Cisco® Nexus Switches

Migrating from a Cisco Switch to a Cisco Nexus 92300YC Switch

July 2019 | 215-13966_B0
doccomments@netapp.com

NetApp®

Contents

Migrating from a Cisco switch to a Cisco Nexus 92300YC 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 92300YC cluster switches.

- The following cluster switches are supported:
  - Nexus 92300YC
  - Nexus 5596UP
  - Nexus 5020
  - Nexus 5010
- The cluster switches use the following ports for connections to nodes:
  - Ports e1/1-48 (10/25 GbE), e1/49-64 (40/100 GbE): Nexus 92300YC
  - Ports e1/1-40 (10 GbE): Nexus 5596UP
  - Ports e1/1-32 (10 GbE): Nexus 5020
  - Ports e1/1-12, e2/1-6 (10 GbE): Nexus 5010 with expansion module
- The cluster switches use the following Inter-Switch Link (ISL) ports:
  - Ports e1/65-66 (100 GbE): Nexus 92300YC
  - Ports e1/41-48 (10 GbE): Nexus 5596UP
  - Ports e1/33-40 (10 GbE): Nexus 5020
  - Ports e1/13-20 (10 GbE): Nexus 5010
- The *Hardware Universe* contains information about supported cabling for all cluster switches.
- You have configured some of the ports on Nexus 92300YC 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 92300YC cluster switches.
- The ONTAP and NX-OS versions supported in this procedure are on the *Cisco Ethernet Switches* page.
  Cisco Ethernet Switches

Note: After your migration completes, you might need to install the required configuration file to support the Cluster Switch Health Monitor (CSHM) for 92300YC cluster switches. See *Installing the Cluster Switch Health Monitor (CSHM) configuration file for 92300YC switches* in the *Setting up* guide.

How to migrate from a Cisco switch to a Cisco Nexus 92300YC switch

You can migrate nondisruptively older Cisco cluster switches for an ONTAP cluster to Cisco Nexus 92300YC cluster network switches.

Before you begin

- The existing cluster must be properly set up and functioning.
- All cluster ports must be in the **up** state to ensure nondisruptive operations.
- The Nexus 92300YC cluster switches must be configured and operating under the proper version of NX-OS installed and reference configuration file (RCF) applied.
- The existing cluster network configuration must have the following:
  - A redundant and fully functional NetApp cluster using both older Cisco switches.
  - Management connectivity and console access to both the older Cisco switches and the new switches.
  - All cluster LIFs in the **up** state with the cluster LIfs are on their home ports.
  - ISL ports enabled and cabled between the older Cisco switches and between the new switches.

About this task

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

- The existing Cisco Nexus 5596UP cluster switches are *c1* and *c2*.
- The new Nexus 92300YC 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.
- Switch c2 is replaced by switch cs2 first and then switch c1 is replaced by switch cs1.
  - A temporary ISL is built on cs1 connecting c1 to cs1.
  - Cabling between the nodes and c2 are then disconnected from c2 and reconnected to cs2.
  - Cabling between the nodes and c1 are then disconnected from c1 and reconnected to cs1.
  - The temporary ISL between c1 and cs1 is then removed.

Steps

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

   set -privilege advanced

   The advanced prompt (*>) appears.

2. 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=*x*h

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

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

Example

The following command suppresses automatic case creation for two hours:

```
cluster1::*> system node autosupport invoke -node * -type all -message MAINT=2h
```

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

   `network interface show -vserver Cluster -fields auto-revert`

   Example

```
cluster1::*> network interface show -vserver Cluster -fields auto-revert

          Logical
Vserver   Interface     Auto-revert
--------- ------------- ------------
Cluster
          node1_clus1   true
          node1_clus2   true
          node2_clus1   true
          node2_clus2   true

4 entries were displayed.
```

4. 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`

      Example

```
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

4 entries were displayed.
```

   b. Display information about the logical interfaces 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`.

