Replacing a PCIe card

To replace a PCIe card, you must disconnect the cables from the cards in the riser, remove the riser, replace the riser, and then recable the cards in that riser.

About this task

• You can use this procedure with all versions of ONTAP supported by your system
• All other components in the system must be functioning properly; if not, you must contact technical support.

Steps

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Shutting down the impaired controller

You can shut down or take over the impaired controller using different procedures, depending on the storage system hardware configuration.

Shutting down the impaired node

To shut down the impaired node, you must determine the status of the node and, if necessary, take over the node so that the healthy node continues to serve data from the impaired node storage.

Steps

1. If you have a cluster with more than two nodes, check the health and Epsilon from advanced mode:
   
   `cluster show -epsilon *`

   If the cluster is not in quorum or a node that is not the impaired node shows `false` for eligibility and health, correct the issue before proceeding to the next step.

   If Epsilon resides in the impaired node:

   a. Remove Epsilon from the impaired node:

      `cluster modify -node impaired_node -epsilon false`

   b. Assign Epsilon to a healthy node in the cluster:

      `cluster modify -node healthy_node -epsilon true`

2. If the impaired node is part of an HA pair, disable automatic giveback from the console of the healthy node:

   `storage failover modify -node local -auto-giveback false`

3. Take the impaired node to the LOADER prompt:
If the impaired node is displaying... Then...

<table>
<thead>
<tr>
<th>The LOADER prompt</th>
<th>Go to the next step.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting for giveback...</td>
<td>Press Ctrl-C, and then respond y.</td>
</tr>
<tr>
<td>System prompt or password prompt</td>
<td>Take over or halt the impaired node:</td>
</tr>
<tr>
<td></td>
<td>storage failover takeover -ofnode impaired_node_name</td>
</tr>
<tr>
<td></td>
<td>When the impaired node shows Waiting for giveback..., press Ctrl-C, and then respond y.</td>
</tr>
</tbody>
</table>

**Removing the controller module**

You must remove the controller module from the chassis when you replace the controller module or replace a component inside the controller module.

**Steps**

1. If you are not already grounded, properly ground yourself.

2. Loosen the hook and loop strap binding the cables to the cable management device, and then unplug the system cables and SFPs (if needed) from the controller module, keeping track of where the cables were connected.

   Leave the cables in the cable management device so that when you reinstall the cable management device, the cables are organized.

3. Unplug the controller module power supply from the source, and then unplug the cable from the power supply.

4. Remove the cable management device from the controller module and set it aside.

5. Press down on both of the locking latches, and then rotate both latches downward at the same time.

   The controller moves slightly out of the chassis.
6. Slide the controller module out of the chassis.
Make sure that you support the bottom of the controller module as you slide it out of the chassis.

7. Place the controller module on a stable, flat surface, and then open the air duct:
   a. Press in the locking tabs on the sides of the air duct toward the middle of the controller module.
   b. Slide the air duct toward the fan modules, and then rotate it upward to its completely open position.

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### Replacing a PCIe card

To replace a PCIe card, you must remove the cabling and any SFPs from the ports on the PCIe cards in the target riser, remove the riser from the controller module, remove and replace the PCIe card, reinstall the riser, and recable it.

**Steps**

1. If you are not already grounded, properly ground yourself.
2. Remove the PCIe riser from the controller module:
   a. Remove any SFP modules that might be in the PCIe cards.
   b. Rotate the module locking latch on the left side of the riser up and toward the fan modules.
      The PCIe riser raises up slightly from the controller module.
   c. Lift the PCIe riser up, shift it toward the fans so that the sheet metal lip on the riser clears the edge of the controller module, lift the riser out of the controller module, and then place it on a stable, flat surface.

3. Remove the PCIe card from the riser:
   a. Turn the riser so that you can access the PCIe card.
   b. Press the locking bracket on the side of the PCIe riser, and then rotate it to the open position.
   c. Remove the PCIe card from the riser.

4. Install the PCIe card into the same slot in PCIe riser:
   a. Align the card with the card guide on the riser and the card socket in the riser, and then slide it squarely into the socket in the riser.
Note: Make sure that the card is completely and squarely seated into the riser socket.

b. Swing the locking latch into place until it clicks into the locked position.

5. Install the riser into the controller module:
   a. Align the lip of the riser with the underside of the controller module sheet metal.
   b. Guide the riser along the pins in the controller module, and then lower the riser into the controller module.
   c. Swing the locking latch down and click it into the locked position.
      When locked, the locking latch is flush with the top of the riser and the riser sits squarely in the controller module.

Reinstalling the controller module

After you replace a component within the controller module, you must reinstall the controller module in the system chassis and boot it.

Steps

1. If you are not already grounded, properly ground yourself.

2. If you have not already done so, close the air duct:
   a. Swing the air duct all the way down to the controller module.
   b. Slide the air duct toward the risers until the locking tabs click into place.
   c. Inspect the air duct to make sure that it is properly seated and locked into place.
3. Align the end of the controller module with the opening in the chassis, and then gently push the controller module halfway into the system.
   
   **Note:** Do not completely insert the controller module in the chassis until instructed to do so.

4. Recable the system, as needed.
   
   If you removed the media converters (SFPs), remember to reinstall them if you are using fiber optic cables.

5. Plug the power cord into the power supply, reinstall the power cable locking collar, and then connect the power supply to the power source.

6. Complete the reinstallation of the controller module:
   
   a. If you have not already done so, reinstall the cable management device.
   
   b. Firmly push the controller module into the chassis until it meets the midplane and is fully seated.
      
      The locking latches rise when the controller module is fully seated.
      
      **Attention:** Do not use excessive force when sliding the controller module into the chassis; you might damage the connectors.
      
      The controller module begins to boot as soon as it is fully seated in the chassis.
   
   c. Rotate the locking latches upward, tilting them so that they clear the locking pins, and then lower them into the locked position.

7. If your system is configured to support 10GbE cluster interconnect and data connections on 40GbE NICs or onboard ports, you must convert these ports to 10GbE connections with the `nicadmin convert` command from Maintenance mode.
   
   **Note:** Be sure to exit Maintenance mode after completing the conversion.

8. Return the node to normal operation by giving back its storage:

   ```
   storage failover giveback -ofnode impaired_node_name
   ```

9. If automatic giveback was disabled, reenable it:

   ```
   storage failover modify -node local -auto-giveback true
   ```

**Completing the replacement process**

After you replace the part, you can return the failed part to NetApp, as described in the RMA instructions shipped with the kit. Contact technical support at **NetApp Support**, 888-463-8277 (North America), 00-800-44-638277 (Europe), or +800-800-80-800 (Asia/Pacific) if you need the RMA number or additional help with the replacement procedure.

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