# **■** NetApp

# Migrate switches

Cluster and storage switches

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# Migrate switches

# Migrate from a NetApp CN1610 cluster switch to a Cisco 9336C-FX2 cluster switch

You can migrate NetApp CN1610 cluster switches for an ONTAP cluster to Cisco 9336C-FX2 cluster switches. This is a nondisruptive procedure.

# **Review requirements**

You must be aware of certain configuration information, port connections and cabling requirements when you are replacing NetApp CN1610 cluster switches with Cisco 9336C-FX2 cluster switches.

#### Supported switches

The following cluster switches are supported:

- NetApp CN1610
- Cisco 9336C-FX2

For details of supported ports and their configurations, see the Hardware Universe.

# What you'll need

Verify that your configuration meets the following requirements:

- The existing cluster is correctly set up and functioning.
- All cluster ports are in the **up** state to ensure nondisruptive operations.
- The Cisco 9336C-FX2 cluster switches are configured and operating under the correct version of NX-OS installed with the reference configuration file (RCF) applied.
- The existing cluster network configuration has the following:
  - A redundant and fully functional NetApp cluster using NetApp CN1610 switches.
  - Management connectivity and console access to both the NetApp CN1610 switches and the new switches.
  - All cluster LIFs in the up state with the cluster LIFs are on their home ports.
- Some of the ports are configured on Cisco 9336C-FX2 switches to run at 40GbE or 100GbE.
- You have planned, migrated, and documented 40GbE and 100GbE connectivity from nodes to Cisco 9336C-FX2 cluster switches.

# Migrate the switches

# About the examples

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

- The existing CN1610 cluster switches are C1 and C2.
- The new 9336C-FX2 cluster switches are cs1 and cs2.
- The nodes are node1 and node2.

- The cluster LIFs are *node1\_clus1* and *node1\_clus2* on node 1, and *node2\_clus1* and *node2\_clus2* on node 2 respectively.
- The cluster1::\*> prompt indicates the name of the cluster.
- The cluster ports used in this procedure are e3a and e3b.

#### About this task

This procedure covers the following scenario:

- Switch C2 is replaced by switch cs2 first.
  - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
  - The cabling between the nodes and C2 is then disconnected from C2 and reconnected to cs2.
- Switch C1 is replaced by switch cs1.
  - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
  - The cabling between the nodes and C1 is then disconnected from C1 and reconnected to cs1.



No operational inter-switch link (ISL) is needed during this procedure. This is by design because RCF version changes can affect ISL connectivity temporarily. To ensure non-disruptive cluster operations, the following procedure migrates all of the cluster LIFs to the operational partner switch while performing the steps on the target switch.

# **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
```

where *x* is the duration of the maintenance window in hours.

2. Change the privilege level to advanced, entering **y** when prompted to continue:

```
set -privilege advanced
```

The advanced prompt (\*>) appears.

3. Disable auto-revert on the cluster LIFs:

```
network interface modify -vserver Cluster -lif * -auto-revert false
```

# Step 2: Configure ports and cabling

1. Determine the administrative or operational status for each cluster interface.

Each port should display up for Link and healthy for Health Status.

a. Display the network port attributes:

```
network port show -ipspace Cluster
```

		port show	трэра	CE CI(	15 CEI	
Node: no	de1					
Ignore						
Health	Health					Speed(Mbps)
	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper
					0.000	/10000
e3a healthy	Cluster	Cluster		up	9000	auto/100000
_	Cluster	Cluster		up	9000	auto/100000
healthy	false					
Node: no	de2					
_						
Ignore						Speed(Mbps)
Health	Health					
	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper
Status	Status					
		Cluster		up	9000	auto/100000
healthy		Q1 .		110	9000	auto/100000
e3b	C   11 c + 0 x					

# b. Display information about the LIFs and their designated home nodes:

network interface show -vserver Cluster

Each LIF should display up/up for Status Admin/Oper and true for Is Home.

	-••	ncoworn inc	errace snow	-vserver Cluster	
		Logical	Status	Network	Current
Current	Is				
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	Э			
Cluster					
		node1_clus1	up/up	169.254.209.69/16	node1
e3a	true	_			
		node1_clus2	up/up	169.254.49.125/16	node1
e3b	true				
		_	up/up	169.254.47.194/16	node2
e3a	true	_			
		node2_clus2	up/up	169.254.19.183/16	node2
e3b	true	_ e			

2. The cluster ports on each node are connected to existing cluster switches in the following way (from the nodes' perspective) using the command:

network device-discovery show -protocol

# Show example

```
cluster1::*> network device-discovery show -protocol cdp
Node/
      Local Discovered
Protocol Port Device (LLDP: ChassisID) Interface
Platform
node1
         /cdp
          e3a C1 (6a:ad:4f:98:3b:3f) 0/1
                 C2 (6a:ad:4f:98:4c:a4)
          e3b
                                         0/1
node2
         /cdp
                 C1 (6a:ad:4f:98:3b:3f)
                                         0/2
          e3a
          e3b
                 C2 (6a:ad:4f:98:4c:a4)
                                         0/2
```

3. The cluster ports and switches are connected in the following way (from the switches' perspective) using the command:

show cdp neighbors

Show examp	ole			

# 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				
node1	Eth1/1	124	Н	AFF-A400
e3a				
node2	Eth1/2	124	H	AFF-A400
e3a				
C2	0/13	179	SIS	CN1610
0/13				
C2	0/14	175	SIS	CN1610
0/14				
C2	0/15	179	SIS	CN1610
0/15				
C2	0/16	175	SIS	CN1610
0/16				

# 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				
node1	Eth1/1	124	Н	AFF-A400
e3b				
node2	Eth1/2	124	Н	AFF-A400
e3b				
C1	0/13	175	SIs	CN1610
0/13				
C1	0/14	175	SIS	CN1610
0/14				
C1	0/15	175	SIS	CN1610
0/15				
C1	0/16	175	SIS	CN1610
0/16				

4. Verify that the cluster network has full connectivity using the command:

