NetApp

IP switch maintenance and replacement

ONTAP MetroCluster

NetApp
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IP switch maintenance and replacement

Replacing an IP switch

You might need to replace a failed switch, or upgrade or downgrade a switch. The new switch can be the same as the old switch when a switch has failed, or you can change the switch type (upgrade or downgrade the switch).

If you want to replace a failed switch with the same type of switch, you only need to replace the failed switch. If you want to upgrade or downgrade a switch, you need to adjust two switches that are in the same network. Two switches are in the same network if they are connected with an inter-switch link (ISL) and are not located at the same site. For example, Network 1 includes IP_switch_A_1 and IP_switch_B_1. Network 2 includes IP_switch_A_2 and IP_switch_B_2 as shown in the diagram below:
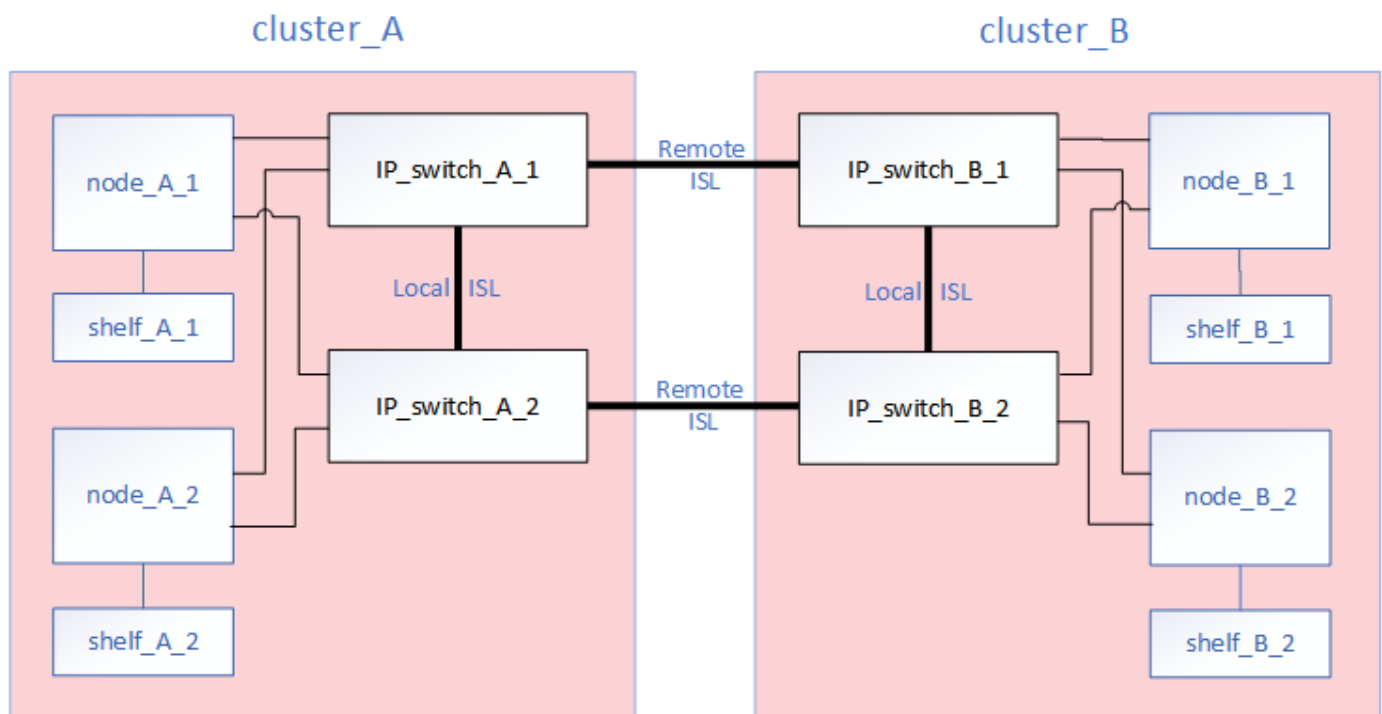
This procedure applies when you are using NetApp-validated switches. If you are using MetroCluster-compliant switches, refer to the switch vendor.

If you upgrade or downgrade the networks, you must repeat this procedure for the second network.

Steps

1. Check the health of the configuration.

   a. Check that the MetroCluster is configured and in normal mode on each cluster: `metrocluster show`

```
cluster_A::> metrocluster show
Cluster                        Entry Name          State
------------------------- ------------------- -----------
 Local: cluster_A             Configuration state configured
                              Mode                normal
                              AUSO Failure Domain auso-on-cluster-
disaster
Remote: cluster_B             Configuration state configured
                              Mode                normal
                              AUSO Failure Domain auso-on-cluster-
disaster
```

b. Check that mirroring is enabled on each node: **metrocluster node show**

```
cluster_A::> metrocluster node show
DR                              Configuration  DR
Group Cluster Node              State          Mirroring Mode
----- ------- -------------- -------------- ---------
--------------------
1     cluster_A
            node_A_1         configured     enabled    normal
      cluster_B
            node_B_1         configured     enabled    normal
2 entries were displayed.
```

