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

Cluster and storage switches

NetApp
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Table of Contents

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

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

- The following cluster switches are supported:
    - Nexus 9336C-FX2
    - Nexus 5596UP
    - Nexus 3232C
    - Nexus 3132Q-V
- See the Hardware Universe for full details of supported ports and their configurations.
- You have configured some of the ports on Nexus 9336C-FX2 switches to run at 10 GbE or 40 GbE.
- You have planned, migrated, and documented 10 GbE and 40 GbE connectivity from nodes to Nexus 9336C-FX2 cluster switches.
- The ONTAP and NX-OS versions supported in this procedure are on the Cisco Ethernet Switches page.

How to migrate from an older Cisco switch to a Cisco Nexus 9336C-FX2 cluster switch

You can migrate nondisruptively older Cisco cluster switches for an ONTAP cluster to Cisco Nexus 9336C-FX2 cluster network switches.

Before you begin

The following conditions must exist before replacing an older Cisco Nexus cluster switch with a Cisco Nexus 9336C-FX2 cluster switch:

- The cluster must be fully functioning (there should be no errors in the logs or similar issues).
- Initial customization of the Cisco Nexus 9336C-FX2 switches must be completed. So that the:
    - 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 must be configured on the new switches.
- You must have consulted the switch compatibility table on the Cisco Ethernet Switches page for the supported ONTAP, NX-OS, and RCF versions.
- You must have referred to the appropriate software and upgrade guides available on the Cisco web site for complete documentation on the Cisco switch upgrade and downgrade procedures on Nexus 9000 Series Switches.

About this task

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.

(i) 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.

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

Initial switch setup
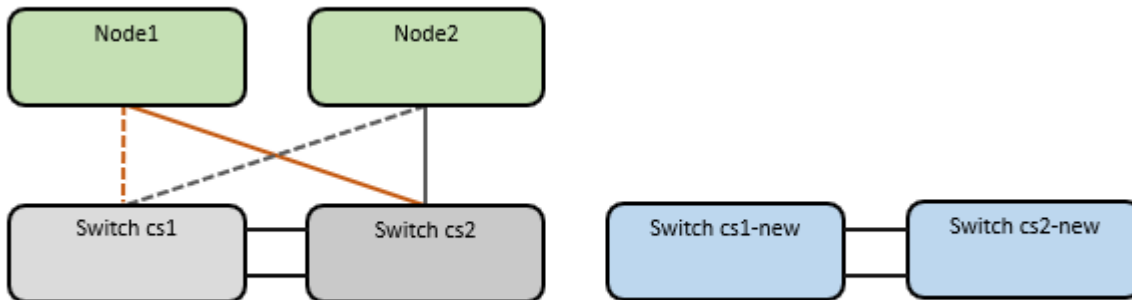
Steps

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

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

   (i) 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.

3. 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
--------------------------------------------------------------------
--------
1     Po1(SU)     Eth      LACP      Eth1/35(P)   Eth1/36(P)
```

4. 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
Node/         Local  Discovered
Protocol      Port   Device (LLDP: ChassisID)  Interface        Platform
-----------  ------  ------------------------  ----------------
----------------
node1         /cdp
              e0a    cs1                        Ethernet1/1       N5K-
C5596UP
              e0b    cs2                        Ethernet1/2       N5K-
C5596UP
node2         /cdp
              e0a    cs1                        Ethernet1/1       N5K-
C5596UP
              e0b    cs2                        Ethernet1/2       N5K-
C5596UP
```

5. 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 Cluster

Node: node1

Ignore
                                                   Speed(Mbps) Health
Health
Port      IPspace      Broadcast Domain Link MTU  Admin/Oper  Status
Status
--------- ------------ ---------------- ---- ---- -----------
-------- ------
e0a       Cluster      Cluster          up   9000 auto/10000 healthy
false
e0b       Cluster      Cluster          up   9000 auto/10000 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
e0b       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`

```
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
```

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
Switch                          Type              Address          Model
--------------------------- ----------------- -----------------
---------------
cs1                             cluster-network   10.233.205.92    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

cs2                             cluster-network   10.233.205.93    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
```

6. Disable auto-revert on the cluster LIFs.

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

7. On cluster switch cs2, shut down the ports connected to the cluster ports of the nodes:

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

8. Verify that the cluster LIFs have migrated to the ports hosted on cluster switch cs1. This might take a few seconds: `network interface show -vserver Cluster`

```
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       169.254.3.4/16           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
```

9. Verify that the cluster is healthy: `cluster show`

