# **■** NetApp

# **Migrate switches**

Cluster and storage switches

NetApp April 05, 2024

This PDF was generated from https://docs.netapp.com/us-en/ontap-systems-switches/switch-cisco-3132q-v/migrate-from-cisco-nexus-5596-to-cisco-nexus-3232c.html on April 05, 2024. Always check docs.netapp.com for the latest.

# **Table of Contents**

M	igrate switches	1
	Migrate a Cisco Nexus 5596 cluster switch to a Cisco Nexus 3132Q-V cluster switch	1
	Migrate from CN1610 cluster switches to Cisco Nexus 3132Q-V cluster switches	. 38
	Migrate from a switchless cluster to a two-node switched cluster	. 76

# Migrate switches

# Migrate a Cisco Nexus 5596 cluster switch to a Cisco Nexus 3132Q-V cluster switch

Follow this procedure to replace an existing Nexus 5596 cluster switch with a Nexus 3132Q-V cluster switch.

### **Review requirements**

Review the Cisco Nexus 5596 requirements in Requirements for replacing Cisco Nexus 3132Q-V cluster switches.

For more information, see:

- · Cisco Ethernet Switch description page
- Hardware Universe

#### Replace the switch

#### About the examples

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

The procedure 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 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 40/100 GbE cluster interconnect ports: e4a, e4e. The Hardware Universe lists the actual cluster ports on your platforms.
- 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 procedure requires the use of both ONTAP commands and Cisco Nexus 3000 Series Switches commands; ONTAP commands are used unless otherwise indicated.

#### About this task

This procedure covers the following scenarios:

- The cluster starts with two nodes connected and functioning in a 2 Nexus 5596 cluster switches.
- The cluster switch CL2 to be replaced by C2 (Steps 1 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.

#### Step 1: Prepare for replacement

To replace an existing Nexus 5596 cluster switch with a Nexus 3132Q-V cluster switch, you must perform a specific sequence of tasks.

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

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

T1 -	Local	Discovered	T., L., 6	D] - + 6
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
    Cluster Cluster
                      up 9000 auto/10000 -
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 -
eOc Cluster Cluster up
                              9000 auto/10000 -
                              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	t.rue	_	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
                             cluster-network 10.10.1.101
CL1
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
```

5. 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. Click **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 click 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	- 5			
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	е			
Cluster					
0140001		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	2
e0a		<del>-</del>	up/up	10.10.0.5/24	n2
eua			un/un	10.10.0.6/24	n2
e0a		<del>-</del>	ар/ ар	10.10.0.0/24	112
004			up/up	10.10.0.7/24	n2
e0d		_	17.1	,	
		n2 clus4	up/up	10.10.0.8/24	n2
e0d	tru	<u> </u>			

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. Ping the remote cluster interfaces and perform an RPC server check:

cluster ping-cluster

The following example shows how to ping the remote cluster interfaces:

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1 clus1 n1 e0a 10.10.0.1
                     e0b 10.10.0.2
Cluster n1 clus2 n1
Cluster nl_clus3 nl e0c 10.10.0.3
Cluster n1 clus4 n1
                     e0d 10.10.0.4
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:

#### Show example

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
```

#### Step 2: Configure ports

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.

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
```

#### Show example

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

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

```
show port-channel summary
```

#### Show example

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
Flags: D - Down P - Up in port-channel (members)
     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
_____
  Pol (SU) Eth LACP Eth1/31 (D) Eth1/32 (D)
                          Eth1/24/1(P) Eth1/24/2(P)
   Po2(SU)
             Eth LACP
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	Is	-			
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	е			
Cluster		_			
CIUSCCI		n1 clus1	מנו/מנו	10.10.0.1/24	n1
e0a		_	-1, -1	,	
		n1_clus2	up/up	10.10.0.2/24	n1
e0b	tru	e			
		n1_clus3	up/up	10.10.0.3/24	n1
e0c	tru		,		
- 0 -1		_	up/up	10.10.0.4/24	n1
e0d	tru		11n/11n	10.10.0.5/24	n2
e0a	tru	_	ар/ар	10.10.0.3/24	112
			up/up	10.10.0.6/24	n2
e0b	tru	_ e			
		n2_clus3	up/up	10.10.0.7/24	n2
e0c	tru				
		<del>_</del>	up/up	10.10.0.8/24	n2
e0d		e ere displaye			

#### 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:

(networ Node: n1	k port show)						
Ignore							
Health						Speed (Mbps)	Health
	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	-
Node: n2							
Ignore						Speed(Mbps)	Health
Health Port Status	IPspace	Broadcast	Domain	Link	MTU		
 e0a	 Cluster	Cluster		up	9000	auto/10000	_
- e0b	Cluster	Cluster		up		auto/10000	
- e0c	Cluster	Cluster		up	9000	auto/10000	_
- e0d -	Cluster	Cluster		up	9000	auto/10000	-
0	were displa	1					

11. Ping the remote cluster interfaces and perform an RPC server check:
cluster ping-cluster

The following example shows how to ping the remote cluster interfaces:

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1 clus1 n1 e0a 10.10.0.1
                     e0b 10.10.0.2
Cluster n1 clus2 n1
Cluster nl_clus3 nl e0c 10.10.0.3
Cluster n1 clus4 n1
                     e0d 10.10.0.4
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:

network interface migrate

#### Show example

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:

#### Step 3: Verify the configuration

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:

		Logical	Status	Network	Current
Current	Is				
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	e			
Cluster					
0145001		n1 clus1	up/up	10.10.0.1/24	n1
e0a	true	_ e			
		n1_clus2	up/up	10.10.0.2/24	n1
e0b	true				
•		_	up/up	10.10.0.3/24	n1
e0c	true		11n / 11n	10.10.0.4/24	n1
e0d	true	_	սբ/ սբ	10.10.0.4/24	111
000	-		up/up	10.10.0.5/24	n2
e0a	true	_			
		n2_clus2	up/up	10.10.0.6/24	n2
e0b	true				
•		_	up/up	10.10.0.7/24	n2
e0c	true		/	10 10 0 0/24	n2
e0d		<del>-</del>	up/up	10.10.0.8/24	112

6. Ping the remote cluster interfaces and then perform a remote procedure call server check:

cluster ping-cluster

The following example shows how to ping the remote cluster interfaces:

```
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 nl_clus3 nl e0c 10.10.0.3
Cluster n1 clus4 n1
                     e0d 10.10.0.4
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:
  - $^{\circ}$  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.