c. Check that the MetroCluster components are healthy: **metrocluster check run**

```
cluster_A::> metrocluster check run

Last Checked On: 10/1/2014 16:03:37

Component            Result
------------------- ---------
nodes                ok
lifs                 ok
config-replication  ok
aggregates           ok
4 entries were displayed.

Command completed. Use the "metrocluster check show -instance"
command or sub-commands in "metrocluster check" directory for
detailed results.
To check if the nodes are ready to do a switchover or switchback
operation, run "metrocluster switchover -simulate" or "metrocluster
switchback -simulate", respectively.
```

   d. Check that there are no health alerts: **system health alert show**

2. Configure the new switch before installation.

> (i) If you are upgrading or downgrading the switches, you must configure all the switches in the network.

Follow the steps in the section *Configuring the IP switches* in the MetroCluster IP installation and configuration.

Make sure that you apply the correct RCF file for switch _A_1, _A_2, _B_1 or _B_2. If the new switch is the same as the old switch, you need to apply the same RCF file.

If you upgrade or downgrade a switch, apply the latest supported RCF file for the new switch.

3. Run the port show command to view information about the network ports:

   network port show

4. Disconnect the ISL connections from the remote switch that connect to the old switch.

   You should disconnect the ISL connections from the ports on the IP_switch_A_1 that connect to IP_switch_B_1.

5. Power off the switch, remove the cables and physically remove IP_switch_B_1.

6. Install the new switch.

   Cable the new switch first (including the ISLs) according to the steps in the *Cabling the IP switches* section in the MetroCluster IP installation and configuration.

> (i) The used ports might be different from those on the old switch if the switch type is different. If you are upgrading or downgrading the switches, do **NOT** cable the local ISLs. Only cable the local ISLs if you are upgrading or downgrading the switches in the second network and both switches at one site are the same type.

7. Power up the switch or switches.

   If the new switch is the same, power up the new switch. If you are upgrading or downgrading the switches, then power up both switches. The configuration can operate with two different switches at each site until the second network is updated.

8. Verify that the MetroCluster configuration is healthy by repeating step 1.

   If you are upgrading or downgrading the switches in the first network, you might see some alerts related to local clustering.

   > (i) If you upgrade or downgrade the networks, then repeat all of the steps for the second network.

Upgrading firmware on MetroCluster IP switches

You might need to upgrade the firmware on a MetroCluster IP switch.

You must repeat this task on each of the switches in succession.

Steps
1. Check the health of the configuration.
   a. Check that the MetroCluster is configured and in normal mode on each cluster:

      metrocluster show

      ```
      cluster_A::> metrocluster show
      Cluster                   Entry Name         State
      ------------------------- ------------------ -----------
       Local: cluster_A         Configuration state configured
                                Mode                normal
                                AUSO Failure Domain auso-on-cluster-
      disaster
      Remote: cluster_B         Configuration state configured
                                Mode                normal
                                AUSO Failure Domain auso-on-cluster-
      disaster
      ```

   b. Check that mirroring is enabled on each node:

      metrocluster node show

```
cluster_A::> metrocluster node show
DR                                Configuration  DR
Group Cluster Node                State          Mirroring Mode
----- ------- --------------      --------------   ---------
--------------------
1       cluster_A
              node_A_1            configured      enabled    normal
        cluster_B
              node_B_1            configured      enabled    normal
2 entries were displayed.
```

c. Check that the MetroCluster components are healthy:

```
metrocluster check run
```

```
cluster_A::> metrocluster check run

Last Checked On: 10/1/2014 16:03:37

Component            Result
-------------------  ---------
nodes               ok
lifs                ok
config-replication  ok
aggregates          ok
4 entries were displayed.

Command completed. Use the "metrocluster check show -instance"
command or sub-commands in "metrocluster check" directory for
detailed results.
To check if the nodes are ready to do a switchover or switchback
operation, run "metrocluster switchover -simulate" or "metrocluster
switchback -simulate", respectively.
```

d. Check that there are no health alerts:

```
system health alert show
```

2. Install the software on the first switch.

ⓘ   You must install the switch software on the switches in the following order: switch_A_1, switch_B_1, switch_A_2, switch_B_2.

Follow the steps for installing switch software in the relevant topic of the *MetroCluster IP Installation and Configuration* information depending on whether the switch type is Broadcom or Cisco:

- Downloading and installing the Broadcom switch EFOS software
- Downloading and installing the Cisco switch NX-OS software

3. Repeat the previous step for each of the switches.

4. Repeat Step 1 to check the health of the configuration.

Upgrade RCF files on MetroCluster IP switches

You might need to upgrade an RCF file on a MetroCluster IP switch. For example, an ONTAP upgrade or a switch firmware upgrade both require a new RCF file.

Ensure that the RCF file is supported

If you are changing the ONTAP version running on the switches, you should ensure that you have an RCF file that is supported for that version. If you use the RCF generator, the correct RCF file will be generated for you.