      Example

```
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.
```

5. 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 cdp`

   Example

```
cluster1::*> network device-discovery show -protocol cdp
Node/       Local  Discovered
Protocol    Port   Device (LLDP: ChassisID)  Interface         Platform
----------- ------ ------------------------- ----------------  ----------------
node2      /cdp
            e0a    c1                        0/2               N5K-C5596UP
            e0b    c2                        0/2               N5K-C5596UP
node1      /cdp
            e0a    c1                        0/1               N5K-C5596UP
            e0b    c2                        0/1               N5K-C5596UP

4 entries were displayed.
```

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

   `show cdp neighbors`

   Example

```
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    H         FAS2750           e0a
node2               Eth1/2         124    H         FAS2750           e0a
c2(FOX2025GEFC)     Eth1/41        179    S I s     N5K-C5596UP       Eth1/41

c2(FOX2025GEFC)     Eth1/42        175    S I s     N5K-C5596UP       Eth1/42

c2(FOX2025GEFC)     Eth1/43        179    S I s     N5K-C5596UP       Eth1/43

c2(FOX2025GEFC)     Eth1/44        175    S I s     N5K-C5596UP       Eth1/44

c2(FOX2025GEFC)     Eth1/45        179    S I s     N5K-C5596UP       Eth1/45

c2(FOX2025GEFC)     Eth1/46        179    S I s     N5K-C5596UP       Eth1/46

c2(FOX2025GEFC)     Eth1/47        175    S I s     N5K-C5596UP       Eth1/47

c2(FOX2025GEFC)     Eth1/48        179    S I s     N5K-C5596UP       Eth1/48

Total entries displayed: 10


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    H         FAS2750           e0b
node2               Eth1/2         124    H         FAS2750           e0b
c1(FOX2025GEEX)     Eth1/41        175    S I s     N5K-C5596UP       Eth1/41

c1(FOX2025GEEX)     Eth1/42        175    S I s     N5K-C5596UP       Eth1/42

c1(FOX2025GEEX)     Eth1/43        175    S I s     N5K-C5596UP       Eth1/43

c1(FOX2025GEEX)     Eth1/44        175    S I s     N5K-C5596UP       Eth1/44

c1(FOX2025GEEX)     Eth1/45        175    S I s     N5K-C5596UP       Eth1/45
```

```
c1(FOX2025GEEX)     Eth1/46        175    S I s     N5K-C5596UP        Eth1/46

c1(FOX2025GEEX)     Eth1/47        176    S I s     N5K-C5596UP        Eth1/47

c1(FOX2025GEEX)     Eth1/48        176    S I s     N5K-C5596UP        Eth1/48
```

7. Ensure that the cluster network has full connectivity using the command:

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

   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 169.254.19.183 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)
```

8. Configure a temporary ISL on cs1on ports e1/41-48, between c1 and cs1.

   Example

   The following example shows how the new ISL is configured on c1 and cs1:

```
cs1# configure
Enter configuration commands, one per line. End with CNTL/Z.
cs1(config)# interface e1/41-48
cs1(config-if-range)# description temporary ISL between Nexus 5596UP and Nexus 92300YC
cs1(config-if-range)# no lldp transmit
cs1(config-if-range)# no lldp receive
cs1(config-if-range)# switchport mode trunk
cs1(config-if-range)# no spanning-tree bpduguard enable
cs1(config-if-range)# channel-group 101 mode active
cs1(config-if-range)# exit
cs1(config)# interface port-channel 101
cs1(config-if)# switchport mode trunk
cs1(config-if)# spanning-tree port type network
cs1(config-if)# exit
cs1(config)# exit
```

9. Remove ISL cables from ports e1/41-48 from c2 and connect the cables to ports e1/41-48 on cs1.

10. Verify that the ISL ports and port-channel are operational connecting c1 and cs1:

    `show port-channel summary`

    Example

    The following example shows the Cisco `show port-channel summary` command being used to verify the ISL ports are operational on c1 and cs1:

```
c1# 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      Eth1/41(P)   Eth1/42(P)   Eth1/43(P)
                                     Eth1/44(P)   Eth1/45(P)   Eth1/46(P)
                                     Eth1/47(P)   Eth1/48(P)


cs1# 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      Eth1/65(P)   Eth1/66(P)
101   Po101(SU)   Eth      LACP      Eth1/41(P)   Eth1/42(P)   Eth1/43(P)
                                     Eth1/44(P)   Eth1/45(P)   Eth1/46(P)
                                     Eth1/47(P)   Eth1/48(P)
```

11. For node1, disconnect the cable from e1/1 on c2, and then connect the cable to e1/1 on cs2, using appropriate cabling supported by Nexus 92300YC.

12. For node2, disconnect the cable from e1/2 on c2, and then connect the cable to e1/2 on cs2, using appropriate cabling supported by Nexus 92300YC.

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 cdp`

Example

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

Node/       Local  Discovered
Protocol    Port   Device (LLDP: ChassisID)  Interface         Platform
----------- ------ ------------------------- ----------------  ----------------
node2      /cdp
            e0a    c1                        0/2               N5K-C5596UP
            e0b    cs2                       0/2               N9K-C92300YC
node1      /cdp
            e0a    c1                        0/1               N5K-C5596UP
            e0b    cs2                       0/1               N9K-C92300YC

4 entries were displayed.
```