```
cluster ping-cluster -node node-name
```

# Show example

```
cluster1::*> cluster ping-cluster -node node2
Host is node2
Getting addresses from network interface table...
Cluster node1 clus1 169.254.209.69 node1
                                              e3a
Cluster node1 clus2 169.254.49.125 node1
                                              e3b
Cluster node2 clus1 169.254.47.194 node2
                                              еЗа
Cluster node2 clus2 169.254.19.183 node2
                                              e3b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
. . . . . . . . . . . . . . . .
Detected 9000 byte MTU on 4 path(s):
   Local 169.254.19.183 to Remote 169.254.209.69
    Local 169.254.19.183 to Remote 169.254.49.125
    Local 169.254.47.194 to Remote 169.254.209.69
    Local 169.254.47.194 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

5. On switch C2, shut down the ports connected to the cluster ports of the nodes in order to fail over the cluster LIFs.

```
(C2) # configure
(C2) (Config) # interface 0/1-0/12
(C2) (Interface 0/1-0/12) # shutdown
(C2) (Interface 0/1-0/12) # exit
(C2) (Config) # exit
```

- 6. Move the node cluster ports from the old switch C2 to the new switch cs2, using appropriate cabling supported by Cisco 9336C-FX2.
- 7. Display the network port attributes:

Clustell	::*> networ	k port snow	-Ipspa	Se CI	iscer		
Node: no	de1						
Ignore							
Health						Speed (Mbps)	Health
	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
e3a healthy		Cluster		up	9000	auto/100000	
	Cluster	Cluster		up	9000	auto/100000	
Node: no	de2						
Ignore							
						Speed (Mbps)	Health
Health Port Status	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
		Cluster		up	9000	auto/100000	
healthy e3b healthy	Cluster	Cluster		up	9000	auto/100000	

8. The cluster ports on each node are now connected to cluster switches in the following way, from the nodes' perspective:

network device-discovery show -protocol

```
cluster1::*> network device-discovery show -protocol cdp
Node/ Local Discovered
Protocol Port Device (LLDP: ChassisID) Interface
Platform
_____
        /cdp
node1
         e3a C1 (6a:ad:4f:98:3b:3f) 0/1
CN1610
         e3b cs2 (b8:ce:f6:19:1a:7e) Ethernet1/1/1
                                                      N9K-
C9336C-FX2
node2
        /cdp
          e3a C1 (6a:ad:4f:98:3b:3f) 0/2
CN1610
         e3b cs2 (b8:ce:f6:19:1b:96) Ethernet1/1/2
                                                      N9K-
C9336C-FX2
```

9. On switch cs2, verify that all node cluster ports are up:

network interface show -vserver Cluster

# Show example

cluster	1::*>	> network int	eriace show	-vserver Cluster	
		Logical	Status	Network	Current
Current	Is				
Vserver		Interfac	Admin/Oper	Address/Mask	Node
Port	Home	9			
		-			
Cluster					
		node1 clus1	up/up	169.254.3.4/16	node1
e0b	fals	e Se			
		node1 clus2	up/up	169.254.3.5/16	node1
e0b	true	_ e			
		node2 clus1	up/up	169.254.3.8/16	node2
e0b	fals	e Se			
		node2 clus2	up/up	169.254.3.9/16	node2
e0b	t.rue	_			

10. On switch C1, shut down the ports connected to the cluster ports of the nodes in order to fail over the cluster LIFs.

```
(C1) # configure
(C1) (Config) # interface 0/1-0/12
(C1) (Interface 0/1-0/12) # shutdown
(C1) (Interface 0/1-0/12) # exit
(C1) (Config) # exit
```

- 11. Move the node cluster ports from the old switch C1 to the new switch cs1, using appropriate cabling supported by Cisco 9336C-FX2.
- 12. Verify the final configuration of the cluster:

```
network port show -ipspace Cluster
```

Each port should display up for Link and healthy for Health Status.

clusterl	::*> network	port show	-ipspa	ce CI	ıster		
Node: no	de1						
Ignore							
1911010						Speed (Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
e3a	Cluster	Cluster		up	9000	auto/100000	
healthy	false			_			
	Cluster	Cluster		up	9000	auto/100000	
healthy	false						
Node: no	de2						
Ignore							
Health						Speed (Mbps)	Health
	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status	1107000	21000000	2011.0.211		1110	riamilii, opol	204042
		_					
e3a healthy	Cluster	Cluster		up	9000	auto/100000	
	Cluster	Cluster		1110	9000	auto/100000	
	false	3145661		~L	3000	2400, 100000	

13. The cluster ports on each node are now connected to cluster switches in the following way, from the nodes' perspective:

network device-discovery show -protocol

```
cluster1::*> network device-discovery show -protocol cdp
Node/ Local Discovered
Protocol Port Device (LLDP: ChassisID) Interface
Platform
_____
node1
        /cdp
         e3a cs1 (b8:ce:f6:19:1a:7e) Ethernet1/1/1 N9K-
C9336C-FX2
         e3b cs2 (b8:ce:f6:19:1b:96) Ethernet1/1/2
                                                     N9K-
C9336C-FX2
node2
        /cdp
          e3a cs1 (b8:ce:f6:19:1a:7e) Ethernet1/1/1
                                                     N9K-
C9336C-FX2
         e3b cs2 (b8:ce:f6:19:1b:96) Ethernet1/1/2
                                                     N9K-
C9336C-FX2
```

