Chassis

Install and maintain

NetApp
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Chassis

Overview of chassis replacement - AFF A320

To replace the chassis, you must move the fans and controller modules from the impaired chassis to the new chassis of the same model as the impaired chassis.

All other components in the system must be functioning properly; if not, you must contact technical support.

- You can use this procedure with all versions of ONTAP supported by your system.
- This procedure is written with the assumption that you are moving the controller modules to the new chassis, and that the chassis is a new component from NetApp.
- This procedure is disruptive. For a two-node cluster, you will have a complete service outage and a partial outage in a multi-node cluster.

Shut down the controllers - AFF A320

This procedure is for 2-node, non-MetroCluster configurations only. If you have a system with more than two nodes, see How to perform a graceful shutdown and power up of one HA pair in a 4-node cluster.

Before you begin

You need:

- Local administrator credentials for ONTAP.
- NetApp onboard key management (OKM) cluster-wide passphrase if using storage encryption.
- SP/BMC accessability for each controller.
- Stop all clients/host from accessing data on the NetApp system.
- Suspend external backup jobs.
- Necessary tools and equipment for the replacement.

If the system is a NetApp StorageGRID or ONTAP S3 used as FabricPool cloud tier, refer to the Gracefully shutdown and power up your storage system Resolution Guide after performing this procedure.

If using FlexArray array LUNs, follow the specific vendor storage array documentation for the shutdown procedure to perform for those systems after performing this procedure.

If using SSDs, refer to SU490: (Impact: Critical) SSD Best Practices: Avoid risk of drive failure and data loss if powered off for more than two months

As a best practice before shutdown, you should:

- Perform additional system health checks.
- Upgrade ONTAP to a recommended release for the system.

- Resolve any Active IQ Wellness Alerts and Risks. Make note of any faults presently on the system, such as LEDs on the system components.

Steps

1. Log into the cluster through SSH or log in from any node in the cluster using a local console cable and a laptop/console.
2. Turn off AutoSupport and indicate how long you expect the system to be off line:

   ```
   system node autosupport invoke -node * -type all -message "MAINT=8h Power
   Maintenance"
   ```

3. Identify the SP/BMC address of all nodes:

   ```
   system service-processor show -node * -fields address
   ```

4. Exit the cluster shell: `exit`
5. Log into SP/BMC over SSH using the IP address of any of the nodes listed in the output from the previous step.

   If your’re using a console/laptop, log into the controller using the same cluster administrator credentials.

   Open an SSH session to every SP/BMC connection so that you can monitor progress.

6. Halt all nodes in the cluster:

   ```
   system node halt -node * -skip-lif-migration-before-shutdown true -ignore
   -quorum-warnings true -inhibit-takeover true.
   ```

   For clusters using SnapMirror synchronous operating in StrictSync mode: `system node halt -node * -skip-lif-migration-before-shutdown true -ignore-quorum -warnings true -inhibit-takeover true -ignore-strict-sync-warnings true`

7. Enter **y** for each controller in the cluster when you see *`Warning: Are you sure you want to halt node "cluster name-controller number"? {y|n}:`*
8. Wait for each controller to halt and display the LOADER prompt.
9. Turn off each PSU or unplug them if there is no PSU on/off switch.
10. Unplug the power cord from each PSU.
11. Verify that all controllers in the impaired chassis are powered down.

Replace hardware - AFF A320

Move the fans, hard drives, and controller module or modules from the impaired chassis to the new chassis, and swap out the impaired chassis from the equipment rack or system cabinet with the new chassis of the same model as the impaired chassis.

Step 1: Remove the controller modules

To replace the chassis, you must remove the controller modules from the old chassis.

1. If you are not already grounded, properly ground yourself.
2. Release the power cable retainers, and then unplug the cables from the power supplies.
3. 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.

4. Remove and set aside the cable management devices from the left and right sides of the controller module.
5. Remove the controller module from the chassis:
   a. Insert your forefinger into the latching mechanism on either side of the controller module.
   b. Press down on the orange tab on top of the latching mechanism until it clears the latching pin on the chassis.

      The latching mechanism hook should be nearly vertical and should be clear of the chassis pin.

   c. Gently pull the controller module a few inches toward you so that you can grasp the controller module sides.
   d. Using both hands, gently pull the controller module out of the chassis and set it on a flat, stable surface.
6. Repeat these steps for the other controller module in the chassis.