Steps

1. Use the following commands from the switches to verify the version of the RCF file:

From this switch…	Issue this command…
Brocade switch	`(IP_switch_A_1) # show clibanner`
Cisco switch	`IP_switch_A_1# show banner motd`

For either switch, find the line in the output that indicates the version of the RCF file. For example, the following output is from a Cisco switch, which indicates the RCF file version is "v1.80".

```
Filename : NX3232_v1.80_Switch-A2.txt
```

2. To check which files are supported for a specific ONTAP version, switch, and platform, use the RcfFileGenerator. If you can generate the RCF file for the configuration that you have or that you want to upgrade to, then it is supported.

3. To verify that the switch firmware is supported, refer to the following:

- Hardware Universe
- NetApp Interoperability

Upgrade RCF files

If you are installing new switch firmware, you must install the switch firmware before upgrading the RCF file.

About this task

This procedure disrupts traffic on the switch where the RCF file is upgraded. Traffic will resume once the new RCF file is applied.

Steps

1. Verify the health of the configuration.

a. Verify that the MetroCluster components are healthy:

```
metrocluster check run
```

```
cluster_A::*> metrocluster check run
```

The operation runs in the background.

a. After the `metrocluster check run` operation completes, run `metrocluster check show` to view the results.

After approximately five minutes, the following results are displayed:

```
-----------
::*> metrocluster check show

Last Checked On: 4/7/2019 21:15:05

Component            Result
------------------- ---------
nodes                ok
lifs                 ok
config-replication   ok
aggregates           warning
clusters             ok
connections          not-applicable
volumes              ok
7 entries were displayed.
```

b. Check the status of the running MetroCluster check operation:

```
metrocluster operation history show -job-id 38
```

c. Verify that there are no health alerts:

```
system health alert show
```

2. Prepare the IP switches for the application of the new RCF files.

Follow the steps for your switch vendor:

- Resetting the Broadcom IP switch to factory defaults
- Resetting the Cisco IP switch to factory defaults

3. Download and install the IP RCF file, depending on your switch vendor:

- Downloading and installing the Broadcom IP RCF files
- Downloading and installing the Cisco IP RCF files

Update the switches in the following order:

a. Switch_A_1

b. Switch_B_1

c. Switch_A_2

d. Switch_B_2

Renaming a Cisco IP switch

You might need to rename a Cisco IP switch to provide consistent naming throughout your configuration.

In the examples in this task, the switch name is changed from `myswitch` to `IP_switch_A_1`.

1. Enter global configuration mode:

   `configure terminal`

   The following example shows the configuration mode prompt. Both prompts show the switch name of `myswitch`.

   ```
   myswitch# configure terminal
   myswitch(config)#
   ```

2. Rename the switch:

   `switchname new-switch-name`

   If you are renaming both switches in the fabric, use the same command on each switch.

   The CLI prompt changes to reflect the new name:

   ```
   myswitch(config)# switchname IP_switch_A_1
   IP_switch_A_1(config)#
   ```

3. Exit configuration mode:

   `exit`

   The top-level switch prompt is displayed:

   ```
   IP_switch_A_1(config)# exit
   IP_switch_A_1#
   ```

4. Copy the current running configuration to the startup configuration file:

```
copy running-config startup-config
```

5. Verify that the switch name change is visible from the ONTAP cluster prompt.

   Note that the new switch name is shown, and the old switch name (`myswitch`) does not appear.

   a. Enter advanced privilege mode, pressing **y** when prompted:
      ```
      set -privilege advanced
      ```

   b. Display the attached devices:
      ```
      network device-discovery show
      ```

   c. Return to admin privilege mode:
      ```
      set -privilege admin
      ```

      The following example shows that the switch appears with the new name, `IP_switch_A_1`:

```
cluster_A::storage show> set 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

cluster_A::storage show*> network device-discovery show
Node/        Local  Discovered
Protocol     Port   Device                      Interface
Platform
----------- ------ ------------------------ ----------------
----------------
node_A_2/cdp
            e0M    LF01-410J53.mycompany.com(SAL18516DZY)
                                            Ethernet125/1/28  N9K-
C9372PX
            e1a    IP_switch_A_1(FOC21211RBU)
                                            Ethernet1/2       N3K-
C3232C
            e1b    IP_switch_A_1(FOC21211RBU)
                                            Ethernet1/10      N3K-
C3232C
.
.
.                                            Ethernet1/18      N9K-
C9372PX
node_A_1/cdp
            e0M    LF01-410J53.mycompany.com(SAL18516DZY)
                                            Ethernet125/1/26  N9K-
C9372PX
            e0a    IP_switch_A_2(FOC21211RB5)
                                            Ethernet1/1       N3K-
C3232C
            e0b    IP_switch_A_2(FOC21211RB5)
                                            Ethernet1/9       N3K-
C3232C
            e1a    IP_switch_A_1(FOC21211RBU)
.
.
.
16 entries were displayed.
```