connected:

network port show

The following example shows the result of the previous  $network\ port\ modify$  command, verifying that all the cluster interconnects are up:

Node: n1	rk port show)	)					
node: ni							
Ignore						Speed(Mbps)	шоэl+k
Health						speed (Mbps)	nearti
Port Status 	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
	 Cluster	Cluster		1110	9000	auto/10000	_
<del>-</del>	Clustel	Clustel		uр	9000	auco/10000	
e0b -	Cluster	Cluster		up	9000	auto/10000	-
e0c -	Cluster	Cluster		up	9000	auto/10000	-
e0d -	Cluster	Cluster		up	9000	auto/10000	-
Node: n2							
Ignore						Spood (Mbpg)	Uool+k
Health						Speed (Mbps)	nearti
Port Status	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
e0a -	Cluster	Cluster		up	9000	auto/10000	-
e0b -	Cluster	Cluster		up	9000	auto/10000	-
e0c -	Cluster	Cluster		up	9000	auto/10000	-
e0d	Cluster	Cluster		up	9000	auto/10000	-

11.	Verify the connectivity of the remote cluster interfaces:

#### **ONTAP 9.9.1 and later**

You can use the network interface check cluster-connectivity command to start an accessibility check for cluster connectivity and then display the details:

 $\hbox{network interface check cluster-connectivity start} \ \textbf{and} \ \hbox{network interface check cluster-connectivity show}$ 

cluster1::\*> network interface check cluster-connectivity start

**NOTE:** Wait for a number of seconds before running the show command to display the details.

		Source	Destination	
Packet	t			
Node	Date	LIF	LIF	
Loss				
n1				
	3/5/2022 19:21:18 -06:	00 n1_clus2	n2_clus1	none
	3/5/2022 19:21:20 -06:	00 n1_clus2	n2_clus2	none
n2				
	3/5/2022 19:21:18 -06:	00 n2_clus2	n1_clus1	none
	3/5/2022 19:21:20 -06:	00 n2 clus2	n1 clus2	none

#### **All ONTAP releases**

For all ONTAP releases, you can also use the cluster ping-cluster -node <name> command to check the connectivity:

cluster ping-cluster -node <name>

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1 clus1 n1 e0a 10.10.0.1
Cluster n1 clus2 n1
                      e0b 10.10.0.2
Cluster n1_clus3 n1 e0c 10.10.0.3
Cluster n1 clus4 n1
                      e0d 10.10.0.4
Cluster n2 clus3 n2
                       e0c 10.10.0.7
Cluster n2_clus4 n2
                       e0d 10.10.0.8
Local = 10.10.0.1 10.10.0.2 10.10.0.3 10.10.0.4
Remote = 10.10.0.5 10.10.0.6 10.10.0.7 10.10.0.8
Cluster Vserver Id = 4294967293
Ping status:
Basic connectivity succeeds on 16 path(s)
Basic connectivity fails on 0 path(s)
. . . . . . . . . . . . . . . .
Detected 1500 byte MTU on 16 path(s):
    Local 10.10.0.1 to Remote 10.10.0.5
    Local 10.10.0.1 to Remote 10.10.0.6
    Local 10.10.0.1 to Remote 10.10.0.7
    Local 10.10.0.1 to Remote 10.10.0.8
    Local 10.10.0.2 to Remote 10.10.0.5
    Local 10.10.0.2 to Remote 10.10.0.6
    Local 10.10.0.2 to Remote 10.10.0.7
    Local 10.10.0.2 to Remote 10.10.0.8
    Local 10.10.0.3 to Remote 10.10.0.5
    Local 10.10.0.3 to Remote 10.10.0.6
    Local 10.10.0.3 to Remote 10.10.0.7
    Local 10.10.0.3 to Remote 10.10.0.8
    Local 10.10.0.4 to Remote 10.10.0.5
    Local 10.10.0.4 to Remote 10.10.0.6
    Local 10.10.0.4 to Remote 10.10.0.7
    Local 10.10.0.4 to Remote 10.10.0.8
Larger than PMTU communication succeeds on 16 path(s)
RPC status:
4 paths up, 0 paths down (tcp check)
4 paths up, 0 paths down (udp check)
```

12. On each node in the cluster, migrate the interfaces associated with the first Nexus 5596 switch, CL1, to be replaced:

The following example shows the ports or LIFs being migrated on nodes n1 and n2:

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus1
-source-node n1 -
destination-node n1 -destination-port e0b
cluster::*> network interface migrate -vserver Cluster -lif n1_clus4
-source-node n1 -
destination-node n1 -destination-port e0c
cluster::*> network interface migrate -vserver Cluster -lif n2_clus1
-source-node n2 -
destination-node n2 -destination-port e0b
cluster::*> network interface migrate -vserver Cluster -lif n2_clus4
-source-node n2 -
destination-node n2 -destination-port e0c
```