14. On switches cs1 and cs2, verify that all node cluster ports are up:

network port show -ipspace Cluster

cluster1	::*> network	port show -	ipspace	Clust	ter		
Node: no	de1						
Ignore							
						Speed(Mbps)	Health
Health							
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
 ena	Cluster	Cluster		1110	9000	auto/10000	
healthy		Clustel		αр	2000	auco/10000	
	Cluster	Cluster		up	9000	auto/10000	
healthy				-			
Node: no	de2						
Tanama							
Ignore						Speed (Mbps)	Health
Health						Speed (Imps)	iicai cii
Port	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
Status							
	Cluster	Cluster		up	9000	auto/10000	
healthy	false Cluster	Cluston		1110	0000	auto/10000	
$\circ$ $\cap$ $b$		1115126		[][)	9000	aul0/10000	

# 15. Verify that both nodes each have one connection to each switch:

network device-discovery show -protocol

The following example shows the appropriate results for both switches:

```
cluster1::*> network device-discovery show -protocol cdp
          Local Discovered
Protocol
         Port Device (LLDP: ChassisID) Interface
Platform
node1
        /cdp
          e0a cs1 (b8:ce:f6:19:1b:42) Ethernet1/1/1
                                                       N9K-
C9336C-FX2
         e0b cs2 (b8:ce:f6:19:1b:96) Ethernet1/1/2
                                                       N9K-
C9336C-FX2
         /cdp
node2
          e0a cs1 (b8:ce:f6:19:1b:42) Ethernet1/1/1
                                                       N9K-
C9336C-FX2
          e0b cs2 (b8:ce:f6:19:1b:96) Ethernet1/1/2
                                                       N9K-
C9336C-FX2
```

# Step 3: Complete the procedure

1. Enable auto-revert on the cluster LIFs:

```
cluster1::*> network interface modify -vserver Cluster -lif * -auto-revert
true
```

2. Verify that all cluster network LIFs are back on their home ports:

```
network interface show
```

```
cluster1::*> network interface show -vserver Cluster
         Logical Status Network
                                          Current
Current Is
Vserver Interface Admin/Oper Address/Mask
                                         Node
Port
     Home
______ ____
_____
Cluster
        node1_clus1 up/up 169.254.209.69/16 node1
e3a
      true
         node1 clus2 up/up
                          169.254.49.125/16 node1
e3b
      true
         node2_clus1 up/up 169.254.47.194/16 node2
e3a
      true
         node2 clus2 up/up 169.254.19.183/16 node2
e3b
      true
```

3. To set up log collection, run the following command for each switch. You are prompted to enter the switch name, username, and password for log collection.

system switch ethernet log setup-password

```
cluster1::*> system switch ethernet log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2
cluster1::*> system switch ethernet log setup-password
Enter the switch name: cs1
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>
cluster1::*> system switch ethernet log setup-password
Enter the switch name: cs2
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>
```

4. To start log collection, run the following command, replacing DEVICE with the switch used in the previous command. This starts both types of log collection: the detailed **Support** logs and an hourly collection of **Periodic** data.

system switch ethernet log modify -device <switch-name> -log-request true

```
cluster1::*> system switch ethernet log modify -device cs1 -log -request true

Do you want to modify the cluster switch log collection configuration? {y|n}: [n] y

Enabling cluster switch log collection.

cluster1::*> system switch ethernet log modify -device cs2 -log -request true

Do you want to modify the cluster switch log collection configuration? {y|n}: [n] y

Enabling cluster switch log collection.

cluster1::*>
```

Wait for 10 minutes and then check that the log collection was successful using the command:

system switch ethernet log show



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

5. Change the privilege level back to admin:

```
set -privilege admin
```

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

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

# Migrate from an older Cisco switch to a Cisco Nexus 9336C-FX2 cluster switch

You can perform a nondisruptive migration from an older Cisco cluster switch to a Cisco Nexus 9336C-FX2 cluster network switch.

# **Review requirements**

Ensure that:

- Some of the ports on Nexus 9336C-FX2 switches are configured to run at 10GbE or 40GbE.
- The 10GbE and 40GbE connectivity from nodes to Nexus 9336C-FX2 cluster switches have been planned, migrated, and documented.

- The cluster is fully functioning (there should be no errors in the logs or similar issues).
- Initial customization of the Cisco Nexus 9336C-FX2 switches is complete, so that:
  - 9336C-FX2 switches are running the latest recommended version of software.
  - Reference Configuration Files (RCFs) have been applied to the switches.
  - Any site customization, such as DNS, NTP, SMTP, SNMP, and SSH, are configured on the new switches.
- You have access to the switch compatibility table on the Cisco Ethernet Switches page for the supported ONTAP, NX-OS, and RCF versions.
- You have reviewed the appropriate software and upgrade guides available on the Cisco web site for the Cisco switch upgrade and downgrade procedures at Cisco Nexus 9000 Series Switches Support page.



If you are changing the port speed of the e0a and e1a cluster ports on AFF A800 or AFF C800 systems, you might observe malformed packets being received after the speed conversion. See Bug 1570339 and the Knowledge Base article CRC errors on T6 ports after converting from 40GbE to 100GbE for guidance.

# Migrate the switches

#### About the examples

The examples in this procedure use two nodes. These nodes use two 10GbE cluster interconnect ports e0a and e0b. See the Hardware Universe to verify the correct cluster ports on your platforms.

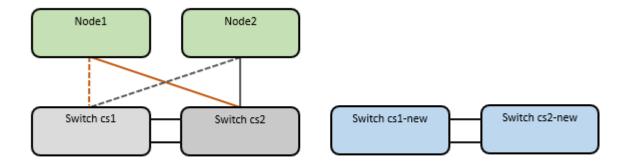


The command outputs might vary depending on the different releases of ONTAP.

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

- The names of the existing two Cisco switches are cs1 and cs2
- The new Nexus 9336C-FX2 cluster switches are cs1-new and cs2-new.
- The node names are **node1** and **node2**.
- The cluster LIF names are **node1\_clus1** and **node1\_clus2** for node 1, and **node2\_clus1** and **node2\_clus2** for node 2.
- The **cluster1::**>\* prompt indicates the name of the cluster.

