What is the procedure for graceful shutdown and power up of a storage system during scheduled power outage?

Applies to

• Data ONTAP 7 and earlier
• Clustered Data ONTAP 8
• Data ONTAP 8 7-Mode
• ONTAP 9

Answer

What order to power elements up and down during a power cycle procedure?

Best practices:

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• Ensure backups are completed
• Ensure SnapMirror updates are completed

Perform the following steps in Data ONTAP 7-Mode to bring the system down:

If the storage system is clustered, enter `cf disable`. Alternatively, follow the section 'For a clustered storage system...' given below step 4.

1. Notify, disconnect and, if needed, shut down all the connected CIFS/NFS clients.
2. If there are any hosts that have FCP or iSCSI-based LUNs, shut them down before shutting down the storage system.
3. Terminate CIFS with the `cifs terminate` command.
4. Run the `halt` command at the storage system command line interface. Allow the storage system to terminate Data ONTAP, and then to the ‘ok’, ‘cfe’ or ‘loader’ prompt. For a clustered storage system, if you did not run `cf disable`, run the `halt -f -t` command on each of the partners.
5. Physically power down the head and then all the attached disk shelves as needed.
6. Physically unplug the cables from power supplies on the back of the storage systems and shelves, to avoid any electrical issues when external power is restored.

Perform the following steps in Clustered Data ONTAP to bring the system down:

1. Notify, disconnect and, if needed, shut down all the connected CIFS/NFS clients.
2. If there are any hosts that have FCP or iSCSI-based LUNs, shut them down before shutting down the storage system.
3. Log in to all nodes, one at a time (preferably using serial console or RLM/SP) and run:
   `halt -node local -inhibit-takeover true -skip-lif-migration true`

   The following appears after running the `halt` command above. Type ‘y’ when prompted if you want to continue:
   (system node halt)

   Warning: Rebooting or halting node "node-01" in an HA enabled cluster with takeover inhibited may result in a data serving failure and client disruption. To ensure continuity of service, do the following
   before rebooting or halting the node: Disable cluster HA using the command: "cluster ha modify -configured false".
   To transfer epsilon to the partner node, use the following commands
   (privilege:advanced):
   `cluster modify -epsilon false -node <local-node>`
   `cluster modify -epsilon true -node <partner-node>`

   Do you want to continue? {y|n}: y
Every node might take several minutes to shut down. Each node should then reset and return to the **LOADER** prompt. If there is no console or RLM/SP access, confirm the overall node down status before halting the final node, by running the system node show command. After the last node is halted, you can power down everything safely.

4. Physically power down the head and then all the attached disk shelves as needed.

5. Physically unplug the cables from power supplies on the back of the storage systems and shelves, to avoid any electrical issues when external power is restored.

**Perform the following steps to bring the system back online:**

1. Reconnect all the power cables if previously disconnected.

2. Power ON core switches, otherwise clustering will not work properly.

3. Physically power up all disk shelves first. Wait until 30 seconds after the last disk shelf is powered ON, then power ON the storage system head so that all disks will be available when they are required by Data ONTAP.

4. Verify the storage system is up, all services are running, and network connectivity is present.

5. For 7-mode HA pairs, if cluster was disabled using `cf disable`, enter `cf enable` and monitor with `cf status`.

6. For clustered ONTAP systems, check `cluster show` and `storage failover show` to confirm CFO/SFO is configured/enabled.

**Additional Information**

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