#### 13. Verify the cluster status:

network interface show

The following example shows that the required cluster LIFs have been migrated to appropriate cluster ports hosted on cluster switch C2:

		Logical	Status	Network	Current
Current		_			_
			Admin/Oper	Address/Mask	Node
Port	Home	e			
Cluster					
		n1_clus1	up/up	10.10.0.1/24	n1
e0b	fal	se			
		n1_clus2	up/up	10.10.0.2/24	n1
e0b	tru	е			
		n1_clus3	up/up	10.10.0.3/24	n1
e0c	tru	е			
		n1_clus4	up/up	10.10.0.4/24	n1
e0c	fal				
		<del>-</del>	up/up	10.10.0.5/24	n2
e0b	fal				
		n2_clus2	up/up	10.10.0.6/24	n2
e0b	tru		,		_
		_	up/up	10.10.0.7/24	n2
e0c	tru		,	10 10 0 0 /04	
^		<del>-</del>	up/up	10.10.0.8/24	n2
	fal		1		
8 entri	es w	ere display	ed.		

14. On all the nodes, shut down the node ports that are connected to CL1:

network port modify

The following example shows the specified ports being shut down on nodes n1 and n2:

```
cluster::*> network port modify -node n1 -port e0a -up-admin false
cluster::*> network port modify -node n1 -port e0d -up-admin false
cluster::*> network port modify -node n2 -port e0a -up-admin false
cluster::*> network port modify -node n2 -port e0d -up-admin false
```

15. Shut down the ISL ports 24, 31, and 32 on the active 3132Q-V switch C2:

shutdown

#### Show example

The following example shows how to shut down ISLs 24, 31, and 32:

```
C2# configure
C2(Config)# interface e1/24/1-4
C2(config-if-range)# shutdown
C2(config-if-range)# exit
C2(config)# interface 1/31-32
C2(config-if-range)# shutdown
C2(config-if-range)# exit
C2(config-if-range)# exit
C2(config-if)# exit
```

16. On all nodes, remove all cables attached to the Nexus 5596 switch CL1.

With supported cabling, reconnect disconnected ports on all nodes to the Nexus 3132Q-V switch C1.

17. Remove the QSFP breakout cable from Nexus 3132Q-V C2 ports e1/24.

Connect ports e1/31 and e1/32 on C1 to ports e1/31 and e1/32 on C2 using supported Cisco QSFP optical fiber or direct-attach cables.

18. Restore the configuration on port 24 and remove the temporary Port Channel 2 on C2:

19. Bring up ISL ports 31 and 32 on C2, the active 3132Q-V switch: no shutdown

#### Show example

The following example shows how to bring up ISLs 31 and 32 on the 3132Q-V switch C2:

#### What's next?

Complete your migration.

# Complete the migration from Nexus 5596 switches to Nexus 3132Q-V switches

Complete the following steps to finalize the Nexus 5596 switches migration to Nexus 3132Q-V switches.

#### **Steps**

1. Verify that the ISL connections are up on the 3132Q-V switch C2:

```
show port-channel summary
```

Ports Eth1/31 and Eth1/32 should indicate (P), meaning that both the ISL ports are up in the portchannel:

2. On all nodes, bring up all the cluster interconnect ports connected to the new 3132Q-V switch C1:

```
network port modify
```

#### Show example

The following example shows all the cluster interconnect ports being brought up for n1 and n2 on the 3132Q-V switch C1:

```
cluster::*> network port modify -node n1 -port e0a -up-admin true
cluster::*> network port modify -node n1 -port e0d -up-admin true
cluster::*> network port modify -node n2 -port e0a -up-admin true
cluster::*> network port modify -node n2 -port e0d -up-admin true
```