Step 2: Move the fans

To move the fan modules to the replacement chassis when replacing the chassis, you must perform a specific sequence of tasks.

1. If you are not already grounded, properly ground yourself.
2. Remove the bezel (if necessary) with two hands, by grasping the openings on each side of the bezel, and then pulling it toward you until the bezel releases from the ball studs on the chassis frame.
3. Press down the release latch on the fan module cam handle, and then rotate the cam handle downward.

   The fan module moves a little bit away from the chassis.

4. Pull the fan module straight out from the chassis, making sure that you support it with your free hand so that it does not swing out of the chassis.

   The fan modules are short. Always support the bottom of the fan module with your free hand so that it does not suddenly drop free from the chassis and injure you.

5. Set the fan module aside.
6. Repeat the preceding steps for any remaining fan modules.
7. Insert the fan module into the replacement chassis by aligning it with the opening, and then sliding it into the chassis.

8. Push firmly on the fan module cam handle so that it is seated all the way into the chassis.

   The cam handle raises slightly when the fan module is completely seated.

9. Swing the cam handle up to its closed position, making sure that the cam handle release latch clicks into the locked position.

   The fan LED should be green after the fan is seated and has spun up to operational speed.

10. Repeat these steps for the remaining fan modules.

Step 3: Replace a chassis from within the equipment rack or system cabinet

You must remove the existing chassis from the equipment rack or system cabinet before you can install the replacement chassis.

1. Remove the screws from the chassis mount points.
2. With two people, slide the old chassis off the rack rails in a system cabinet or equipment rack, and then set it aside.
3. If you are not already grounded, properly ground yourself.
4. Using two people, install the replacement chassis into the equipment rack or system cabinet by guiding the chassis onto the rack rails in a system cabinet or equipment rack.
5. Slide the chassis all the way into the equipment rack or system cabinet.
6. Secure the front of the chassis to the equipment rack or system cabinet, using the screws you removed from the old chassis.
7. If you have not already done so, install the bezel.

Step 4: Install the controller modules

After you install the controller modules into the new chassis, you must boot your system.

For HA pairs with two controller modules in the same chassis, the sequence in which you install the controller module is especially important because it attempts to reboot as soon as you completely seat it in the chassis.

1. Align the end of the controller module with the opening in the chassis, and then gently push the controller module halfway into the system.

   Do not completely insert the controller module in the chassis until instructed to do so.

2. Recable the console to the controller module, and then reconnect the management port.
3. Plug the power cables into the power supplies and reinstall the power cable retainers.
4. Complete the reinstallation of the controller module:
   a. Make sure the latch arms are locked in the extended position.
   b. Using the latch arms, push the controller module into the chassis bay until it stops.
   c. Press down and hold the orange tabs on top of the latching mechanism.
   d. Gently push the controller module into the chassis bay until it is flush with the edges of the chassis.

      The latching mechanism arms slide into the chassis.

The controller module begins to boot as soon as it is fully seated in the chassis.

e. Release the latches to lock the controller module into place.

f. Recable the power supply.

g. If you have not already done so, reinstall the cable management device.

h. Interrupt the normal boot process by pressing `Ctrl-C`.

5. Repeat the preceding steps to install the second controller into the new chassis.

Complete the restoration and replacement process - AFF A320

You must verify the HA state of the chassis and return the failed part to NetApp, as described in the RMA instructions shipped with the kit.

Step 1: Verify and set the HA state of the chassis

You must verify the HA state of the chassis, and, if necessary, update the state to match your system configuration.

1. In Maintenance mode, from either controller module, display the HA state of the local controller module and chassis: `ha-config show`

   The HA state should be the same for all components.

2. If the displayed system state for the chassis does not match your system configuration:

   a. Set the HA state for the chassis: `ha-config modify chassis` *`HA-state`*

      The value for HA-state can be one of the following:

      - `ha`
      - `mcc`
      - `mccip`
      - `non-ha`

   b. Confirm that the setting has changed: `ha-config show`

3. If you have not already done so, recable the rest of your system.

4. Reinstall the bezel on the front of the system.

Step 2: Return the failed part to NetApp

Return the failed part to NetApp, as described in the RMA instructions shipped with the kit. See the Part Return & Replacements page for further information.

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