Transitioning RHEL DMMP devices without file systems

ONTAP 7-Mode Transition

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Transitioning RHEL DMMP devices without file systems

Before transition of a Red Hat Enterprise Linux (RHEL) DMMP device without a file system, you must verify that the DMMP device does not have a file system. You must also perform specific steps to prepare for the cutover phase, and after transition you must replace the WWID.

Related information

Verifying that RHEL LUNs are ready for transition using the Inventory Assessment Workbook

Verifying that RHEL 5 LUNs are ready for transition using the CLI

Verifying that RHEL 6 DDMP devices are ready for transition using CLI

Preparing for cutover when transitioning a Linux host DMMP device without a file system

Replacing 7-Mode LUN WWIDs on Linux hosts after transition of LUNs

Verifying that RHEL LUNs are ready for transition using the Inventory Assessment Workbook

If your Red Hat Enterprise Linux (RHEL) 5 or RHEL 6 LUN is configured with a device mapper multipath (DMMP), you should verify that a file system is not configured before you transition the LUN from Data ONTAP operating in 7-Mode to clustered Data ONTAP.

This procedure applies to copy-based transitions and copy-free transitions.

Steps

1. Gather pretransition information from the *Inventory Assessment Workbook*.
2. Check whether the DMMP device entry is present under the **SAN Host File system** tab.

   If the DMMP device entry is not present, a file system is not configured and you can transition the LUN.

Verifying that RHEL 5 LUNs are ready for transition using the CLI

If your Red Hat Enterprise Linux (RHEL) 5 LUN is configured with a device mapper multipath (DMMP), you should verify that a file system is not configured before you transition the LUN from Data ONTAP operating in 7-Mode to clustered Data ONTAP.

Steps

1. Locate the SCSI device name for the LUN to be transitioned:

   ```
   sanlun lunshow
   ```

2. Identify the DMMP device name for the LUN:

   `multipath -11`

   The DMMP device name can be a device handle ID (WWID) such as `360a98000375345625824453855 4b4b53`, or it can be an alias, such as, `dmmp_raw_lun`.

3. Verify that the LUN does not have a file system:

   `dumpe2fs/dev/mapper/`*`DMMP device name`*

   If the LUN does not have a file system, Couldn’t find valid filesystem superblock is displayed in the output.

Verifying that RHEL 6 DDMP devices are ready for transition using CLI

Before you transition your Red Hat Enterprise Linux (RHEL) 6 DMMP device, you must verify that it is not part of a Logical Volume Manager (LVM) and that it does not have a file system.

Steps

1. Gather pretransition information from the *Inventory Assessment Workbook*.
2. Verify that the DMMP device exists in the `/dev/mapper` directory:

   `ls /dev/mapper/ `*`DMMP_device_name`*

   If the DMMP device is not displayed, the device might be using an alias or a user-friendly name.

3. Determine whether the DMMP device is part of an LVM and whether the DMMP device has a file system:

   `blkid`

   If the DMMP device is not part of an LVM and has no file system the device entry should not be displayed in blkidoutput.

Testing DMMP devices without file systems on RHEL hosts before the cutover phase of copy-based transitions

If you are using the 7-Mode Transition Tool (7MTT) 2.2 or later and Data ONTAP 8.3.2 or later to transition your Red Hat Enterprise Linux (RHEL) 5 host, you can test your transitioned clustered Data ONTAP LUNs to verify that you can bring your host and applications online before the cutover phase. Your source host can continue to run I/O to your source 7-Mode LUNs during testing.

Your new clustered Data ONTAP LUNs must be mapped to your test host and your LUNs must be ready for transition.

You should maintain hardware parity between the test host and the source host and you should perform the

following steps on the test host.

Your clustered Data ONTAP LUNs are in read/write mode during testing. They convert to read-only mode when testing is complete and you are preparing for the cutover phase.

Steps

1. After the baseline data copy is complete, select **Test Mode** in the 7MTT user interface (UI).
2. In the 7MTT UI, click **Apply Configuration**.
3. Rescan your new clustered Data ONTAP LUNs on the test host:

   `rescan-scsi-bus.sh`

4. Obtain the new SCSI device names for the clustered Data ONTAP LUNs:

   `sanlun lun show`

   In the following example, `/dev/sdl` is the SCSI device name for the `lun_dmmp_raw` LUN, and `/dev/sdk` is the SCSI device name for the `lun_dmmp_raw_alias` LUN:

   ```
   [root@ibmx3550-229-108 /]# sanlun lun show
   controller(7mode/E-Series)/
   vserver (cDOT/FlashRay lun-pathname   filename
   ------------------------------------------------------------------------
   vs_brb   /vol/dmmp_raw_vol/lun_dmmp_raw             /dev/sdl
   vs_brb   /vol/dmmp_raw_alias_vol/lun_dmmp_raw_alias /dev/sdk
   ```

5. Obtain the device handle IDs (WWIDs) for the clustered Data ONTAP LUNs:

   `/sbin/scsi_id -g-u-s /block/`*`SCSI_device_name`*

   The following is an example of a WWID: “3600a09804d532d79565d47617679764d”

6. Check whether an alias is defined in the `/etc/multipath.conf` file on the source host.
7. If there is an alias defined on the source host, add the alias to the `/etc/multipath.conf` file on the test host, but replace the 7-Mode device handle ID with the clustered Data ONTAP LUN ID.
8. Update the DMMP alias settings:

   `multipath`

9. Verify that the DMMP alias name correctly references the clustered Data ONTAP LUN:

   `multipath -ll`

10. Perform your testing as needed.
11. After you have completed your testing, shut down the test host:

    `shutdown -h -t0 now`

12. In the 7MTT UI, click **Finish Testing**.

If your clustered Data ONTAP LUNs are to be remapped to your source host, you must prepare your source host for the cutover phase. If your clustered Data ONTAP LUNs are to remain mapped to your test host, no further steps are required on the test host.