During this procedure, refer to the following example:



#### About this task

The procedure requires the use of both ONTAP commands and Nexus 9000 Series Switches commands; ONTAP commands are used, unless otherwise indicated.

This procedure covers the following scenario:

- Switch cs2 is replaced by switch cs2-new first.
  - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
  - · Cabling between the nodes and cs2 are then disconnected from cs2 and reconnected to cs2-new.
- Switch cs1 is replaced by switch cs1-new.
  - Shut down the ports to the cluster nodes. All ports must be shut down simultaneously to avoid cluster instability.
  - Cabling between the nodes and cs1 are then disconnected from cs1 and reconnected to cs1-new.



No operational inter-switch link (ISL) is needed during this procedure. This is by design because RCF version changes can affect ISL connectivity temporarily. To ensure non-disruptive cluster operations, the following procedure migrates all of the cluster LIFs to the operational partner switch while performing the steps on the target switch.

# **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

where *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. Change the privilege level to advanced, entering **y** when prompted to continue:

```
set -privilege advanced
```

The advanced prompt (\*>) appears.

## Step 2: Configure ports and cabling

1. On the new switches, confirm that the ISL is cabled and healthy between the switches cs1-new and cs2-new:

show port-channel summary

```
cs1-new# 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
       b - BFD Session Wait
       S - Switched R - Routed
       U - Up (port-channel)
       p - Up in delay-lacp mode (member)
       M - Not in use. Min-links not met
_____
Group Port- Type Protocol Member Ports
     Channel
1 Po1(SU) Eth LACP Eth1/35(P) Eth1/36(P)
cs2-new# 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
       b - BFD Session Wait
       S - Switched R - Routed
       U - Up (port-channel)
       p - Up in delay-lacp mode (member)
       M - Not in use. Min-links not met
Group Port- Type Protocol Member Ports
     Channel
   Pol(SU) Eth LACP Eth1/35(P) Eth1/36(P)
```

2. Display the cluster ports on each node that are connected to the existing cluster switches:

network device-discovery show

```
cluster1::*> network device-discovery show -protocol cdp
          Local Discovered
Protocol
          Port Device (LLDP: ChassisID) Interface
Platform
node1
       /cdp
                                          Ethernet1/1
           e0a
                                                            N5K-
                 cs1
C5596UP
                                          Ethernet1/2
          e0b
                  cs2
                                                            N5K-
C5596UP
node2
         /cdp
                                          Ethernet1/1
           e0a
                  cs1
                                                            N5K-
C5596UP
                                          Ethernet1/2
           e0b
                  cs2
                                                            N5K-
C5596UP
```

- 3. Determine the administrative or operational status for each cluster port.
  - a. Verify that all the cluster ports are up with a healthy status:

network port show -ipspace Cluster

cluster1	::*> network ]	port show -:	ipspace	Clust	ter		
Node: no	de1						
Ignore							
Health	IIool+b					Speed (Mbps)	
	IPspace	Broadcast	Domain	Link	мтт	Admin/Oner	
Status		DIOACCASC	DOMATH	ПТПК	MIO	Admini/Open	
e0a	Cluster	Cluster		up	9000	auto/10000	
healthy	false						
e0b	Cluster	Cluster		up	9000	auto/10000	
healthy	false						
Node: no	de2						
T							
Ignore						Speed (Mbps)	
Health	Health					speed (Msps)	
	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	
Status						1	
	Cluster	Cluster		up	9000	auto/10000	
healthy							
	Cluster	Cluster		up	9000	auto/10000	
healthy	false						

b. Verify that all the cluster interfaces (LIFs) are on their home ports:

network interface show -vserver Cluster

		Logical	Status	Network	Current
Current	Is				
Vserver		Interface	Admin/Oper	Address/Mask	Node
Port	Home	Э			
Cluster					
		node1_clus1	up/up	169.254.209.69/16	node1
e0a	true				
		node1_clus2	up/up	169.254.49.125/16	node1
e0b	true				
		node2_clus1	up/up	169.254.47.194/16	node2
e0a	true				
		node2_clus2	up/up	169.254.19.183/16	node2

c. Verify that the cluster displays information for both cluster switches:

system cluster-switch show -is-monitoring-enabled-operational true

```
cluster1::*> system cluster-switch show -is-monitoring-enabled
-operational true
                           Type Address
Switch
Model
                           cluster-network 10.233.205.92
cs1
N5K-C5596UP
     Serial Number: FOXXXXXXXGS
      Is Monitored: true
            Reason: None
  Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version
                    9.3(4)
    Version Source: CDP
                          cluster-network 10.233.205.93
cs2
N5K-C5596UP
     Serial Number: FOXXXXXXXGD
      Is Monitored: true
            Reason: None
  Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version
                   9.3(4)
    Version Source: CDP
```

4. Disable auto-revert on the cluster LIFs.

network interface modify -vserver Cluster -lif \* -auto-revert false



Disabling auto-revert ensures ONTAP only fails over the cluster LIFs when the switch ports are shutdown later.

