Replacing Cisco® Nexus 5010 or 5020 cluster switches with CN1610 cluster switches

Replacing Cisco Nexus 5010 or Nexus 5020 cluster switches with CN1610 cluster switches in a cluster is a nondisruptive procedure.

Before you begin

The following conditions must exist before performing the switch replacement in the current environment and on the replacement switches:

- The following cluster switches are supported:
  - NetApp CN1610 cluster switch
  - Cisco Nexus 5020 or Nexus 5010 cluster switch
- The cluster switches use the following Inter-Switch Link (ISL) ports:
  - Cisco Nexus 5020: ports 33 to 40
  - Cisco Nexus 5010: ports 13 to 20
  - NetApp CN1610: ports 13 to 16
- The ONTAP and NX-OS versions that are supported in this procedure are listed on the “Cisco Ethernet Switches” page.
  Cisco Ethernet Switch
- The ONTAP and FASTPATH versions that are supported in this procedure are listed on the “NetApp CN1601 and CN1610 Switches” page.
  NetApp CN1601 and CN1610 Switches

About this task

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

- The CN1610 switches that will replace the 5010 or 5020 switches are CL1 and CL2.
- The 5010 or 5020 switches to be replaced by the CN1610 switches are C1 and C2.
- clus1 is the cluster logical interface (LIF) that is connected to cluster switch 1 (CL1 or C1).
- clus2 is the cluster LIF 2 that is connected to cluster switch 2 (CL2 or C2).
- The names of the SVMs are node1 and node2.
- The cluster ports that are used in this procedure as an example are e1a and e2a.
  See the *Hardware Universe* for the actual cluster ports on your platforms.

This procedure has two parts:

- Steps *1* on page 2 to *16* on page 6 replace the second Cisco 5010 or 5020 switch with the second CN1610 switch.
- Steps *17* on page 6 to *32* on page 8 replace the first Cisco 5010 or 5020 switch with the first CN1610 switch.

Steps

1. Verify that the appropriate reference configuration files (RCF) and image are installed on the CN1610 switches, as necessary for your requirements, and make any essential site customizations.

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

   a. See the *NetApp CN1601 and CN1610 Switches* page on the NetApp Support Site

      NetApp CN1601 and CN1610 Switches

   b. Note your switch and the required software versions in the table on that page.

   c. Click on the *CN1610 cluster switch* link to go the *NetApp CN1610 Cluster Switch Description Page*.

   d. Click **CONTINUE** on the **Description** page, accept the license agreement, and go to the **Download** page.

   e. Follow the steps on the **Download** page to download the correct RCF and image for the version of ONTAP software that you are installing.

2. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message. If AutoSupport is not enabled on this cluster, then go to the next step: **`system node autosupport invoke -node * -type all -message MAINT=`*`x`*`h`**

   x is the duration of the maintenance window in hours.

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

   #### Example

   This command suppresses automatic case creation for two hours:

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

3. Shut down all of the ports on the CN1610 switch CL2 that will be connected to the cluster nodes: **`shutdown`**

   #### Example

   The following example shows the process to shut down ports 1 to 12 on the CL2 switch:

   ```
   (CL2)# configure
   (CL2)(Config)# interface ethernet 0/1-0/12
   (CL2)(Interface 0/1-0/12)# shutdown
   (CL2)(Interface 0/1-0/12)# exit
   (CL2)(Config)# exit
   (CL2)#
   ```

4. Configure the ISL interface 3/1 to make the ISL dynamic on the new CN1610 switch CL2.

   This configuration will match with the ISL configuration on the 5010 or 5020 switch C1 when the ISLs are brought up on both switches in step *9* on page 4.