3. Verify the status of the cluster node port:

```
network port show
```

The following example verifies that all cluster interconnect ports on all nodes on the new 3132Q-V switch C1 are up:

```
cluster::*> network port show -role cluster
 (network port show)
Node: n1
Ignore
                                   Speed (Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
e0a Cluster Cluster up 9000 auto/10000 -
e0b Cluster Cluster up 9000 auto/10000 -
eOc Cluster Cluster up 9000 auto/10000 -
e0d Cluster Cluster up 9000 auto/10000 -
Node: n2
Ignore
                                   Speed (Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
______ ______
-----
e0a Cluster Cluster up 9000 auto/10000 -
e0b Cluster Cluster up 9000 auto/10000 -
e0c Cluster Cluster up 9000 auto/10000 -
e0d Cluster Cluster up 9000 auto/10000 -
8 entries were displayed.
```

4. On all nodes, revert the specific cluster LIFs to their home ports:

The following example shows the specific cluster LIFs being reverted to their home ports on nodes n1 and n2:

```
cluster::*> network interface revert -vserver Cluster -lif n1_clus1
cluster::*> network interface revert -vserver Cluster -lif n1_clus4
cluster::*> network interface revert -vserver Cluster -lif n2_clus1
cluster::*> network interface revert -vserver Cluster -lif n2_clus4
```

5. Verify that the interface is home:

network interface show

The following example shows the status of cluster interconnect interfaces is up and Is home for n1 and n2:

•		nterface sh Logical	Status	Network	Current
Current	Is	_			
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	9			
Cluster					
		n1_clus1	up/up	10.10.0.1/24	n1
e0a	true	9			
		n1_clus2	up/up	10.10.0.2/24	n1
e0b	true		,	10 10 0 2/04	4
e0c	true	_	up/up	10.10.0.3/24	n1
<del>-</del> 00	-		מנו/מנו	10.10.0.4/24	n1
e0d	true	<del>-</del>	ωp, ωp		
		n2_clus1	up/up	10.10.0.5/24	n2
e0a	true	=			
		n2_clus2	up/up	10.10.0.6/24	n2
e0b	true				
0		<del>-</del>	up/up	10.10.0.7/24	n2
e0c	-		110/110	10.10.0.8/24	n2
e0d		_	up/up	10.10.0.0/24	112

6. Verify the connectivity of the remote cluster interfaces:

#### **ONTAP 9.9.1 and later**

You can use the network interface check cluster-connectivity command to start an accessibility check for cluster connectivity and then display the details:

 $\hbox{network interface check cluster-connectivity start} \ \textbf{and} \ \hbox{network interface check cluster-connectivity show}$ 

cluster1::\*> network interface check cluster-connectivity start

**NOTE:** Wait for a number of seconds before running the show command to display the details.

				Source	Destination	
Packet						
Node	Date			LIF	LIF	
Loss						
n1						
	3/5/2022	19:21:18	-06:00	n1_clus2	n2_clus1	none
	3/5/2022	19:21:20	-06:00	n1_clus2	n2_clus2	none
n2						
	3/5/2022	19:21:18	-06:00	n2_clus2	n1_clus1	none
	3/5/2022	19:21:20	-06:00	n2 clus2	n1 clus2	none

#### **All ONTAP releases**

For all ONTAP releases, you can also use the cluster ping-cluster -node <name> command to check the connectivity:

cluster ping-cluster -node <name>

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1_clus1 n1 e0a 10.10.0.1
Cluster n1 clus2 n1
                      e0b 10.10.0.2
Cluster n1_clus3 n1 e0c 10.10.0.3
Cluster n1 clus4 n1
                      e0d 10.10.0.4
Cluster n2 clus3 n2
                      e0c 10.10.0.7
Cluster n2_clus4 n2
                       e0d 10.10.0.8
Local = 10.10.0.1 10.10.0.2 10.10.0.3 10.10.0.4
Remote = 10.10.0.5 10.10.0.6 10.10.0.7 10.10.0.8
Cluster Vserver Id = 4294967293
Ping status:
Basic connectivity succeeds on 16 path(s)
Basic connectivity fails on 0 path(s)
. . . . . . . . . . . . . . . .
Detected 1500 byte MTU on 16 path(s):
    Local 10.10.0.1 to Remote 10.10.0.5
   Local 10.10.0.1 to Remote 10.10.0.6
    Local 10.10.0.1 to Remote 10.10.0.7
    Local 10.10.0.1 to Remote 10.10.0.8
    Local 10.10.0.2 to Remote 10.10.0.5
    Local 10.10.0.2 to Remote 10.10.0.6
    Local 10.10.0.2 to Remote 10.10.0.7
    Local 10.10.0.2 to Remote 10.10.0.8
    Local 10.10.0.3 to Remote 10.10.0.5
    Local 10.10.0.3 to Remote 10.10.0.6
    Local 10.10.0.3 to Remote 10.10.0.7
    Local 10.10.0.3 to Remote 10.10.0.8
    Local 10.10.0.4 to Remote 10.10.0.5
    Local 10.10.0.4 to Remote 10.10.0.6
    Local 10.10.0.4 to Remote 10.10.0.7
    Local 10.10.0.4 to Remote 10.10.0.8
Larger than PMTU communication succeeds on 16 path(s)
RPC status:
4 paths up, 0 paths down (tcp check)
4 paths up, 0 paths down (udp check)
```

- 7. Expand the cluster by adding nodes to the Nexus 3132Q-V cluster switches.
- 8. Display the information about the devices in your configuration:

- ° network device-discovery show
- $^{\circ}$  network port show -role cluster
- ° network interface show -role cluster
- ° system cluster-switch show

The following examples show nodes n3 and n4 with 40 GbE cluster ports connected to ports e1/7 and e1/8, respectively on both the Nexus 3132Q-V cluster switches, and both nodes have joined the cluster. The 40 GbE cluster interconnect ports used are e4a and e4e.

	Local	device-discovery show Discovered				
Node	Port	Device	Interface	Platform		
n1	/cdp					
	e0a	C1	Ethernet1/1/1	N3K-		
C3132Q-V	0.1	~~				
C21220 T	e0b	C2	Ethernet1/1/1	N3K-		
C3132Q-V	e0c	C2	Ethernet1/1/2	N3K-		
C3132Q-V	000	02	Helicineel, 1, 2	11311		
~	e0d	C1	Ethernet1/1/2	N3K-		
C3132Q-V						
n2	/cdp					
	e0a	C1	Ethernet1/1/3	N3K-		
C3132Q-V	o O b	C2	Ethernet1/1/3	NT O T2		
C3132Q-V	e0b	C2	Ethernet1/1/3	N3K-		
C3132Q V	e0c	C2	Ethernet1/1/4	N3K-		
C3132Q-V						
	e0d	C1	Ethernet1/1/4	N3K-		
C3132Q-V						
n3	/cdp			0		
C3132Q-V	e4a	C1	Ethernet1/7	N3K-		
C3132Q-V	e4e	C2	Ethernet1/7	N3K-		
C3132Q-V			201102110017	2.02.		
n4	/cdp					
	e4a	C1	Ethernet1/8	N3K-		
C3132Q-V						
G21222 TT	e4e	C2	Ethernet1/8	N3K-		
C3132Q-V 12 entries						