5. On cluster switch cs2, shut down the ports connected to the cluster ports of **all** the nodes in order to fail over the cluster LIFs:

```
cs2(config)# interface eth1/1-1/2
cs2(config-if-range)# shutdown
```

6. Verify that the cluster LIFs have failed over to the ports hosted on cluster switch cs1. This might take a few seconds.

network interface show -vserver Cluster

			w -vserver Cluster	
	Logical	Status	Network	Current
Current	: Is			
Vserver	Interface	Admin/Op	er Address/Mask	Node
Port	Home			
Cluster				
	node1_clus1	up/up	169.254.3.4/16	node1
e0a	true			
	node1_clus2	up/up	169.254.3.5/16	node1
e0a	false			
	node2_clus1	up/up	169.254.3.8/16	node2
e0a	true			
	node2_clus2	up/up	169.254.3.9/16	node2
e0a	false			

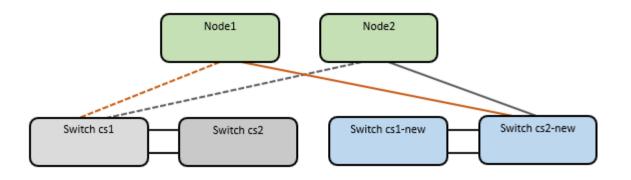
# 7. Verify that the cluster is healthy:

cluster show

# Show example

8. Move all cluster node connection cables from the old cs2 switch to the new cs2-new switch.

# Cluster node connection cables moved to the cs2-new switch



9. Confirm the health of the network connections moved to cs2-new:

network port show -ipspace Cluster

# Show example

clusterl	::*> network	port show -:	ipspace	Clust	ter		
Node: no	de1						
Ignore							
Health						Speed (Mbps)	Health
	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
e0a healthy	Cluster	Cluster		up	9000	auto/10000	
_	Cluster	Cluster		up	9000	auto/10000	
healthy	false						
Node: no	de2						
Ignore							
						Speed(Mbps)	Health
Health Port Status	IPspace	Broadcast	Domain	Link	MTU	Admin/Oper	Status
	Cluster	Cluster		up	9000	auto/10000	
	Cluster	Cluster		up	9000	auto/10000	

All cluster ports that were moved should be up.

10. Check neighbor information on the cluster ports:

```
network device-discovery show -protocol cdp
```

## Show example

```
cluster1::*> network device-discovery show -protocol cdp
Node/
          Local Discovered
                 Device (LLDP: ChassisID) Interface
                                                      Platform
Protocol
         Port
-----
node1
         /cdp
                                         Ethernet1/1 N5K-
          e0a cs1
C5596UP
          e0b
                 cs2-new
                                         Ethernet1/1/1 N9K-
C9336C-FX2
node2
          /cdp
          e0a
                                         Ethernet1/2 N5K-
                 cs1
C5596UP
         e0b
                                         Ethernet1/1/2 N9K-
                 cs2-new
C9336C-FX2
```

Verify that the moved cluster ports see the cs2-new switch as the neighbor.

11. Confirm the switch port connections from switch cs2-new's perspective:

```
cs2-new# show interface brief
cs2-new# show cdp neighbors
```

12. On cluster switch cs1, shut down the ports connected to the cluster ports of **all** the nodes in order to fail over the cluster LIFs.

```
cs1(config) # interface eth1/1-1/2
cs1(config-if-range) # shutdown
```

All cluster LIFs fail over to the cs2-new switch.

13. Verify that the cluster LIFs have failed over to the ports hosted on switch cs2-new. This might take a few seconds:

```
network interface show -vserver Cluster
```

```
cluster1::*> network interface show -vserver Cluster
       Logical Status Network
                               Current
Current Is
Vserver Interfac Admin/Oper Address/Mask Node
Port Home
_____
Cluster
     node1 clus1 up/up 169.254.3.4/16 node1
e0b
    false
       node1_clus2 up/up 169.254.3.5/16 node1
e0b
    true
       node2 clus1 up/up 169.254.3.8/16 node2
e0b false
       node2_clus2 up/up 169.254.3.9/16 node2
e0b
    true
```

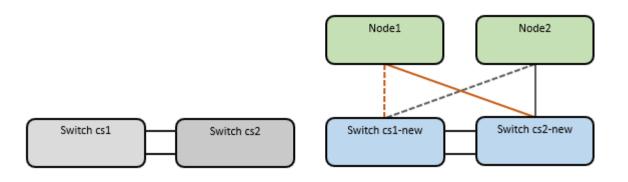
# 14. Verify that the cluster is healthy:

cluster show

## Show example

15. Move the cluster node connection cables from cs1 to the new cs1-new switch.

## Cluster node connection cables moved to the cs1-new switch



16. Confirm the health of the network connections moved to cs1-new:

network port show -ipspace Cluster

# Show example

cluster1	::*> network	port show -ipspace	e Clus	ter		
Node: no	de1					
Ignore						
7.1					Speed (Mbps)	Health
Health	TPenace	Broadcast Domai	n Tink	МПП	Admin/Oper	Q+ a+116
Status	irspace	BIOACCASC DOMAI	II TITIK	MIO	Admini/Oper	Status
e0a	Cluster	Cluster	up	9000	auto/10000	
healthy						
	Cluster	Cluster	up	9000	auto/10000	
healthy	false					
Node: no	de2					
Ignore						
ignore					Speed(Mbps)	Health
Health					~ [ · · · · · · · · · · · · · · · · · ·	
Port	IPspace	Broadcast Domai	n Link	MTU	Admin/Oper	Status
Status						
	Cluster	Cluster	up	9000	auto/10000	
healthy			T-			
_	Cluster	Cluster	up	9000	auto/10000	
healthy	falso					

All cluster ports that were moved should be up.

17. Check neighbor information on the cluster ports:

network device-discovery show

## Show example

```
cluster1::*> network device-discovery show -protocol cdp
Node/
         Local Discovered
Protocol Port Device (LLDP: ChassisID) Interface
Platform
_____
node1
      /cdp
         e0a cs1-new
                                       Ethernet1/1/1 N9K-
C9336C-FX2
         e0b cs2-new
                                       Ethernet1/1/2
                                                     N9K-
C9336C-FX2
node2
         /cdp
         e0a
               cs1-new
                                       Ethernet1/1/1
                                                     N9K-
C9336C-FX2
                                       Ethernet1/1/2
         e0b cs2-new
                                                     N9K-
C9336C-FX2
```

Verify that the moved cluster ports see the cs1-new switch as the neighbor.