   #### Example

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

```
(CL2)# configure
(CL2)(Config)# interface 3/1
(CL2)(Interface 3/1)# no port-channel static
(CL2)(Interface 3/1)# exit
(CL2)(Config)# exit
(CL2)#
```

5. For each node, migrate the interfaces associated with C2, the Cisco switch to be replaced: **network interface migrate**

Example

The following example shows the command process for migrating the LIF clus2 on the SVMs node1 and node2 to port e1a on both node1 and node2:

```
cluster::*> network interface migrate -vserver node1 -lif clus2 -source-node node1 -dest-
node node1 -dest-port e1a
cluster::*> network interface migrate -vserver node2 -lif clus2 -source-node node2 -dest-
node node2 -dest-port e1a
```

6. Shut down the node ports that are associated with cluster LIF clus2 on all the nodes: **network port modify**

Example

The following example shows how to shut down port e2a on node1 and node2:

```
cluster::*> network port modify -node node1 -port e2a -up-admin false
cluster::*> network port modify -node node2 -port e2a -up-admin false
```

7. Shut down the ISLs on C1, the active Cisco switch that is connected to C2: **shutdown**

Example

The following example shows how to shut down ISLs 33 to 40 on a 5020 switch:

```
C1# configure
C1(config)# interface ethernet 1/33-40
C1(config-if-range)# shutdown
C1(config-if-range)# exit
C1(config)# exit
C1#
```

The following example shows how to shut down ISLs 13 to 20 on a 5010 switch:

```
C1# configure
C1(config)# interface ethernet 1/13-20
C1(config-if-range)# shutdown
C1(config-if-range)# exit
C1(config)# exit
C1#
```

8. Remove all of the eight cables from the 5010 or 5020 switch C2, and then attach four of the cables to CL2, the new CN1610 switch.

   For the ISL ports, reconnect only the four ports on the Cisco C1 switch (ports 37 to 40 on a 5020 or ports 17 to 20 on a 5010).

   Note: You should use fiber cables for the ISL connections in this part of the procedure. Twinax cables may not be compatible between the Cisco switch C2 and the CN1610 switch CL2. For node connections, use NetApp twinax cables to connect to the CL2 switch unless fiber cable is already in place.

9. Bring up the ISLs on C1, the active Cisco 5010 or 5020 switch.

Example

The following example illustrates the process of bringing up ISLs 37 to 40 on a 5020 switch:

```
C1# configure
C1(config)# interface ethernet 1/37-40
C1(config-if-range)# no shutdown
C1(config-if-range)# exit
C1(config)# exit
C1#
```

The following example shows how to bring up ISLs 17 to 20 on a 5010 switch:

```
C1# configure
C1(config)# interface ethernet 1/17-20
C1(config-if-range)#no shutdown
C1(config-if-range)# exit
C1(config)# exit
C1#
```

There are now only four physical connections on C1's ISLs to match the four ISL physical connections on the CL2 switch.

10. Verify that the connections are **up** by using the `show port-channel brief` command on the CN1610 switch CL2 and the `show port-channel summary` command on the Cisco switch C1.

Example

The following example shows the status of the ISLs on the CL2 switch:

```
(CL2)# show port-channel brief
Logical   Port-Channel Name Link State Trap     Type    Mbr Ports Active Ports
Interface                              Flag
--------- ----------------- ---------- -------- ------- --------- ------------
3/1       ISL-LAG           Up         Disabled Dynamic 0/13,      0/13,0/14,
                                                        0/14,      0/15,0/16
                                                        0/15,0/16
```

The following example shows the output from a 5020 switch, displaying the status of the ISLs on the C1 switch:

```
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
        S - Switched    R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met
------------------------------------------------------------------------------
Group Port-       Type     Protocol  Member Ports
      Channel
------------------------------------------------------------------------------
1     Po1(SU)     Eth      LACP      Eth1/33(D)   Eth1/34(D)   Eth1/35(D)
                                     Eth1/36(D)   Eth1/37(P)   Eth1/38(P)
                                     Eth1/39(P)   Eth1/40(P)
```

The following example shows the output from a 5010 switch, displaying the status of the ISLs on the C1 switch:

```
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
```

```
        S - Switched    R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met
------------------------------------------------------------------------------
Group Port-       Type     Protocol  Member Ports
      Channel
------------------------------------------------------------------------------
1     Po1(SU)     Eth      LACP      Eth1/13(D)   Eth1/14(D)   Eth1/15(D)
                                     Eth1/16(D)   Eth1/17(P)   Eth1/18(P)
                                     Eth1/19(P)   Eth1/20(P)
```