14. For node1, disconnect the cable from e1/1 on c1, and then connect the cable to e1/1 on cs1, using appropriate cabling supported by Nexus 92300YC.

15. For node2, disconnect the cable from e1/2 on c1, and then connect the cable to e1/2 on cs1, using appropriate cabling supported by Nexus 92300YC.

16. 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 cdp`

Example

```
cluster1::*> network device-discovery show -protocol cdp
Node/       Local  Discovered
Protocol    Port   Device (LLDP: ChassisID)  Interface         Platform
----------- ------ ------------------------- ----------------  ----------------
node2      /cdp
            e0a    cs1                       0/2               N9K-C92300YC
```

```
            e0b    cs2                       0/2               N9K-C92300YC
node1      /cdp
            e0a    cs1                       0/1               N9K-C92300YC
            e0b    cs2                       0/1               N9K-C92300YC
4 entries were displayed.
```

17. Delete the temporary ISL between cs1 and c1.

Example

```
cs1(config)# no interface port-channel 101
cs1(config)# interface e1/41-48
cs1(config-if-range)# lldp transmit
cs1(config-if-range)# lldp receive
cs1(config-if-range)# no switchport mode trunk
cs1(config-if-range)# no channel-group
cs1(config-if-range)# description 10GbE Node Port
cs1(config-if-range)# spanning-tree bpduguard enable
cs1(config-if-range)# exit
cs1(config)# exit
```

18. Verify the final configuration of the cluster:

`network port show -ipspace Cluster`

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

Example

```
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

4 entries were displayed.


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.


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

Node/       Local  Discovered
Protocol    Port   Device (LLDP: ChassisID)  Interface         Platform
----------- ------ ------------------------- ----------------  ----------------
node2      /cdp
            e0a    cs1                       0/2               N9K-C92300YC
            e0b    cs2                       0/2               N9K-C92300YC
node1      /cdp
            e0a    cs1                       0/1               N9K-C92300YC
            e0b    cs2                       0/1               N9K-C92300YC

4 entries were displayed.


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         124    H         FAS2750           e0a
node2               Eth1/2         124    H         FAS2750           e0a
cs2(FDO220329V5)    Eth1/65        179    R S I s   N9K-C92300YC  Eth1/65
cs2(FDO220329V5)    Eth1/66        179    R S I s   N9K-C92300YC  Eth1/66


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         124    H         FAS2750           e0b
node2               Eth1/2         124    H         FAS2750
e0b
cs1(FDO220329KU)
                    Eth1/65        179    R S I s   N9K-C92300YC  Eth1/65
cs1(FDO220329KU)
                    Eth1/66        179    R S I s   N9K-C92300YC  Eth1/66

Total entries displayed: 4
```

19. Ensure that the cluster network has full connectivity:

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

Example

```
cluster1::*> set -priv advanced

Warning: These advanced commands are potentially dangerous; use them only when
         directed to do so by NetApp personnel.
Do you want to continue? {y|n}: y

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)


cluster1::*> set -privilege admin
cluster1::*>
```

Copyright

Trademark

How to send comments about documentation and receive update notifications

You can help us to improve the quality of our documentation by sending us your feedback. You can receive automatic notification when production-level (GA/FCS) documentation is initially released or important changes are made to existing production-level documents.

If you have suggestions for improving this document, send us your comments by email.

doccomments@netapp.com

To help us direct your comments to the correct division, include in the subject line the product name, version, and operating system.

If you want to be notified automatically when production-level documentation is released or important changes are made to existing production-level documents, follow Twitter account @NetAppDoc.

You can also contact us in the following ways:

- NetApp, Inc., 1395 Crossman Ave., Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277

Index