Node		Discovered Device	Interface	Platform
			interrace	
n1	/cdp			
	e0a	C1	Ethernet1/1/1	N3K-
C3132Q-V				
	e0b	C2	Ethernet1/1/1	N3K-
C3132Q-V	- 0 -	G2	D+1	NT 7 TZ
C3132Q-V	e0c	C2	Ethernet1/1/2	N3K-
CJ132Q-V	e0d	C1	Ethernet1/1/2	N3K-
C3132Q-V	2 2 3.			
n2	/cdp			
	e0a	C1	Ethernet1/1/3	N3K-
C3132Q-V				
	e0b	C2	Ethernet1/1/3	N3K-
C3132Q-V				
021220 17	e0c	C2	Ethernet1/1/4	N3K-
C3132Q-V	e0d	C1	Ethernet1/1/4	N3K-
C3132Q-V	euu	CI	Echerneci/1/4	NSK-
n3	/cdp			
	e4a	C1	Ethernet1/7	N3K-
C3132Q-V				
	e4e	C2	Ethernet1/7	N3K-
C3132Q-V				
n4	, 1			
a21200 #	e4a	C1	Ethernet1/8	N3K-
C3132Q-V	010	C2	Ethernet1/8	M O M
C3132Q-V	e4e	C2	Ethernet1/8	N3K-
12 entries		! 11		

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

Node: n1

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

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	_
_	0100001	0100001		~[	2000	222, 10000	

-

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

<pre>cluster::*&gt; network interface show -role cluster   (network interface show)</pre>				
(IICCWO		Status	Network	Current
Current Is				
Vserver	Interface	Admin/Oper	Address/Mask	Node
Port	Home			
				-
Cluster				
		up/up	10.10.0.1/24	n1
e0a	true			
	n1_clus2	up/up	10.10.0.2/24	n1
e0b	true	,	10 10 0 0/04	4
e0c	<del>_</del>	up/up	10.10.0.3/24	n1
e00	true n1 clus4	מנו/מנו	10.10.0.4/24	n1
e0d	true			
	n2_clus1	up/up	10.10.0.5/24	n2
e0a	true			
	_	up/up	10.10.0.6/24	n2
e0b	true		10 10 0 7/24	- ?
e0c	nz_clus3 true	up/up	10.10.0.7/24	n2
000		up/up	10.10.0.8/24	n2
e0d	true –	1 . 1	,	
	n3_clus1	up/up	10.10.0.9/24	n3
e4a	true			
4	_	up/up	10.10.0.10/24	n3
e4e	true n4 clus1	110/110	10.10.0.11/24	n4
e4a	true	αρ/ αρ	10.10.0.11/24	11.4
0 10	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 Address Switch Type Model С1 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. Enable the cluster switch health monitor log collection feature for collecting switch-related log files:

system cluster-switch log setup-password
system cluster-switch log enable-collection

```
cluster::*> system cluster-switch log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
C1
C2
cluster::*> system cluster-switch log setup-password
Enter the switch name: C1
**RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] y
Enter the password: <enter switch password>
Enter the password again: <enter switch password>
cluster::*> system cluster-switch log setup-password
Enter the switch name: C2
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] y
Enter the password: <enter switch password>
Enter the password again: <enter switch password>
cluster::*> system cluster-switch log enable-collection
Do you want to enable cluster log collection for all nodes in the
cluster?
\{y|n\}: [n] y
Enabling cluster switch log collection.
cluster::*>
```



If any of these commands return an error, contact NetApp support.

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

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

# Migrate from CN1610 cluster switches to Cisco Nexus 3132Q-V cluster switches

Follow this procedure to replace the existing CN1610 cluster switches with Cisco Nexus 3132Q-V cluster switches.

## **Review requirements**

Review the NetApp CN1610 requirements requirements in Requirements for replacing Cisco Nexus 3132Q-V cluster switches.

For more information, see:

- NetApp CN1601 and CN1610 description page
- Cisco Ethernet Switch description page
- · Hardware Universe

## Replace the switch

### Switch and node nomenclature

The examples in this procedure use the following switch and node nomenclature:

- The command outputs might vary depending on different releases of ONTAP software.
- The CN1610 switches to be replaced are CL1 and CL2.
- The Nexus 3132Q-V switches to replace the CN1610 switches are C1 and C2.
- n1\_clus1 is the first cluster logical interface (LIF) that is connected to cluster switch 1 (CL1 or C1) for node n1.
- n1 clus2 is the first cluster LIF that is connected to cluster switch 2 (CL2 or C2) for node n1.
- n1 clus3 is the second LIF that is connected to cluster switch 2 (CL2 or C2) for node n1.
- n1 clus4 is the second LIF that is connected to cluster switch 1 (CL1 or C1) for node n1.
- The nodes are n1, n2, n3, and n4.
- 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.

### About the examples

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 40/100 GbE cluster interconnect fiber cables: e4a and e4e.

The Hardware Universe has information about the cluster fiber cables on your platforms.

### About this task

This procedure covers the following scenario:

The cluster starts with two nodes connected to two CN1610 cluster switches.

- Cluster switch CL2 to be replaced by C2
  - 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 CL1 and CL2, and then use supported breakout cabling to reconnect the ports from CL1 to C2.
  - Traffic on all cluster ports and LIFs connected to C2 on all nodes is reverted.
- · Cluster switch CL1 to be replaced by C1
  - Traffic on all cluster ports and LIFs on all nodes connected to CL1 are migrated onto the second cluster ports and LIFs connected to C2.
  - Disconnect cabling from all cluster ports on all nodes connected to CL1, and then use supported breakout cabling to reconnect the ports to new cluster switch C1.
  - Disconnect cabling between ISL ports CL1 and C2, and then use supported breakout cabling to reconnect the ports from C1 to C2.
  - Traffic on all migrated cluster ports and LIFs connected to C1 on all nodes is reverted.



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

### Step 1: Prepare for replacement

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 AutoSupport 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

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

cluster::> network device-discovery show Local Discovered Port Device Node Interface Platform n1 /cdp e0a 0/1 CL1 CN1610 0/1 e0b CL2 CN1610 CL2 0/2 e0c CN1610 e0d CL1 0/2 CN1610 n2 /cdp e0a 0/3 CL1 CN1610 e0b CL2 0/3 CN1610 e0c CL2 0/4 CN1610 e0d CL1 0/4 CN1610 8 entries were displayed.