18. Confirm the switch port connections from switch cs1-new's perspective:

```
cs1-new# show interface brief
cs1-new# show cdp neighbors
```

19. Verify that the ISL between cs1-new and cs2-new is still operational:

```
show port-channel summary
```

```
cs1-new# 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
       b - BFD Session Wait
       S - Switched R - Routed
       U - Up (port-channel)
       p - Up in delay-lacp mode (member)
       M - Not in use. Min-links not met
_____
Group Port-
              Type Protocol Member Ports
     Channel
1 Po1(SU) Eth LACP Eth1/35(P) Eth1/36(P)
cs2-new# 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
       b - BFD Session Wait
       S - Switched R - Routed
       U - Up (port-channel)
       p - Up in delay-lacp mode (member)
       M - Not in use. Min-links not met
Group Port- Type Protocol Member Ports
     Channel
    Po1(SU) Eth LACP Eth1/35(P) Eth1/36(P)
```

## Step 3: Verify the configuration

1. Enable auto-revert on the cluster LIFs.

```
network interface modify -vserver Cluster -lif * -auto-revert true
```

2. Verify that the cluster LIFs have reverted to their home ports (this might take a minute):

```
network interface show -vserver Cluster
```

If the cluster LIFs have not reverted to their home port, manually revert them:

network interface revert -vserver Cluster -lif \*

3. Verify that the cluster is healthy:

cluster show

4. Verify the connectivity of the remote cluster interfaces:

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

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

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

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

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

cluste	r1::*> <b>net</b>	work inte	erface che	eck cluster-con	nectivity show	
				Source	Destination	
Packet						
Node	Date			LIF	LIF	
Loss						
node1	0 /= /0000					
	3/5/2022	19:21:18	-06:00	node1_clus2	node2_clus1	
none	2/5/2022	10.21.20	-06.00	nodol alua?	nodo? alua?	
none	3/3/2022	19.21.20	-00:00	node1_clus2	nodez_crusz	
HOHE						
node2						
	3/5/2022	19:21:18	-06:00	node2_clus2	node1_clus1	
none				_	_	
	3/5/2022	19:21:20	-06:00	node2_clus2	node1_clus2	
none						

#### **All ONTAP releases**

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

cluster ping-cluster -node <name>

```
cluster1::*> cluster ping-cluster -node node2
Host is node2
Getting addresses from network interface table...
Cluster node1 clus1 169.254.209.69 node1
Cluster node1 clus2 169.254.49.125 node1
                                             e0b
Cluster node2 clus1 169.254.47.194 node2
                                             e0a
Cluster node2 clus2 169.254.19.183 node2
                                             e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
. . . .
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
. . . . . . . . . . . . . . . . . . .
Detected 9000 byte MTU on 4 path(s):
   Local 169.254.19.183 to Remote 169.254.209.69
    Local 169.254.19.183 to Remote 169.254.49.125
    Local 169.254.47.194 to Remote 169.254.209.69
    Local 169.254.47.194 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

5. Enable the Ethernet switch health monitor log collection feature for collecting switch-related log files.

#### **ONTAP 9.8 and later**

Enable the Ethernet switch health monitor log collection feature for collecting switch-related log files, using the following two commands: system switch ethernet log setup-password and system switch ethernet log enable-collection

**NOTE:** You will need the password for the **admin** user on the switches.

Enter: system switch ethernet log setup-password

```
cluster1::*> system switch ethernet log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1-new
cs2-new
cluster1::*> system switch ethernet log setup-password
Enter the switch name: cs1-new
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: <password of switch's admin user>
Enter the password again: <password of switch's admin user>
cluster1::*> system switch ethernet log setup-password
Enter the switch name: cs2-new
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: <password of switch's admin user>
Enter the password again: <password of switch's admin user>
```

Followed by: system switch ethernet log enable-collection

```
cluster1::*> system switch ethernet 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.

cluster1::*>
```

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

### ONTAP releases 9.5P16, 9.6P12, and 9.7P10 and later patch releases

Enable the Ethernet switch health monitor log collection feature for collecting switch-related log files, using the commands: system cluster-switch log setup-password and system cluster-switch log enable-collection

**NOTE:** You will need the password for the **admin** user on the switches.

Enter: system cluster-switch log setup-password

```
cluster1::*> system cluster-switch log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1-new
cs2-new
cluster1::*> system cluster-switch log setup-password
Enter the switch name: csl-new
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: <password of switch's admin user>
Enter the password again: <password of switch's admin user>
cluster1::*> system cluster-switch log setup-password
Enter the switch name: cs2-new
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: <password of switch's admin user>
Enter the password again: <password of switch's admin user>
```

Followed by: system cluster-switch log enable-collection

```
cluster1::*> 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.

cluster1::*>
```

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

6. If you suppressed automatic case creation, reenable it by invoking an AutoSupport message: system node autosupport invoke -node \* -type all -message MAINT=END

# Migrate to two-node switched cluster

If you have an existing two-node *switchless* cluster environment, you can migrate to a two-node *switched* cluster environment using Cisco Nexus 9336C-FX2 switches.

The migration process works for all nodes using optical or Twinax ports, but is not supported on this switch if nodes are using onboard 10Gb BASE-T RJ45 ports for the cluster-network ports.

# **Review requirements**

### What you'll need

- For the two-node switchless configuration:
  - The two-node switchless configuration is properly set up and functioning.
  - All cluster ports are in the **up** state.
  - All cluster logical interfaces (LIFs) are in the up state and on their home ports.
  - See Hardware Universe for all supported ONTAP versions.
- For the Cisco Nexus 9336C-FX2 switch configuration:
  - · Both switches have management network connectivity.
  - · There is console access to the cluster switches.
  - Nexus 9336C-FX2 node-to-node switch and switch-to-switch connections use Twinax or fiber cables.

See Hardware Universe for more information about cabling.

- Inter-Switch Link (ISL) cables are connected to ports 1/35 and 1/36 on both 9336C-FX2 switches.
- Initial customization of both the 9336C-FX2 switches are completed, so that:
  - 9336C-FX2 switches are running the latest version of software.

 Reference Configuration Files (RCFs) are applied to the switches. Any site customization, such as SMTP, SNMP, and SSH, is configured on the new switches.

### About the examples

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

- The names of the 9336C-FX2 switches are cs1 and cs2.
- The names of the cluster SVMs are node1 and node2.
- The names of the LIFs are node1\_clus1 and node1\_clus2 on node 1, and node2\_clus1 and node2\_clus2 on node 2 respectively.
- The cluster1::\*> prompt indicates the name of the cluster.
- The cluster ports used in this procedure are e0a and e0b.

See Hardware Universe for information about the cluster ports for your platforms.

# Migrate the switches

### **Step 1: Prepare for migration**

 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
```