Related information

Gathering pretransition information from the Inventory Assessment Workbook

Verifying that RHEL LUNs are ready for transition using the Inventory Assessment Workbook

Preparing for cutover when transitioning a Linux host DMMP device without a file system

Preparing for cutover when transitioning a Linux host DMMP device without a file system

If you are transitioning a DMMP device without a file system from a Linux host, there are several steps you must perform before entering the cutover phase.

For FC configurations, you must have fabric connectivity and zoning to clustered Data ONTAP controllers.

For iSCSI configurations, your iSCSI sessions must be discovered and logged in to your clustered Data ONTAP controllers.

- For copy-based transitions, perform these steps before initiating the Storage Cutover operation in the 7-Mode Transition Tool (7MTT).
- For copy-free transitions, perform these steps before initiating the Export & Halt 7-Mode operation in 7MTT.

Steps

1. Stop I/O to the mount points.
2. Shut down the applications that are accessing the LUNs according to the application vendor's recommendations.
3. Flush the 7-Mode LUN DMMP device or alias:

   ```
   multipath -f device_name
   ```

   If needed, you can get the DMMP device name from the **OS Device ID** column under the SAN Host LUNs tab in the *Inventory Assessment Workbook*.

Replacing 7-Mode LUN WWIDs on Linux hosts after transition of LUNs

After LUN transition, the 7-Mode LUN WWID changes. You must replace it with the corresponding ONTAP LUN WWID before you can begin servicing data.

If you are doing a copy-free transition (CFT), then procedures for vol rehost must be complete.

See the 7-Mode Transition Tool Copy-Free Transition Guidefor details.

- For copy-based transitions (CBTs), perform these steps after completing the Storage cutover operation in the 7MTT.

- For CFTs, perform these steps after the Import Data & Configuration operation in the 7MTT is complete.

Steps

1. Generate the 7-Mode to ONTAP LUN mapping file:
   - For CBTs, run the following command from the Linux host where the 7MTT is installed:
     transition cbt export lunmap -p project-name -o *file_path*

     For example:

     transition cbt export lunmap -p SanWorkLoad -o c:/Libraires/Documents/7-to-C-LUN-MAPPING.csv
   - For CFTs, run the following command from the system where the 7MTT is installed:
     transition cft export lunmap -p *project-name* -s *svm-name* -o *output-file*

     For example:

     transition cft export lunmap -p SanWorkLoad -s svml -0 c:/Libraries/Documents/7-to-C-LUN-MAPPING-svml.csv

     You must run this command for each of your storage virtual machines (SVMs).
2. Make a note of the new ONTAP LUN device handle ID from the LUN mapping file.
3. Remove the SCSI devices created for 7-Mode LUNs:
   - To remove all of the SCSI devices:
     rescan-scsi-bus.sh -r
   - To remove each SCSI device individually:
     echo 1> /sys/block/*SCSI_ID*/delete

     This command must be executed on all 7-Mode LUN SCSI devices. See the SCSI Device ID column on the SAN Host LUNs tab of the *Inventory Assessment Workbook* to identify the SCSI device IDs for the LUNs.
4. Discover new ONTAP LUNs:

   rescan-scsi-bus.sh
5. Identify the SCSI devices of the new ONTAP LUNs:

   sanlun lun show
6. Get the WWIDs for the new ONTAP LUNs:

   /lib/udev/scsi_id -g -u -d /dev *SCSI_dev*
7. If a DMMP alias is defined, then update the /etc/multipath.conf file to replace the 7-Mode LUN WWID with its corresponding ONTAP LUN WWID, so that the DMMP alias points to the clustered Data ONTAP LUN:

   cat /etc/multipath.conf
8. Configure the DMMP devices:

multipath

9. Verify that the DMMP alias is correctly referencing the ONTAP LUN WWID:

   multipath -11

   In the following sample output, the DMMP alias `dmmp_raw_lun` is referencing `3600a098051764b2d4f3f453135452d31` as the ONTAP WWID:

```
root@IBMx3550M3-229-169 ~]# multipath -ll dmmp_raw_lun
dmmp_raw_lun (3600a098051764b2d4f3f453135452d31) dm-8 NETAPP, LUN C-Mode
[size=1.0G] [features=3 queue_if_no_path pg_init_retries 50]
[hwhandler=1 alua] [rw]
\_round-robin 0 [prio=50][enabled]
 \_5:0:0:6 sdx  65:112 [active][ready]
    \_8:0:0:6 sdab 65:176 [active][ready]
\_round-robin 0 [prio=10][enabled]
 \_6:0:0:6 sdy  65:128 [active][ready]
    \_7:0:0:6 sdaa 65:160 [active][ready]
```

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