- 3. Determine the administrative or operational status for each cluster interface.
  - a. Display the cluster 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
            Broadcast
                              Speed (Mbps) Health Ignore
Port IPspace Domain Link MTU Admin/Open Status Health
Status
_____
e0a cluster cluster up 9000 auto/10000
e0b cluster cluster up 9000 auto/10000
                    up 9000 auto/10000
e0c cluster cluster
e0d cluster cluster up 9000 auto/10000 -
Node: n2
                              Speed (Mbps) Health Ignore
           Broadcast
Port IPspace Domain Link MTU Admin/Open Status Health
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.
```

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:

<del>.</del>	Logical	Status	Network	Current	Current
Is Vserver Home	Interface	Admin/Oper	Address/Mask	Node	Port
Cluster	111	/	10 10 0 1 /04	1	- 0 -
true	ni_ciusi	up/up	10.10.0.1/24	n1	e0a
	n1_clus2	up/up	10.10.0.2/24	n1	e0b
true	n1_clus3	up/up	10.10.0.3/24	n1	e0c
true	n1_clus4	up/up	10.10.0.4/24	n1	e0d
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a
true	n2_clus2	up/up	10.10.0.6/24	n2	e0b
true	n2_clus3	up/up	10.10.0.7/24	n2	e0c
true	n2_clus4	up/up	10.10.0.8/24	n2	e0d

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
Switch
                              Type
                                             Address
Model
                              cluster-network 10.10.1.101
CL1
CN1610
     Serial Number: 01234567
      Is Monitored: true
            Reason:
  Software Version: 1.2.0.7
    Version Source: ISDP
                              cluster-network 10.10.1.102
CL2
CN1610
     Serial Number: 01234568
      Is Monitored: true
            Reason:
  Software Version: 1.2.0.7
    Version Source: ISDP
2 entries were displayed.
```

4. Set the -auto-revert parameter to false on cluster LIFs clus1 and clus4 on both nodes:

network interface modify

### Show example

```
cluster::*> network interface modify -vserver node1 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node1 -lif clus4 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus4 -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 any 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. See the Cisco Ethernet Switches page on 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. Click **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.

Cisco® Cluster and Management Network Switch Reference Configuration File Download

6. Migrate the LIFs associated with the second CN1610 switch to be replaced:

network interface migrate



You must migrate the cluster LIFs from a connection to the node, either through the service processor or node management interface, which owns the cluster LIF being migrated.

### Show example

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

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

(	network int	erface show)				
Vserver Home	Logical Interface		Network Address/Mask			S
Cluster	n1_clus1	up/up	10.10.0.1/24	n1	e0a	
true	n1_clus2	up/up	10.10.0.2/24	n1	e0a	
false	n1_clus3	up/up	10.10.0.3/24	n1	e0d	
	n1_clus4	up/up	10.10.0.4/24	n1	e0d	
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a	
true	n2_clus2	up/up	10.10.0.6/24	n2	e0a	
false	n2_clus3	up/up	10.10.0.7/24	n2	e0d	
false true	n2_clus4	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. Ping the remote cluster interfaces, and then perform a remote procedure call server check:

```
cluster ping-cluster
```

# Show example The following example shows how to ping the remote cluster interfaces:

```
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
                        e0c 10.10.0.3
e0d 10.10.0.4
Cluster n1_clus3 n1
Cluster n1 clus4 n1
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)
```

10. Shut down the ISL ports 13 through 16 on the active CN1610 switch CL1:

The following example shows how to shut down ISL ports 13 through 16 on the CN1610 switch CL1:

```
(CL1)# configure
(CL1)(Config)# interface 0/13-0/16
(CL1)(Interface 0/13-0/16)# shutdown
(CL1)(Interface 0/13-0/16)# exit
(CL1)(Config)# exit
(CL1)#
```

11. Build a temporary ISL between CL1 and C2:

### Show example

The following example builds a temporary ISL between CL1 (ports 13-16) and C2 (ports e1/24/1-4):

```
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
```

### Step 2: Configure ports

1. On all nodes, remove the cables that are attached to the CN1610 switch CL2.

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

Remove four ISL cables from ports 13 to 16 on the CN1610 switch CL1.

You must attach appropriate Cisco QSFP to SFP+ breakout cables connecting port 1/24 on the new Cisco 3132Q-V switch C2, to ports 13 to 16 on existing CN1610 switch CL1.



When reconnecting any cables to the new Cisco 3132Q-V switch, you must use either optical fiber or Cisco twinax cables.

3. To make the ISL dynamic, configure the ISL interface 3/1 on the active CN1610 switch to disable the static mode: no port-channel static

This configuration matches with the ISL configuration on the 3132Q-V switch C2 when the ISLs are brought up on both switches in step 11

### Show example

The following example shows the configuration of the ISL interface 3/1 using the no port-channel static command to make the ISL dynamic:

```
(CL1) # configure
(CL1) (Config) # interface 3/1
(CL1) (Interface 3/1) # no port-channel static
(CL1) (Interface 3/1) # exit
(CL1) (Config) # exit
(CL1) #
```

4. Bring up ISLs 13 through 16 on the active CN1610 switch CL1.

### Show example

The following example illustrates the process of bringing up ISL ports 13 through 16 on the port-channel interface 3/1:

```
(CL1) # configure

(CL1) (Config) # interface 0/13-0/16,3/1

(CL1) (Interface 0/13-0/16,3/1) # no shutdown

(CL1) (Interface 0/13-0/16,3/1) # exit

(CL1) (Config) # exit

(CL1) #
```

5. Verify that the ISLs are up on the CN1610 switch CL1:

```
show port-channel
```

The "Link State" should be Up, "Type" should be Dynamic, and the "Port Active" column should be True for ports 0/13 to 0/16:

```
(CL1) # show port-channel 3/1
Channel Name..... ISL-LAG
Link State..... Up
Admin Mode..... Enabled
Type..... Dynamic
Load Balance Option..... 7
(Enhanced hashing mode)
    Device/
Mbr
             Port
                    Port
Ports Timeout
             Speed
                     Active
0/13 actor/long
             10 Gb Full True
    partner/long
0/14 actor/long
             10 Gb Full True
    partner/long
0/15
    actor/long
             10 Gb Full True
    partner/long
0/16
    actor/long
             10 Gb Full
                    True
    partner/long
```

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

show port-channel summary

Ports Eth1/24/1 through Eth1/24/4 should indicate (P), meaning that all four ISL ports are up in the port-channel. Eth1/31 and Eth1/32 should indicate (D) as they are not connected:

```
C2# show port-channel summary
Flags: D - Down P - Up in port-channel (members)
       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
              Type Protocol Member Ports
Group Port-
     Channel
    Pol(SU)
              Eth
                      LACP
                               Eth1/31(D) Eth1/32(D)
    Po2(SU) Eth LACP Eth1/24/1(P) Eth1/24/2(P)
Eth1/24/3(P)
                                Eth1/24/4(P)
```

7. Bring up all of the cluster interconnect ports that are connected to the 3132Q-V switch C2 on all of the nodes:

network port modify

### Show example

The following example shows how to bring up the cluster interconnect ports connected to the 3132Q-V switch C2:

```
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. Revert all of the migrated cluster interconnect LIFs that are connected to C2 on all of the nodes:

```
network interface revert
```

```
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 that all of the cluster interconnect ports are reverted to their home ports:

network interface show

The following example shows that the LIFs on clus2 are 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, then the LIF is not reverted.

	Logical	Status	Network	Current	Current	Is
Vserver Home	Interface	Admin/Oper	Address/Mask	Node	Port	
Cluster						
true	n1_clus1	up/up	10.10.0.1/24	n1	e0a	
crue	n1_clus2	up/up	10.10.0.2/24	n1	e0b	
true	1 7 0	,	10 10 0 2/04	4	0	
true	n1_clus3	up/up	10.10.0.3/24	n1	e0c	
	n1_clus4	up/up	10.10.0.4/24	n1	e0d	
true	n2 clus1	up/up	10.10.0.5/24	n2	e0a	
true	IIZ_CIUSI	αρ/ αρ	10.10.0.3/24	112	eua	
	n2_clus2	up/up	10.10.0.6/24	n2	e0b	
true	n2 clus3	up/up	10.10.0.7/24	n2	e0c	
true	_	1 . 1				
true	n2_clus4	up/up	10.10.0.8/24	n2	e0d	

# 10. Verify that all of the cluster ports are connected:

network port show

The following example shows the result of the previous network <code>port modify</code> command, verifying that all of the cluster interconnects are up:

Node:	n1						
		Broadcast			Speed (Mbps)	Health	Ignore
Port	IPspace	Domain	Link	MTU	Admin/Open	Status	Health
Statu	S						
							_
 e0a	cluster	cluster	ир	9000	auto/10000	_	_
	cluster	cluster	up	9000		_	_
	cluster	cluster	up	9000		_	_
e0d	cluster	cluster	up	9000	auto/10000	-	-
Node:	n2						
		Broadcast			Speed (Mbps)	Health	Ignore
Port	IPspace	Domain	Link	MTU	Admin/Open	Status	Health
Statu	S						
							-
					4		
	cluster	cluster	up	9000		-	-
	cluster	cluster	up	9000		-	-
	cluster	cluster	up	9000		-	-
e0d	cluster	cluster	up	9000	auto/10000	_	-

11. Ping the remote cluster interfaces and then perform a remote procedure call server check:

cluster ping-cluster

# Show example The following example shows how to ping the remote cluster interfaces:

```
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
                       e0d 10.10.0.4
Cluster n1 clus4 n1
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 that are associated with the first CN1610 switch CL1, to

### be replaced:

network interface migrate

### Show example

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

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus1
-destination-node n1 -destination-port e0b
cluster::*> network interface migrate -vserver Cluster -lif n1_clus4
-destination-node n1 -destination-port e0c
cluster::*> network interface migrate -vserver Cluster -lif n2_clus1
-destination-node n2 -destination-port e0b
cluster::*> network interface migrate -vserver Cluster -lif n2_clus4
-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 the appropriate cluster ports hosted on cluster switch C2:

	Logical	Status	Network	Current	Current	Is
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port	
Home						
Cluster						
	n1_clus1	up/up	10.10.0.1/24	n1	e0b	
false	-1 -10		10 10 0 2/24	n1	a 01a	
true	n1_clus2	up/up	10.10.0.2/24	n⊥	e0b	
	n1_clus3	up/up	10.10.0.3/24	n1	e0c	
true	1 7 4	,	10 10 0 1/01	1	0	
false	n1_clus4	up/up	10.10.0.4/24	n1	e0c	
	n2_clus1	up/up	10.10.0.5/24	n2	e0b	
false		,				
true	n2_clus2	up/up	10.10.0.6/24	n2	e0b	
cruc	n2_clus3	up/up	10.10.0.7/24	n2	e0c	
true						
false	n2_clus4	up/up	10.10.0.8/24	n2	e0c	

14. Shut down the node ports that are connected to CL1 on all of the nodes:

network port modify

The following example shows how to shut down the specified ports 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 on the active 3132Q-V switch C2:

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

16. Remove the cables that are attached to the CN1610 switch CL1 on all of the nodes.

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

17. Remove the QSFP cables from Nexus 3132Q-V C2 port e1/24.

You must 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, by copying the running-configuration file to the startup-configuration file.

The following example copies the running-configuration file to the startup-configuration file:

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:

### Step 3: Verify the configuration

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 port-channel.

2. Bring up all of the cluster interconnect ports connected to the new 3132Q-V switch C1 on all of the nodes:

```
network port modify
```

### Show example

The following example shows how to bring up all of the cluster interconnect ports connected to the new 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 of the cluster interconnect ports on n1 and n2 on the new 3132Q-V switch C1 are up:

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

4. Revert all of the migrated cluster interconnect LIFs that were originally connected to C1 on all of the nodes:

network interface revert

The following example shows how to revert the migrated cluster LIFs to their home ports:

```
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 now home:

network interface show

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

	Logical	Status	Network	Current	Current	Is
Vserver Home	Interface	Admin/Oper	Address/Mask	Node	Port	
 Cluster						
	n1_clus1	up/up	10.10.0.1/24	n1	e0a	
true	n1_clus2	up/up	10.10.0.2/24	n1	e0b	
true	n1 clus3	up/up	10.10.0.3/24	n1	e0c	
true	n1_clus4	up/up	10.10.0.4/24	n1	e0d	
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a	
true	n2_clus2	up/up	10.10.0.6/24	n2	e0b	
true	n2_clus3	up/up	10.10.0.7/24	n2	e0c	
true	n2 clus4	un/un	10.10.0.8/24	n2	e0d	

6. Ping the remote cluster interfaces and then perform a remote procedure call server check:

cluster ping-cluster

# Show example The following example shows how to ping the remote cluster interfaces:

```
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
e0d 10.10.0.4
Cluster n1 clus4 n1
                        e0a 10.10.0.5
e0b 10.10.0.6
Cluster n2 clus1 n2
Cluster n2 clus2 n2
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:

- $^{\circ}$  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	Discovered		
ode	Port	Device	Interface	Platform
	/cdp			
	e0a	C1	Ethernet1/1/1	N3K-C3132Q-V
	e0b	C2	Ethernet1/1/1	N3K-C3132Q-V
	e0c	C2	Ethernet1/1/2	N3K-C3132Q-V
	e0d	C1	Ethernet1/1/2	N3K-C3132Q-V
2	/cdp			
	e0a	C1	Ethernet1/1/3	N3K-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
3	/cdp			
	e4a	C1	Ethernet1/7	N3K-C3132Q-V
	e4e	C2	Ethernet1/7	N3K-C3132Q-V
l	/cdp			
	e4a	C1	Ethernet1/8	N3K-C3132Q-V
	e4e	C2	Ethernet1/8	N3K-C3132Q-V

	<pre>cluster::*&gt; network port show -role cluster</pre>								
Node: n1									
	Broadcast			Speed (Mbps)	Health				
Ignore									
Port IPsp	ace Domain	Link	MTU	Admin/Open	Status				
Health Sta	tus								
e0a clus	ter cluster	up	9000	auto/10000		-			
e0b clus	ter cluster	up	9000	auto/10000	_	-			
e0c clus	ter cluster	up	9000	auto/10000	_	_			
e0d clus	ter cluster	up	9000	auto/10000	_	-			

Node: n2						
	Broadcast			Speed (Mbps)	Health	
Ignore						
Port IPspace	Domain	Link	MTU	Admin/Open	Status	
Health 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	-	-
Node: n3						
Node. 115	Broadcast			Speed (Mbps)	Health	
Ignore	Dioadcase			opeca (nops)	iicar cii	
Port IPspace	Domain	Link	МТП	Admin/Open	Status	
Health Status	201101211		1110	riomizii, opon		
e4a cluster	cluster	up	9000	auto/40000	-	_
e4e cluster	cluster	up	9000	auto/40000	_	_
Node: n4						
	Broadcast			Speed (Mbps)	Health	
Ignore						
Port IPspace	Domain	Link	MTU	Admin/Open	Status	
Health Status						
	_					
e4a cluster		_			-	-
e4e cluster	cluster	up	9000	auto/40000	-	-
12 entries were	displayed.					

Is	Logical	Status	Network	Current	Current
Vserver Home	Interface	Admin/Oper	Address/Mask	Node	Port
Cluster					
true	n1_clus1	up/up	10.10.0.1/24	n1	e0a
CIUC	n1_clus2	up/up	10.10.0.2/24	n1	e0b
true	n1_clus3	up/up	10.10.0.3/24	n1	e0c
true	n1_clus4	up/up	10.10.0.4/24	n1	e0d
true	n2_clus1	up/up	10.10.0.5/24	n2	e0a
true	n2_clus2	up/up	10.10.0.6/24	n2	e0b
true	n2_clus3	up/up	10.10.0.7/24	n2	e0c
true	n2_clus4	up/up	10.10.0.8/24	n2	e0d
true	n3_clus1	up/up	10.10.0.9/24	n3	e4a
	n3_clus2	up/up	10.10.0.10/24	n3	e4e
true	n4_clus1	up/up	10.10.0.11/24	n4	e4a
true	n4_clus2	up/up	10.10.0.12/24	n4	e4e
	es were dis	played.			

cluster::> system cluster-switch show Type Address Model cluster-network 10.10.1.103 C1 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 cluster-network 10.10.1.101 CN1610 CL1 Serial Number: 01234567 Is Monitored: true Reason: Software Version: 1.2.0.7 Version Source: ISDP CL2 cluster-network 10.10.1.102 CN1610 Serial Number: 01234568 Is Monitored: true Reason: Software Version: 1.2.0.7 Version Source: ISDP 4 entries were displayed.

9. Remove the replaced CN1610 switches if they are not automatically removed:

system cluster-switch delete

The following example shows how to remove the CN1610 switches:

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

10. Configure clusters clus1 and clus4 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 clus4 -auto
-revert true
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert true
cluster::*> network interface modify -vserver node2 -lif clus4 -auto
-revert true
```

11. Verify that the proper cluster switches are monitored:

```
system cluster-switch show
```

cluster::> system cluster-switch show Address Switch Type 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 2 entries were displayed.

12. Enable the cluster switch health monitor log collection feature for collecting switch-related log files:

system cluster-switch log setup-password
system cluster-switch log enable-collection