where 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. Change the privilege level to advanced, entering y when prompted to continue:

```
set -privilege advanced
```

The advanced prompt (\*>) appears.

### Step 2: Configure ports and cabling

1. Disable all node-facing ports (not ISL ports) on both the new cluster switches cs1 and cs2.

Do not disable the ISL ports.

The following example shows that node-facing ports 1 through 34 are disabled on switch cs1:

```
cs1# config
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# interface e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4,
e1/5/1-4, e1/6/1-4, e1/7-34
cs1(config-if-range)# shutdown
```

2. Verify that the ISL and the physical ports on the ISL between the two 9336C-FX2 switches cs1 and cs2 are up on ports 1/35 and 1/36:

```
show port-channel summary
```

The following example shows that the ISL ports are up on switch cs1:

The following example shows that the ISL ports are up on switch cs2:

3. Display the list of neighboring devices:

This command provides information about the devices that are connected to the system.

#### Show example

The following example lists the neighboring devices on switch cs1:

```
cs1# 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
                 Eth1/35
                               175 R S I s N9K-C9336C
cs2
Eth1/35
                 Eth1/36
                               175 R S I s N9K-C9336C
cs2
Eth1/36
Total entries displayed: 2
```

The following example lists the neighboring devices on switch cs2:

```
cs2# 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
                 Eth1/35
                               177 R S I s N9K-C9336C
cs1
Eth1/35
                 Eth1/36
                               177 R S I s N9K-C9336C
cs1
Eth1/36
Total entries displayed: 2
```

# 4. Verify that all cluster ports are up:

network port show -ipspace Cluster

Each port should display up for Link and healthy for Health Status.

# Show example

Node: nod	le1						
						~ 1 (nd) \	
D	TD	D	D	T 2 1-	NACTION	Speed (Mbps)	
Port	IPspace	Broadcast	Domain	Link	M.I.O	Admin/Oper	Status
e0a	Cluster	Cluster		up	9000	auto/10000	
healthy				-			
e0b	Cluster	Cluster		up	9000	auto/10000	
healthy							
Node: nod	le2						
						Speed (Mbps)	∐eal+h
Port	IPspace	Broadcast	Domain	Link	МТІІ		
							beacas
e0a	Cluster	Cluster		up	9000	auto/10000	
healthy							
e0b	Cluster	Cluster		up	9000	auto/10000	
healthy							

# 5. Verify that all cluster LIFs are up and operational:

network interface show -vserver Cluster

Each cluster LIF should display true for Is Home and have a Status Admin/Oper of up/up.

```
cluster1::*> network interface show -vserver Cluster
        Logical Status Network Current
Current Is
Vserver Interface Admin/Oper Address/Mask Node
Port Home
______ _____
_____
Cluster
        node1 clus1 up/up 169.254.209.69/16 node1
e0a
     true
        node1 clus2 up/up 169.254.49.125/16 node1
e0b
     true
        node2_clus1 up/up 169.254.47.194/16 node2
e0a
     true
         node2 clus2 up/up 169.254.19.183/16 node2
e0b
     true
4 entries were displayed.
```

6. Verify that auto-revert is enabled on all cluster LIFs:

network interface show -vserver Cluster -fields auto-revert

### Show example

7. Disconnect the cable from cluster port e0a on node1, and then connect e0a to port 1 on cluster switch cs1, using the appropriate cabling supported by the 9336C-FX2 switches.

The Hardware Universe - Switches contains more information about cabling.

### Hardware Universe - Switches

- 8. Disconnect the cable from cluster port e0a on node2, and then connect e0a to port 2 on cluster switch cs1, using the appropriate cabling supported by the 9336C-FX2 switches.
- 9. Enable all node-facing ports on cluster switch cs1.

### Show example

The following example shows that ports 1/1 through 1/34 are enabled on switch cs1:

```
cs1# config
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# interface e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4,
e1/5/1-4, e1/6/1-4, e1/7-34
cs1(config-if-range)# no shutdown
```

10. Verify that all cluster LIFs are up, operational, and display as true for Is Home:

network interface show -vserver Cluster

The following example shows that all of the LIFs are up on node1 and node2 and that Is Home results are true:

```
cluster1::*> network interface show -vserver Cluster
       Logical Status Network Current
Current Is
Vserver Interface Admin/Oper Address/Mask Node Port
Home
Cluster
       node1 clus1 up/up 169.254.209.69/16 node1
                                                     e0a
true
       node1 clus2 up/up 169.254.49.125/16 node1
                                                     e0b
true
       node2 clus1 up/up 169.254.47.194/16 node2
                                                     e0a
true
       node2 clus2 up/up 169.254.19.183/16 node2
                                                     e0b
true
4 entries were displayed.
```

11. Display information about the status of the nodes in the cluster:

cluster show

### Show example

The following example displays information about the health and eligibility of the nodes in the cluster:

12. Disconnect the cable from cluster port e0b on node1, and then connect e0b to port 1 on cluster switch cs2, using the appropriate cabling supported by the 9336C-FX2 switches.