```
cluster1::*> cluster show
Node        Health  Eligibility    Epsilon
----------  ------- -------------  -------
node1       true    true           false
node2       true    true           false
```

10. Move all cluster node connections from the old cs2 switch to the new cs2-new switch.

    Cluster node connections moved to the cs2-new switch
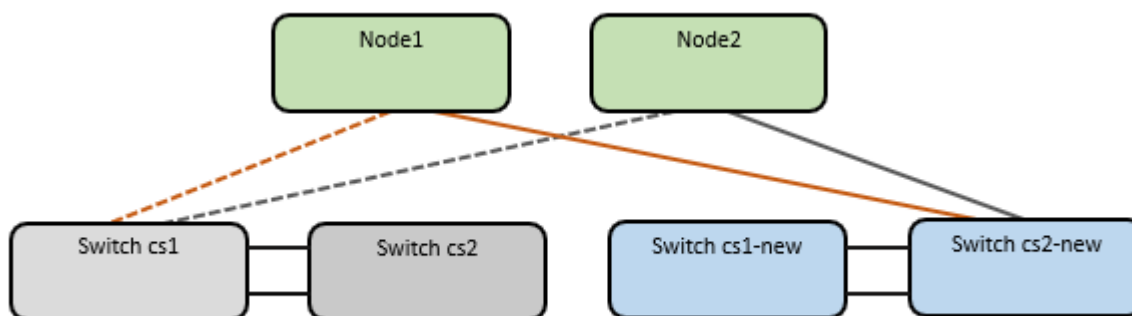
11. Confirm the health of the network connections moved to cs2-new: `network port show -ipspace Cluster`

```
cluster1::*> network port show -ipspace Cluster

Node: node1

Ignore
                                                 Speed(Mbps) Health
Health
Port      IPspace      Broadcast Domain Link MTU  Admin/Oper  Status
Status
--------- ------------ ---------------- ---- ---- ----------- --------
------
e0a       Cluster      Cluster          up   9000  auto/10000 healthy
false
e0b       Cluster      Cluster          up   9000  auto/10000 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
e0b       Cluster      Cluster          up   9000  auto/10000 healthy
false
```

All cluster ports that were moved should be up.

12. Check neighbor information on the cluster ports: `network device-discovery show -protocol cdp`

```
cluster1::*> network device-discovery show -protocol cdp

Node/          Local  Discovered
Protocol       Port   Device (LLDP: ChassisID)  Interface       Platform
-----------    ------ -----------------------   -------------
--------------
node1          /cdp
               e0a    cs1                        Ethernet1/1     N5K-C5596UP
               e0b    cs2-new                    Ethernet1/1/1   N9K-C9336C-
FX2

node2          /cdp
               e0a    cs1                        Ethernet1/2     N5K-C5596UP
               e0b    cs2-new                    Ethernet1/1/2   N9K-C9336C-
FX2
```

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

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

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

14. On cluster switch cs1, shut down the ports connected to the cluster ports of the nodes. The following example uses the interface example output from step 7.

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

All cluster LIFs will move to the cs2-new switch.

15. Verify that the cluster LIFs have migrated 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
```

16. Verify that the cluster is healthy: `cluster show`

```
cluster1::*> cluster show
Node        Health  Eligibility   Epsilon
---------- ------- ------------- -------
node1       true    true          false
node2       true    true          false
```

17. Move the connections from cs1 to the new cs1-new switch.

Cluster node connections moved to the cs1-new switch
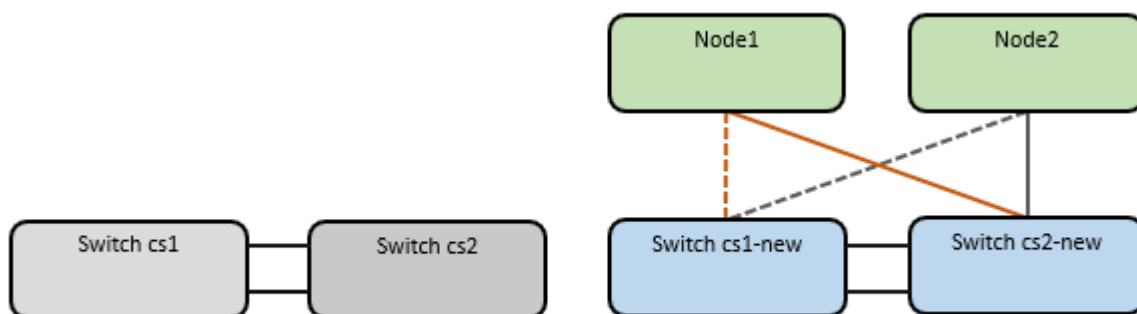
18. Confirm the health of the network connections moved to cs1-new: `network port show -ipspace Cluster`

```
cluster1::*> network port show -ipspace Cluster

Node: node1

Ignore
                                                  Speed(Mbps) Health
Health
Port      IPspace      Broadcast Domain Link MTU  Admin/Oper  Status
Status
--------- ------------ ---------------- ---- ---- ----------- --------
------
e0a       Cluster      Cluster          up   9000 auto/10000 healthy
false
e0b       Cluster      Cluster          up   9000 auto/10000 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
e0b       Cluster      Cluster          up   9000 auto/10000 healthy
false
```

All cluster ports that were moved should be up.

19. Check neighbor information on the cluster ports: `network device-discovery show`

```
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
               e0b    cs2-new                   Ethernet1/1/2  N9K-C9336C-
FX2
```

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

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

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

21. 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
--------------------------------------------------------------------
--------
1     Po1(SU)      Eth      LACP      Eth1/35(P)   Eth1/36(P)
```

22. Enable auto-revert on the cluster LIFs.

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

23. 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 *`

24. Verify that the cluster is healthy: `cluster show`

25. Ping the remote cluster interfaces to verify 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      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 169.254.19.183 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)
```

26. 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: 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 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.

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