```
cluster::*> system cluster-switch log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
C1
C2
cluster::*> system cluster-switch log setup-password
Enter the switch name: C1
RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] y
Enter the password: <enter switch password>
Enter the password again: <enter switch password>
cluster::*> system cluster-switch log setup-password
Enter the switch name: C2
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] y
Enter the password: <enter switch password>
Enter the password again: <enter switch password>
cluster::*> system cluster-switch log enable-collection
Do you want to enable cluster log collection for all nodes in the
cluster?
{y|n}: [n] y
Enabling cluster switch log collection.
cluster::*>
```



If any of these commands return an error, contact NetApp support.

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

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

# Migrate from a switchless cluster to a two-node switched cluster

If you have a two-node switchless cluster, you can follow this procedure to migrate to a two-node switched cluster that includes Cisco Nexus 3132Q-V cluster network switches. The replacement procedure is a nondisruptive procedure (NDO).

# **Review requirements**

#### Ports and node connections

Make sure you understand the port and node connections and cabling requirements when you migrate to a two-node switched cluster with Cisco Nexus 3132Q-V cluster switches.

- The cluster switches use the Inter-Switch Link (ISL) ports e1/31-32.
- The Hardware Universe contains information about supported cabling to Nexus 3132Q-V switches:
  - The nodes with 10 GbE cluster connections require QSFP optical modules with breakout fiber cables or QSFP to SFP+ copper break-out cables.
  - The 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: 2x QSFP28 fiber or copper direct-attach cables.
- On Nexus 3132Q-V, you can operate QSFP ports as either 40/100 Gb Ethernet or 4 x10 Gb Ethernet modes.

By default, there are 32 ports in the 40/100 Gb Ethernet mode. These 40 Gb Ethernet ports are numbered in a 2-tuple naming convention. For example, the second 40 Gb Ethernet port is numbered as 1/2. The process of changing the configuration from 40 Gb Ethernet to 10 Gb Ethernet is called *breakout* and the process of changing the configuration from 10 Gb Ethernet to 40 Gb Ethernet is called *breakin*. When you break out a 40/100 Gb Ethernet port into 10 Gb Ethernet ports, the resulting ports are numbered using a 3-tuple naming convention. For example, the breakout ports of the second 40/100 Gb Ethernet port are numbered as 1/2/1, 1/2/2, 1/2/3, 1/2/4.

• On the left side of Nexus 3132Q-V is a set of four SFP+ ports multiplexed to the first QSFP port.

By default, the RCF is structured to use the first QSFP port.

You can make four SFP+ ports active instead of a QSFP port for Nexus 3132Q-V by using the hardware profile front portmode sfp-plus command. Similarly, you can reset Nexus 3132Q-V to use a QSFP port instead of four SFP+ ports by using the hardware profile front portmode qsfp command.

Make sure you configured some of the ports on Nexus 3132Q-V to run at 10 GbE or 40/100 GbE.

You can break-out the first six ports into 4x10 GbE mode by using the interface 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 interface breakout module 1 port 1-6 map 10g-4x command.

• 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.

# What you'll need

- Configurations properly set up and functioning.
- · Nodes running ONTAP 9.4 or later.
- All cluster ports in the up state.
- The Cisco Nexus 3132Q-V cluster switch is supported.
- The existing cluster network configuration has:
  - The Nexus 3132 cluster infrastructure that is redundant and fully functional on both switches.
  - The latest RCF and NX-OS versions on your switches.

The Cisco Ethernet Switches page has information about the ONTAP and NX-OS versions supported in this procedure.

- · Management connectivity on both switches.
- Console access to both switches.
- ° All cluster logical interfaces (LIFs) in the up state without being migrated.
- Initial customization of the switch.
- All the ISL ports enabled and cabled.

In addition, you must plan, migrate, and read the required documentation on 10 GbE and 40/100 GbE connectivity from nodes to Nexus 3132Q-V cluster switches.

# Migrate the switches

#### About the examples

The examples in this procedure use the following switch and node nomenclature:

- Nexus 3132Q-V cluster switches, C1 and C2.
- The nodes are n1 and n2.



The examples in this procedure use two nodes, each utilizing two 40/100 GbE cluster interconnect ports e4a and e4e. The Hardware Universe has details about the cluster ports on your platforms.

#### About this task

This procedure covers the following scenarios:

- n1 clus1 is the first cluster logical interface (LIF) to be connected to cluster switch C1 for node n1.
- n1 clus2 is the first cluster LIF to be connected to cluster switch C2 for node n1.
- n2 clus1 is the first cluster LIF to be connected to cluster switch C1 for node n2.
- n2 clus2 is the second cluster LIF to be connected to cluster switch C2 for node n2.
- 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 procedure requires the use of both ONTAP commands and Cisco Nexus 3000 Series Switches commands; ONTAP commands are used unless otherwise indicated.

- The cluster starts with two nodes connected and functioning in a two-node switchless cluster setting.
- The first cluster port is moved to C1.
- The second cluster port is moved to C2.
- The two-node switchless cluster option is disabled.

## Step 1: Prepare for migration

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

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

network port show

```
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
----
e4a Cluster Cluster up 9000 auto/40000 -
e4e Cluster Cluster up 9000 auto/40000 -
Node: n2
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 -
4 entries were displayed.
```

## b. Display information about the logical interfaces:

network interface show

```
cluster::*> network interface show -role cluster
 (network interface show)
         Logical Status Network
                                        Current
Current Is
       Interface Admin/Oper Address/Mask
Vserver
                                        Node
Port Home
__________
_____ ___
Cluster
        n1 clus1 up/up 10.10.0.1/24
                                        n1
e4a
      true
         n1 clus2 up/up
                         10.10.0.2/24
                                        n1
e4e
     true
         n2 clus1 up/up 10.10.0.3/24
                                        n2
e4a
      true
         n2 clus2 up/up 10.10.0.4/24
                                         n2
e4e
     true
4 entries were displayed.
```

 Verify that the appropriate RCFs and image are installed on the new 3132Q-V switches as necessary for your requirements, and make any 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 software, you must 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 RCF.
- d. Click **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.
- 4. Click **CONTINUE** on the **Description** page, accept the license agreement, and then follow the instructions on the **Download** page to download the RCF.

#### Step 2: Move first cluster port to C1

1. On Nexus 3132Q-V switches C1 and C2, disable all node-facing ports C1 and C2, but do not disable the ISL ports.

The following example shows ports 1 through 30 being disabled on Nexus 3132Q-V cluster switches C1 and C2 using a configuration supported in RCF NX3132 RCF v1.1 24p10g 26p40g.txt:

```
C1# copy running-config startup-config
[############ 100%
Copy complete.
C1# configure
C1 (config) # int e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4, e1/5/1-4, e1/6/1-4
4,e1/7-30
C1(config-if-range) # shutdown
C1(config-if-range) # exit
C1(config) # exit
C2# copy running-config startup-config
[############# 100%
Copy complete.
C2# configure
C2 (config) # int e1/1/1-4,e1/2/1-4,e1/3/1-4,e1/4/1-4,e1/5/1-4,e1/6/1-4
4,e1/7-30
C2(config-if-range) # shutdown
C2(config-if-range) # exit
C2(config)# exit
```

- 2. Connect ports 1/31 and 1/32 on C1 to the same ports on C2 using supported cabling.
- 3. Verify that the ISL ports are operational on C1 and C2:

```
show port-channel summary
```

```
C1# show port-channel summary
Flags: D - Down P - Up in port-channel (members)
     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
1 Po1(SU) Eth LACP Eth1/31(P) Eth1/32(P)
C2# show port-channel summary
Flags: D - Down P - Up in port-channel (members)
     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
_____
1 Po1(SU) Eth LACP Eth1/31(P) Eth1/32(P)
```

#### 4. Display the list of neighboring devices on the switch:

show cdp neighbors