```
cluster::*> network port show -role cluster
  (network port show)
```

Node: n1

Ignore						Speed(Mbps)	
Health Port Status	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	
e0a -	Cluster	Cluster		up	9000	auto/10000	-
e0b	Cluster	Cluster		up	9000	auto/10000	-
e0c -	Cluster	Cluster		up	9000	auto/10000	-
e0d -	Cluster	Cluster		up	9000	auto/10000	-
Node: n2							
Ignore						Speed(Mbps)	
Health Port Status	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	
e0a -	Cluster	Cluster		up	9000	auto/10000	-
e0b	Cluster	Cluster		up	9000	auto/10000	-
e0c	Cluster	Cluster		up	9000	auto/10000	-
- e0d -	Cluster	Cluster		up	9000	auto/10000	-
Node: n3							
Ignore						Speed (Mbps)	
Health							
Port Status	IPspace Status	Broadcast	Domain	Link	MTU	Admin/Oper	
e4a	Cluster	Cluster		up	9000	auto/40000	-

Node: n4							
Ignore							
						Speed (Mbps)	
Health	Health						
Port	IPspace	Broadcast :	Domain	Link	MTU	Admin/Oper	
Status	Status						
e4a	Cluster	Cluster		up	9000	auto/40000	_
_							
e4e	Cluster	Cluster		up	9000	auto/40000	_
_	0140001	0140001		αr	3000	4455, 10000	

<sup>12</sup> entries were displayed.

<pre>cluster::*&gt; network interface show -role cluster   (network interface show)</pre>						
,		Status	Network	Current		
Current	Is					
Vserver	Interface	Admin/Oper	Address/Mask	Node		
Port	Home					
				-		
Cluster						
0100001	n1 clus1	up/up	10.10.0.1/24	n1		
e0a	true					
	n1_clus2	up/up	10.10.0.2/24	n1		
e0b	true					
0	_	up/up	10.10.0.3/24	n1		
e0c	true	ווח/ווח	10.10.0.4/24	n1		
e0d	true	ир/ ир	10.10.0.4/24	111		
		up/up	10.10.0.5/24	n2		
e0a	true					
	n2_clus2	up/up	10.10.0.6/24	n2		
e0b	true	,	10 10 0 7 /01			
e0c	n2_clus3 true	up/up	10.10.0.7/24	n2		
600		ווח/ווח	10.10.0.8/24	n2		
e0d	true	ap, ap	10.10.0.0, 21			
	n3_clus1	up/up	10.10.0.9/24	n3		
e4a	true					
	_	up/up	10.10.0.10/24	n3		
e4e	true	110/110	10 10 0 11/24	n A		
e4a	n4_clus1 true	up/up	10.10.0.11/24	n4		
5 1 5	n4 clus2	up/up	10.10.0.12/24	n4		
e4e	true					
12 entries were displayed.						

cluster::\*> system cluster-switch show Switch Type Address Model C1 cluster-network 10.10.1.103 NX3132V Serial Number: FOX00001 Is Monitored: true Reason: Software Version: Cisco Nexus Operating System (NX-OS) Software, Version 7.0(3)I4(1)Version Source: CDP C2 cluster-network 10.10.1.104 NX3132V Serial Number: FOX000002 Is Monitored: true Reason: Software Version: Cisco Nexus Operating System (NX-OS) Software, Version 7.0(3)I4(1)Version Source: CDP CL1 cluster-network 10.10.1.101 NX5596 Serial Number: 01234567 Is Monitored: true Reason: Software Version: Cisco Nexus Operating System (NX-OS) Software, Version 7.1(1)N1(1) Version Source: CDP CL2 cluster-network 10.10.1.102 NX5596 Serial Number: 01234568 Is Monitored: true Reason: Software Version: Cisco Nexus Operating System (NX-OS) Software, Version 7.1(1)N1(1)Version Source: CDP 4 entries were displayed.

9. Remove the replaced Nexus 5596 if they are not automatically removed:

```
system cluster-switch delete
```

#### Show example

The following example shows how to remove the Nexus 5596:

```
cluster::> system cluster-switch delete -device CL1
cluster::> system cluster-switch delete -device CL2
```

10. Configure clusters clus1 and clus2 to auto revert on each node and confirm.

#### Show example

```
cluster::*> network interface modify -vserver node1 -lif clus1 -auto
-revert true
cluster::*> network interface modify -vserver node1 -lif clus2 -auto
-revert true
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert true
cluster::*> network interface modify -vserver node2 -lif clus2 -auto
-revert true
```

11. Verify that the proper cluster switches are monitored:

```
system cluster-switch show
```

```
cluster::> system cluster-switch show
Switch
                           Type
                                             Address
Model
C1
                           cluster-network 10.10.1.103
NX3132V
    Serial Number: FOX00001
     Is Monitored: true
           Reason:
  Software Version: Cisco Nexus Operating System (NX-OS) Software,
Version
                   7.0(3) I4(1)
   Version Source: CDP
                           cluster-network 10.10.1.104
C2
NX3132V
    Serial Number: FOX000002
     Is Monitored: true
           Reason:
  Software Version: Cisco Nexus Operating System (NX-OS) Software,
Version
                   7.0(3) I4(1)
   Version Source: CDP
2 entries were displayed.
```

12. If you suppressed automatic case creation, reenable it by invoking an AutoSupport message:

system node autosupport invoke -node \* -type all -message MAINT=END

#### What's next?

Configure switch health monitoring.

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