Replacing a Cisco Nexus 5020 cluster switch

Replacing a defective Cisco Nexus 5020 cluster switch in a cluster network is a nondisruptive procedure (NDU).

Before you begin

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

- Existing cluster and network configuration:
  - The Nexus 5020 cluster infrastructure must be redundant and fully functional on both switches. Refer to the *Cisco Ethernet Switch* web page to ensure that you have the latest reference configuration file (RCF) and NX-OS versions on your switches.
  - All cluster ports must be in the up state.
  - Management connectivity on both switches.
  - Console access to both cluster switches must be in place.
  - All cluster logical interfaces (LIFs) must be up and must not have been migrated.
- Nexus 5020 replacement switch:
  - Management network connectivity on the replacement switch must be functional.
  - Console access to the replacement switch must be in place.
  - All relevant switch ports for node connection must be disabled on all relevant ports.
  - All Inter-Switch Link (ISL) ports must be enabled.
  - The desired reference configuration file (RCF) and NX-OS operating system image switch must be loaded onto the switch.
  - Initial customization of the switch must be complete.

About this task

This procedure replaces an existing Nexus 5020 cluster switch (cs1 in this procedure) with a new Nexus 5020 switch (cs-new).

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

- The names of the existing Nexus 5020 cluster switches are cs1 and cs2.
- The name of the new Nexus 5020 cluster switch is cs-new.
- The node names of the nodes in this example are node*x* for every node in a cluster.
- The cluster::*> prompt indicates the name of the cluster.
- The node-facing ports are e1/1 through e1/32.
- The ISL ports are e1/33 through e1/40.
- The names of the cluster LIFs connected to cs1 and cs2 are clus1 and clus2.
- The cluster ports used in this procedure are e1a and e2a. Refer to the *Hardware Universe* for the actual cluster ports supported on your platforms.

Steps

1. Install the appropriate RCF and image on the Nexus 5020 cluster switch `cs-new` and make any necessary site preparations.

   This optional step describes verifying, downloading and installing the appropriate versions of the RCF and NX-OS software for the new switch. If you have verified that the new switch is correctly set up and does not need updates to the RCF and NX-OS software, continue to step 2.

a. Go to the *Cisco Ethernet Switch* page on The NetApp Support Site.
b. Note your switch and the required software versions in the table on that page.
c. To download the appropriate version of the RCF file, click on *Data ONTAP 8.X or later Cluster and Management Network Switch Reference Configuration Files*.
d. On the *Description* page, click on **CONTINUE**, accept the license agreement, and follow the instructions on the *Download* page to download the RCF file.
e. To download the appropriate version of the NX-OS software, click on *Data ONTAP 8.X or later Cluster Network Switch*.

2. On the new switch, shut down all of the ports that will be connected to the node cluster ports 1 through 32).

   If the switch that you are replacing is not functional and powered down, go to step 3. The LIFs on the cluster nodes should have already failed over to the other cluster port for each node.

   Example

   The following example shows ports 1/1 through 1/32 shut down:

```
cs-new# configure
cs-new(config)# interface ethernet 1/1-32
cs-new(config-if-range)# shutdown
cs-new(config-if-range)# exit
cs-new(config# exit
```

3. Set the privilege level of the command session to advanced and enter `y` at the prompt.

   Example

   The following example sets the privilege level to advanced:

```
cluster::> set -privilege advanced
Warning: These advanced commands are potentially dangerous; use them only when
         directed to do so by NetApp personnel.
Do you wish to continue? (y or n): y
cluster::*>
```

   Note: You must be in advanced mode to use the clustered Data ONTAP commands in this procedure.

4. On the console of all nodes, use the `network interface migrate` command to migrate clus1 to port e2a.

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

5. Use the `network interface show -role cluster` command to verify that the migration took place.

   The LIFs are migrated if `clus1`'s Current Port column shows `e2a` (the same port as clus2) and the Is Home column shows `false`.