```
C1# show cdp neighbors
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-
Bridge
                 S - Switch, H - Host, I - IGMP, r - Repeater,
                 V - VoIP-Phone, D - Remotely-Managed-Device,
                 s - Supports-STP-Dispute
Device-ID
                 Local Intrfce Hldtme Capability Platform
Port ID
C2
                 Eth1/31
                                174 R S I s N3K-C3132Q-V
Eth1/31
C2
                  Eth1/32
                                174 R S I s N3K-C3132Q-V
Eth1/32
Total entries displayed: 2
C2# show cdp neighbors
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-
Bridge
                 S - Switch, H - Host, I - IGMP, r - Repeater,
                 V - VoIP-Phone, D - Remotely-Managed-Device,
                 s - Supports-STP-Dispute
Device-ID
                 Local Intrfce Hldtme Capability Platform
Port ID
C1
                  Eth1/31
                                178
                                       RSIs
                                                  N3K-C3132Q-V
Eth1/31
C1
                  Eth1/32
                                178 R S I S N3K-C3132Q-V
Eth1/32
Total entries displayed: 2
```

#### 5. Display the cluster port connectivity on each node:

network device-discovery show

The following example shows a two-node switchless cluster configuration.

cluster		k device-discov Discovered	ery show	
Node	Port	Device	Interface	Platform
n1	/cdp			
	e4a	n2	e4a	FAS9000
	e4e	n2	e4e	FAS9000
n2	/cdp			
	e4a	n1	e4a	FAS9000
	e4e	n1	e4e	FAS9000

6. Migrate the clus1 interface to the physical port hosting clus2:

network interface migrate

Execute this command from each local node.

#### Show example

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus1
-source-node n1
-destination-node n1 -destination-port e4e
cluster::*> network interface migrate -vserver Cluster -lif n2_clus1
-source-node n2
-destination-node n2 -destination-port e4e
```

7. Verify the cluster interfaces migration:

network interface show

```
cluster::*> network interface show -role cluster
(network interface show)
       Logical Status Network Current
Current Is
Vserver Interface Admin/Oper Address/Mask Node
Port Home
_____
Cluster
       n1 clus1 up/up 10.10.0.1/24 n1
e4e false
       n1 clus2 up/up 10.10.0.2/24 n1
e4e true
       n2 clus1 up/up 10.10.0.3/24 n2
e4e false
       n2 clus2 up/up 10.10.0.4/24 n2
e4e true
4 entries were displayed.
```

8. Shut down cluster ports clus1 LIF on both nodes:

```
network port modify
```

```
cluster::*> network port modify -node n1 -port e4a -up-admin false
cluster::*> network port modify -node n2 -port e4a -up-admin false
```

9. Ping the remote cluster interfaces and perform an RPC server check:

```
cluster ping-cluster
```

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Cluster n1 clus1 n1
                     e4a 10.10.0.1
Cluster n2 clus1 n2
                      e4a 10.10.0.3
Cluster n2 clus2 n2
                       e4e 10.10.0.4
Local = 10.10.0.1 10.10.0.2
Remote = 10.10.0.3 10.10.0.4
Cluster Vserver Id = 4294967293
Ping status:
. . . .
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
. . . . . . . . . . . . . . . . . . .
Detected 1500 byte MTU on 32 path(s):
   Local 10.10.0.1 to Remote 10.10.0.3
   Local 10.10.0.1 to Remote 10.10.0.4
   Local 10.10.0.2 to Remote 10.10.0.3
    Local 10.10.0.2 to Remote 10.10.0.4
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
1 paths up, 0 paths down (tcp check)
1 paths up, 0 paths down (ucp check)
```

10. Disconnect the cable from e4a on node n1.

You can refer to the running configuration and connect the first 40 GbE port on the switch C1 (port 1/7 in this example) to e4a on n1 using supported cabling on Nexus 3132Q-V.



When reconnecting any cables to a new Cisco cluster switch, the cables used must be either fiber or cabling supported by Cisco.

11. Disconnect the cable from e4a on node n2.

You can refer to the running configuration and connect e4a to the next available 40 GbE port on C1, port 1/8, using supported cabling.

12. Enable all node-facing ports on C1.

The following example shows ports 1 through 30 being enabled on Nexus 3132Q-V cluster switches C1 and C2 using the configuration supported in RCF NX3132\_RCF\_v1.1\_24p10g\_26p40g.txt:

```
C1# configure
C1(config)# int e1/1/1-4,e1/2/1-4,e1/3/1-4,e1/4/1-4,e1/5/1-4,e1/6/1-4,e1/7-30
C1(config-if-range)# no shutdown
C1(config-if-range)# exit
C1(config)# exit
```

13. Enable the first cluster port, e4a, on each node:

```
network port modify
```

# Show example

```
cluster::*> network port modify -node n1 -port e4a -up-admin true
cluster::*> network port modify -node n2 -port e4a -up-admin true
```

14. Verify that the clusters are up on both nodes:

```
network port show
```

```
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
_____
e4a Cluster Cluster up 9000 auto/40000 -
e4e Cluster Cluster up 9000 auto/40000 -
Node: n2
Ignore
                                    Speed (Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
_____ ____
_____
e4a Cluster Cluster up 9000 auto/40000 -
e4e Cluster Cluster up 9000 auto/40000 -
4 entries were displayed.
```

15. For each node, revert all of the migrated cluster interconnect LIFs:

```
network interface revert
```

#### Show example

The following example shows the migrated LIFs being reverted to their home ports.

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

16. Verify that all of the cluster interconnect ports are now reverted to their home ports:

```
network interface show
```

The Is Home column should display a value of true for all of the ports listed in the Current Port column. If the displayed value is false, the port has not been reverted.

# Show example

				w -role cluster	
(networ	ck in	nterface sh	OW)		
		Logical	Status	Network	Current
Current	Is				
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	2			
		_			
Cluster					
		n1 clus1	up/up	10.10.0.1/24	n1
e4a		_	1		
		n1 clus2	מנו/מנו	10.10.0.2/24	n1
e4e		_			
010			ıın/ıın	10.10.0.3/24	n 2
e4a		_	αρ/ αρ	10.10.0.5/21	112
24a			/	10 10 0 4/04	0
		_	up/up	10.10.0.4/24	n∠
e4e	true	9			

# Step 3: Move second cluster port to C2

1. Display the cluster port connectivity on each node:

network device-discovery show

0100001	Local	ck device-discove Discovered	221 311311	
Node	Port	Device	Interface	Platform
n1	/cdp			
	e4a	C1	Ethernet1/7	N3K-C3132Q-V
	e4e	n2	e4e	FAS9000
n2	/cdp			
	e4a	C1	Ethernet1/8	N3K-C3132Q-V
	e4e	n1	e4e	FAS9000

2. On the console of each node, migrate clus2 to port e4a:

network interface migrate

#### Show example

```
cluster::*> network interface migrate -vserver Cluster -lif n1_clus2
-source-node n1
-destination-node n1 -destination-port e4a
cluster::*> network interface migrate -vserver Cluster -lif n2_clus2
-source-node n2
-destination-node n2 -destination-port e4a
```

3. Shut down cluster ports clus2 LIF on both nodes:

```
network port modify
```

The following example shows the specified ports being shut down on both nodes:

```
cluster::*> network port modify -node n1 -port e4e -up-admin false
cluster::*> network port modify -node n2 -port e4e -up-admin false
```

4. Verify the cluster LIF status:

network interface show

```
cluster::*> network interface show -role cluster
 (network interface show)
         Logical Status
                          Network
                                          Current
Current Is
Vserver Interface Admin/Oper Address/Mask
                                          Node
Port
     Home
_____
_____
Cluster
        n1 clus1 up/up
                          10.10.0.1/24
                                       n1
e4a
     true
         n1 clus2 up/up
                          10.10.0.2/24
                                          n1
     false
e4a
         n2 clus1 up/up
                          10.10.0.3/24
                                          n2
e4a
      true
         n2 clus2 up/up
                          10.10.0.4/24
                                          n2
e4a
     false
4 entries were displayed.
```

5. Disconnect the cable from e4e on node n1.

You can refer to the running configuration and connect the first 40 GbE port on the switch C2 (port 1/7 in this example) to e4e on n1 using supported cabling on Nexus 3132Q-V.

6. Disconnect the cable from e4e on node n2.

You can refer to the running configuration and connect e4e to the next available 40 GbE port on C2, port 1/8, using supported cabling.

7. Enable all node-facing ports on C2.

#### Show example

The following example shows ports 1 through 30 being enabled on Nexus 3132Q-V cluster switches C1 and C2 using a configuration supported in RCF NX3132 RCF v1.1 24p10g 26p40g.txt:

```
C2# configure
C2(config)# int e1/1/1-4,e1/2/1-4,e1/3/1-4,e1/4/1-4,e1/5/1-4,e1/6/1-4,e1/7-30
C2(config-if-range)# no shutdown
C2(config-if-range)# exit
C2(config)# exit
```

8. Enable the second cluster port, e4e, on each node:

```
network port modify
```

The following example shows the specified ports being brought up:

```
cluster::*> network port modify -node n1 -port e4e -up-admin true
cluster::*> network port modify -node n2 -port e4e -up-admin true
```

9. For each node, revert all of the migrated cluster interconnect LIFs:

```
network interface revert
```

The following example shows the migrated LIFs being reverted to their home ports.

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

10. Verify that all of the cluster interconnect ports are now reverted to their home ports:

```
network interface show
```

The Is Home column should display a value of true for all of the ports listed in the Current Port column. If the displayed value is false, the port has not been reverted.

```
cluster::*> network interface show -role cluster
(network interface show)
       Logical Status Network Current
Current Is
Vserver Interface Admin/Oper Address/Mask Node
Port Home
______
_____
Cluster
       n1 clus1 up/up 10.10.0.1/24 n1
e4a true
      n1 clus2 up/up 10.10.0.2/24 n1
e4e true
     n2 clus1 up/up 10.10.0.3/24 n2
e4a true
       n2_clus2 up/up 10.10.0.4/24 n2
e4e true
4 entries were displayed.
```

11. Verify that all of the cluster interconnect ports are in the up state.

network port show -role cluster

```
cluster::*> network port show -role cluster
 (network port show)
Node: n1
Ignore
                                    Speed(Mbps) Health
Health
      IPspace Broadcast Domain Link MTU Admin/Oper Status
Port
Status
_____
e4a Cluster Cluster up 9000 auto/40000 -
e4e Cluster Cluster up 9000 auto/40000 -
Node: n2
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 -
4 entries were displayed.
```

## Step 4: Disable the two-node switchless cluster option

1. Display the cluster switch port numbers each cluster port is connected to on each node:

network device-discovery show

	Local	Discovered		
Node	Port	Device	Interface	Platform
n1	/cdp			
	e4a	C1	Ethernet1/7	N3K-C3132Q-V
	e4e	C2	Ethernet1/7	N3K-C3132Q-V
n2	/cdp			
	e4a	C1	Ethernet1/8	N3K-C3132Q-V
	e4e	C2	Ethernet1/8	N3K-C3132Q-V

# 2. Display discovered and monitored cluster switches:

system cluster-switch show

```
cluster::*> system cluster-switch show
                           Type Address
Switch
Model
С1
                        cluster-network 10.10.1.101
NX3132V
    Serial Number: FOX000001
     Is Monitored: true
           Reason:
 Software Version: Cisco Nexus Operating System (NX-OS) Software,
Version
                   7.0(3) I4(1)
   Version Source: CDP
                           cluster-network 10.10.1.102
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.
```

3. Disable the two-node switchless configuration settings on any node:

network options switchless-cluster

```
network options switchless-cluster modify -enabled false
```

4. Verify that the switchless-cluster option has been disabled.

```
network options switchless-cluster show
```

## Step 5: Verify the configuration

1. Ping the remote cluster interfaces and perform an RPC server check:

```
cluster ping-cluster
```

#### Show example

```
cluster::*> cluster ping-cluster -node n1
Host is n1
Getting addresses from network interface table...
Local = 10.10.0.1 10.10.0.2
Remote = 10.10.0.3 10.10.0.4
Cluster Vserver Id = 4294967293
Ping status:
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
Detected 1500 byte MTU on 32 path(s):
   Local 10.10.0.1 to Remote 10.10.0.3
   Local 10.10.0.1 to Remote 10.10.0.4
   Local 10.10.0.2 to Remote 10.10.0.3
   Local 10.10.0.2 to Remote 10.10.0.4
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
1 paths up, 0 paths down (tcp check)
1 paths up, 0 paths down (ucp check)
```

2. Enable the cluster switch health monitor log collection feature for collecting switch-related log files:

```
system cluster-switch log setup-password
system cluster-switch log enable-collection
```

```
cluster::*> **system cluster-switch log setup-password**
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
C1
C2
cluster::*> system cluster-switch log setup-password
Enter the switch name: C1
RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] y
Enter the password: <enter switch password>
Enter the password again: <enter switch password>
cluster::*> system cluster-switch log setup-password
Enter the switch name: C2
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] y
Enter the password: <enter switch password>
Enter the password again: <enter switch password>
cluster::*> system cluster-switch log enable-collection
Do you want to enable cluster log collection for all nodes in the
cluster?
\{y|n\}: [n] y
Enabling cluster switch log collection.
cluster::*>
```



If any of these commands return an error, contact NetApp support.

3. If you suppressed automatic case creation, re-enable it by invoking an AutoSupport message:

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

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