11. Bring up the ports on the new CN1610 switch CL2 that are associated with the cluster nodes.

Example

The following example shows how the ports 1 to 12 are being brought up on the CL2 switch:

```
(CL2)#configure
(CL2)(Config)#interface 0/1-0/12
(CL2)(Interface 0/1-0/12)# no shutdown
(CL2)(Interface 0/1-0/12)# exit
(CL2)(Confid)# exit
(CL2)#
```

12. Bring up the cluster node port that is associated with the new CN1610 switch CL2 on a single node: **`network port modify`**

Example

The following example shows how to bring up port e2a on the new CL2 switch:

```
cluster::*> network port modify -node node1 -port e2a -up-admin true
```

13. Verify the status of the cluster node port: **`network port show`**

Example

The following example shows that the port e2a is verified as being **`up`** on node1:

```
cluster::*>network port show -role cluster
                                   Auto-Negot  Duplex     Speed (Mbps)
Node   Port   Role         Link MTU    Admin/Oper  Admin/Oper Admin/Oper
------ ------ ------------ ---- -----  ----------- ---------- ------------
node1
       e1a    cluster      up   9000   true/true  full/full   auto/10000
       e2a    cluster      up   9000   true/true  full/full   auto/10000
```

14. Revert cluster LIF clus2 (associated with port e2a) to its home port on the same node: **`network interface revert`**

Example

```
cluster::*>network interface revert -vserver node1 -lif clus2
```

15. Verify that the interface is now home: **`network interface show`**

Example

The following example displays the status of clus2 as `up` and port e2a as home:

```
cluster::> network interface show -role cluster
             Logical    Status     Network            Current     Current Is
Vserver      Interface  Admin/Oper Address/Mask       Node        Port    Home
-----------  ---------- ---------- ------------------ ----------- ------- ----
node1
             clus1      up/up      10.10.10.1/24      node1       e1a     true
             clus2      up/up      10.10.10.2/24      node1       e2a     true
```

16. If bringing up the first node is successful, bring up the ports, and then revert the cluster interfaces on the remaining nodes using steps *12* on page 5 to *15* on page 5.

17. To begin the second part of the replacement process, if you need to update the RCF and image on the CN1610 switch CL1, install the appropriate versions on the switch, and make any necessary site customizations as shown in step *1* on page 2.

18. Shut down all of the ports on the CN1610 switch CL1 that will be connected to the cluster nodes.

    Example

    The following example shows the process to shut down ports 1 to 12 on the CL1 switch:

```
(CL1)# configure
(CL1)(Config)# interface ethernet 0/1-0/12
(CL1)(Interface 0/1-0/12)# shutdown
(CL1)(Interface 0/1-0/12)# exit
(CL1)(Confid)# exit
(CL1)#
```

19. On the new CN1610 switch CL1, configure the ISL interface 3/1 to make the ISL dynamic.

    This configuration will match with the ISL configuration on the CN1610 switch CL2 when the ISLs are brought up on both switches in step *24* on page 7.

    Example

    The following example shows how the ISL interface 3/1 is configured, and how the `no port-channel static` command is used to make the ISL dynamic:

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

20. For each node, migrate the interfaces that are associated with C1, the Cisco switch to be replaced: **`network interface migrate`**

    Example

    The following example shows how the LIF clus2 on an SVM named node 1 is being migrated to port e2a on node1:

```
cluster::*>  network interface migrate -vserver node1 -lif clus1 -source-node node1 -dest-
node node1 -dest-port e2a
```

21. Shut down the node ports that are associated with cluster LIF clus1 on all of the nodes: **`network port modify`**

    Example

    The following example demonstrates how to shut down port e1a on node1:

```
cluster::*> network port modify -node node1 -port e1a -up-admin false
```

22. Shut down the ISLs on CL2, the active CN1610 switch: **shutdown**

Example

The following example shows how the ISLs 13 to 16 are being shut down on CL2:

```
(CL2)# configure
(CL2)(Config)# interface #0/13-0/16
(CL2)(Interface 0/13-0/16)# shutdown
(CL2)(Interface 0/13-0/16)# exit
(CL2)(Confid)# exit
(CL2)#
```

23. Remove all of the cables from the Cisco C1 switch and attach four cables to ports 13 to 16 on CL1, the new CN1610 switch.