   Example

   This example shows the output for a cluster with two nodes:

```
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    10.10.0.1/24  node1    e2a    false
        clus2        up/up    10.10.0.2/24  node1    e2a    true
node2
```

```
        clus1        up/up    10.10.0.1/24  node2    e2a    false
        clus2        up/up    10.10.0.2/24  node2    e2a    true
```

6. Use the `cluster show` command to show the status of all node members.

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

7. Use the `network port modify` command to shut down cluster port e1a on all of the nodes in a cluster.

Example

This example shuts down port e1a on `node`*x*.

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

8. Shut down the ISL ports 33 through 40 on the Nexus 5020 cluster switch cs2.

Example

The following example shows the ISL ports 33 through 40 shut down on cs2:

```
cs2# configure
cs2(config)# interface ethernet 1/33-40
cs2(config-if-range)# shutdown
cs2(config-if-range)# exit
cs2(config)# exit
```

9. Disconnect *all of the cables* from the cluster ports and ISLs on the Nexus 5020 cs1 cluster switch and reconnect them to the appropriate ports on the Nexus 5020 cs-new switch.
10. Bring up the ISLs 33 through 40 between the cs-new and cs2 Nexus 5020 switches and verify the port channel operation status.

Example

The following example shows ISL ports 33 through 40 open:

```
cs2# configure
cs2(config)# interface ethernet 1/33-40
cs2(config-if-range)# no shutdown
cs2(config-if-range)# exit
cs2(config)# exit
```

11. Use the `show port-channel summary` command on both the cs-new and cs2 switches to verify that the port-channel members have a status of (P).

Example

The following example shows sample results for the Nexus 5020 cs2 switch:

```
cs2# 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(P)   Eth1/34(P)   Eth1/35(P)
                                     Eth1/36(P)   Eth1/37(P)   Eth1/38(P)
                                     Eth1/39(P)   Eth1/40(P)
```

The following example shows sample results for the new Nexus 5020 switch cs-new:

```
cs-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
        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(P)   Eth1/34(P)   Eth1/35(P)
                                     Eth1/36(P)   Eth1/37(P)   Eth1/38(P)
                                     Eth1/39(P)   Eth1/40(P)
```

12. Bring up the ports on the Nexus 5020 cs-new switch that are associated with the cluster nodes.

Example

This example shows ports 1 through 32 brought up on the Nexus 5020 cs-new switch:

```
cs-new # configure
cs-new(config-if-range)# interface ethernet e1/1-32
cs-new(config-if-range)# no shut
cs-new(config-if-range)# exit
cs-new(config)# exit
```

13. Use the `network port modify` command to enable the first cluster port, e1a, on all nodes in the cluster.

Example

This example shows port e1a brought up on node1:

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

14. Use the `network port show -role cluster` command to verify that on all nodes that the cluster ports are up.

This example shows the output for a cluster with two nodes:

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

                                     Auto-Negot  Duplex     Speed (Mbps)
Node   Port   Role         Link   MTU Admin/Oper  Admin/Oper Admin/Oper
------ ------ ------------ ---- ----- ----------- ---------- ------------
node1
       e1a    clus1        up    9000  true/true  full/full   auto/10000
       e2a    clus2        up    9000  true/true  full/full   auto/10000
node2
       e1a    clus1        up    9000  true/true  full/full   auto/10000
       e2a    clus2        up    9000  true/true  full/full   auto/10000
4 entries were displayed.
```

15. On all nodes, use the `network interface revert` command to revert clus1 (which was previously migrated) back to e1a.

    Example

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

16. Use the `network interface show` command to ensure that all cluster LIFs are up and operational and display `true` in the Is Home column.

    Bringing up the first node is successful if the Is Home column is `true` for both cluster interfaces and they show the correct port assignments, which are e1a and e2a in the following example.

    This example shows the typical output for two nodes in a cluster:

    ```
    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    10.10.10.1/16   node1         e1a     true
                clus2      up/up    10.10.10.2/16   node1         e2a     true
    node2
                clus1      up/up    10.10.11.1/16   node2         e1a     true
                clus2      up/up    10.10.11.2/16   node2         e2a     true
    4 entries were displayed.
    ```

17. Use the `cluster show` command to display information about the nodes in a cluster.

    Example

    This example shows a two-node cluster and neither node has epsilon in this case. In clusters with more than two nodes one of the nodes will hold epsilon as `true`.

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

Related information

Cisco Ethernet Switch web page
Hardware Universe

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