- 13. Disconnect the cable from cluster port e0b on node2, and then connect e0b to port 2 on cluster switch cs2, using the appropriate cabling supported by the 9336C-FX2 switches.
- 14. Enable all node-facing ports on cluster switch cs2.

The following example shows that ports 1/1 through 1/34 are enabled on switch cs2:

```
cs2# config
Enter configuration commands, one per line. End with CNTL/Z.
cs2(config)# interface e1/1/1-4, e1/2/1-4, e1/3/1-4, e1/4/1-4,
e1/5/1-4, e1/6/1-4, e1/7-34
cs2(config-if-range)# no shutdown
```

15. Verify that all cluster ports are up:

network port show -ipspace Cluster

The following example shows that all of the cluster ports are up on node1 and node2:

```
cluster1::*> network port show -ipspace Cluster
Node: node1
Ignore
                                  Speed (Mbps) Health
Health
Port
    IPspace Broadcast Domain Link MTU Admin/Oper Status
______
     Cluster Cluster up 9000 auto/10000
healthy false
   Cluster Cluster up 9000 auto/10000
e0b
healthy false
Node: node2
Ignore
                                  Speed(Mbps) Health
Health
Port IPspace Broadcast Domain Link MTU Admin/Oper Status
Status
-----
e0a
    Cluster Cluster up 9000 auto/10000
healthy false
     Cluster Cluster up 9000 auto/10000
e0b
healthy false
4 entries were displayed.
```

### Step 3: Verify the configuration

1. Verify that all interfaces display true for Is Home:

network interface show -vserver Cluster



This might take several minutes to complete.

The following example shows that all LIFs are up on node1 and node2 and that Is Home results are true:

cluster1:	:*> network in	nterface sho	ow -vserver Cluster		
	Logical	Status	Network	Current	
Current Is	5				
Vserver	Interface	Admin/Oper	Address/Mask	Node	Port
Home					
Cluster					
	node1_clus1	up/up	169.254.209.69/16	node1	e0a
true					
	node1_clus2	up/up	169.254.49.125/16	node1	e0b
true					
	node2_clus1	up/up	169.254.47.194/16	node2	e0a
true					
	node2_clus2	up/up	169.254.19.183/16	node2	e0b
true					
4 entries	were displaye	ed.			

2. Verify that both nodes each have one connection to each switch:

show cdp neighbors

The following example shows the appropriate results for both switches:

```
(cs1) # 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
node1
                Eth1/1
                              133 н
                                        FAS2980
e0a
node2
                Eth1/2
                              133 н
                                            FAS2980
e0a
                              175 R S I s N9K-C9336C
cs2
                Eth1/35
Eth1/35
cs2
                 Eth1/36
                              175 R S I s N9K-C9336C
Eth1/36
Total entries displayed: 4
(cs2) # 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
node1
                 Eth1/1
                              133 H FAS2980
e0b
                 Eth1/2
node2
                              133 н
                                                FAS2980
e0b
cs1
                Eth1/35
                              175 R S I s N9K-C9336C
Eth1/35
cs1
                 Eth1/36
                              175
                                     R S I s N9K-C9336C
Eth1/36
Total entries displayed: 4
```

3. Display information about the discovered network devices in your cluster:

network device-discovery show -protocol cdp

### Show example

		Discovered Device (LLDP: ChassisID)	Interface	
 node2	 /cdp			
	e0a	cs1	0/2	N9K-
C9336C				
	e0b	cs2	0/2	N9K-
C9336C				
node1	/cdp			
	e0a	cs1	0/1	N9K-
C9336C				
	e0b	cs2	0/1	N9K-
C9336C				

4. Verify that the settings are disabled:

network options switchless-cluster show



It might take several minutes for the command to complete. Wait for the '3 minute lifetime to expire' announcement.

### Show example

The false output in the following example shows that the configuration settings are disabled:

cluster1::\*> network options switchless-cluster show
Enable Switchless Cluster: false

5. Verify the status of the node members in the cluster:

cluster show

The following example shows information about the health and eligibility of the nodes in the cluster:

6. Verify that the cluster network has full connectivity:

cluster ping-cluster -node node-name

### Show example

```
cluster1::*> cluster ping-cluster -node node2
Host is node2
Getting addresses from network interface table...
Cluster node1 clus1 169.254.209.69 node1 e0a
Cluster node1 clus2 169.254.49.125 node1 e0b
Cluster node2 clus1 169.254.47.194 node2 e0a
Cluster node2 clus2 169.254.19.183 node2 e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
Detected 9000 byte MTU on 4 path(s):
Local 169.254.47.194 to Remote 169.254.209.69
Local 169.254.47.194 to Remote 169.254.49.125
Local 169.254.19.183 to Remote 169.254.209.69
Local 169.254.19.183 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)
```

7. Change the privilege level back to admin:

set -privilege admin

8. For ONTAP 9.8 and later, enable the Ethernet switch health monitor log collection feature for collecting switch-related log files, using the commands:

 $\verb|system| switch| ethernet log setup-password| \verb|and| system| switch| ethernet log enable-collection|$ 

```
cluster1::*> system switch ethernet log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2
cluster1::*> system switch ethernet log setup-password
Enter the switch name: cs1
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>
cluster1::*> system switch ethernet log setup-password
Enter the switch name: cs2
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>
cluster1::*> system switch ethernet 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.
cluster1::*>
```



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

9. For ONTAP releases 9.5P16, 9.6P12, and 9.7P10 and later patch releases, enable the Ethernet switch health monitor log collection feature for collecting switch-related log files, using the commands:

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

```
cluster1::*> system cluster-switch log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2
cluster1::*> system cluster-switch log setup-password
Enter the switch name: cs1
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>
cluster1::*> system cluster-switch log setup-password
Enter the switch name: cs2
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>
cluster1::*> 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.
cluster1::*>
```



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

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

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

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