Note: For node connections, you must use NetApp twinax cables for the ISL ports since the only switches in the configuration are now CN1610 switches. You must use NetApp twinax cables to connect the nodes to the CL1 switch unless fiber cable is already in place.

24. Bring up the ISL on CL2, the active CN1610 switch.

Example

The following example shows how the ISLs are being brought up on CL2:

```
(CL2)# configure
(CL2)(Config)# interface 0/13-0/16,3/1
(CL2)(Interface 0/13-0/16,3/1)# no shutdown
(CL2)(Interface 0/13-0/16,3/1)# exit
(CL2)(Config)# exit
(CL2)#
```

25. Verify that the ISLs are **up** on both the CL1 and CL2 switches: **show port-channel brief**

Example

The following example shows the status of the ISLs displayed on the CL1 switch:

```
(CL1)# show port-channel brief
Logical   Port-Channel Name Link State Trap     Type    Mbr Ports Active Ports
Interface                              Flag
--------- ----------------- ---------- -------- ------- --------- ------------
3/1       ISL-LAG           Up         Disabled Dynamic 0/13,      0/13,0/14,
                                                        0/14,      0/15,0/16
                                                        0/15,0/16
```

26. Bring up the ports on the CN1610 switch CL1 that are associated with the cluster nodes.

Example

The following example shows how the ports 1 to 12 are brought up on the CL1 switch:

```
(CL1)(Config)# interface 0/1-0/12
(CL1)(Interface 0/1-0/12)# no shutdown
(CL1)(Interface 0/1-0/12)# exit
(CL1)(Config)# exit
(CL1)#
```

27. Bring up the cluster node port e1a that is connected to the CN1610 switch CL1 on a single node: **network port modify**

Example

The following example shows how port e1a is brought up on the new CL1 switch:

```
cluster::*> network port modify -node node1 -port e1a -up-admin true
```

28. Verify the status of the cluster node port: **network port show**

Example

The following example verifies that port e1a on the new CL1 switch is **up**:

```
cluster::*>network port show -role cluster
                                   Auto-Negot  Duplex     Speed (Mbps)
Node   Port   Role         Link MTU    Admin/Oper  Admin/Oper Admin/Oper
------ ------ ------------ ---- -----  ----------- ---------- ------------
node1
       e1a    cluster      up   9000   true/true  full/full   auto/10000
       e2a    cluster      up   9000   true/true  full/full   auto/10000
```

29. Revert cluster LIF clus1 (associated with port e1a) to its home port on the same node: **network interface revert**

Example

```
cluster::*>network interface revert -vserver node1 -lif clus1
```

30. Verify that the interface is now home: **network interface show**

Example

The following example shows the status of clus1 displayed as up and port e1a displayed as home:

```
cluster::> network interface show -role cluster
             Logical    Status     Network            Current     Current Is
Vserver      Interface  Admin/Oper Address/Mask       Node        Port    Home
-----------  ---------- ---------- ------------------ ----------- ------- ----
node1
             clus1      up/up      10.10.10.1/24      node1       e1a     true
             clus2      up/up      10.10.10.2/24      node1       e2a     true
```

31. If bringing up the first node is successful, bring up the ports, and then revert the cluster interfaces on the remaining nodes using steps *27* on page 8 to *31* on page 8.

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

Example

The command reenables automatic case creation:

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

Related information

NetApp CN1601 and CN1610 Switches
Cisco Ethernet Switches

NetApp KB Article 1010449: How to suppress automatic case creation during scheduled maintenance windows

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., 495 East Java Drive, Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277

Trademark information