Clustered Data ONTAP® 8.3

7-Mode Data Transition Using SnapMirror®

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Transitioning 7-Mode volumes using SnapMirror

You can transition 7-Mode volumes in a NAS and SAN environment to clustered Data ONTAP volumes by using clustered Data ONTAP SnapMirror commands. You must then set up the protocols, services, and other configuration on the cluster after the transition is complete.

Recommendation: You should use the 7-Mode Transition Tool to transition 7-Mode volumes because the tool provides prechecks to verify both 7-Mode and the cluster in every step of the migration process, which helps you to avoid many potential issues. The tool significantly simplifies the migration of all protocols, network, and services configurations along with the data migration.

About this task

This procedure provides the high-level tasks you have to perform for transition using SnapMirror.

Steps

1. *Verify that the volumes you plan to transition are supported for transition*.
2. *Prepare the 7-Mode system for transition*.
3. *Prepare the cluster for transition*.
4. *Create a transition peer relationship between the 7-Mode system as the source and the SVM as the destination*.
5. *Copy the data from the 7-Mode volume to the clustered Data ONTAP volume by creating a SnapMirror relationship between the two volumes*.

After you finish

After data migration finishes, you must perform the following tasks:

- Optional: Create a data LIF on the SVM to enable client access.
  Clustered Data ONTAP 8.3 Network Management Guide.
- Configure protocols, networking, and services on the SVM.
  - *Clustered Data ONTAP 8.3 Network Management Guide*.
  - *Clustered Data ONTAP 8.3 File Access Management Guide for CIFS*
  - *Clustered Data ONTAP 8.3 File Access Management Guide for NFS*
- Create igroups and map LUNs
  Clustered Data ONTAP 8.3 SAN Administration Guide
- If you transition volumes with LUNs, you must perform the required post-transition tasks on the hosts before restoring access to the transitioned clustered Data ONTAP volumes.
  7-Mode Transition Tool 2.2 SAN Host Transition and Remediation Guide

Related information

NetApp Support

Planning for transition

Before copying data from 7-Mode volumes to clustered Data ONTAP volumes, you must understand when to use SnapMirror to perform the transition and review the information for supported 7-Mode versions and supported volumes for transition. You must also be aware of certain transition considerations.

You must review the *Clustered Data ONTAP Release Notes* for the transition target release for a listing of the transition issues.

You can use SnapMirror to transition data in the following scenarios:

- The 7-Mode Transition Tool does not support your requirements for transition; for example, the 7-Mode Transition Tool requires a Windows or Linux host that might be unavailable in your environment.

  Recommendation: You should use the 7-Mode Transition Tool to transition 7-Mode volumes because the tool provides prechecks to verify the feasibility of transition and migrates all protocol, network, and services configurations along with the data.

  You can install and use the 7-Mode Transition Tool to perform the prechecks for transitioning and then use SnapMirror commands to perform the data migration from the 7-Mode volume to the clustered Data ONTAP volume.

- The cluster and Storage Virtual Machine (SVM) are already configured and only the data has to be transitioned from the 7-Mode volumes to the clustered Data ONTAP volumes.

Features and volumes not supported for transition

You cannot transition certain 7-Mode volumes, such as traditional volumes or SnapLock volumes, and certain 7-Mode features, such as synchronous SnapMirror relationships, because some features might not be available in clustered Data ONTAP.

Transitioning a 7-Mode volume to an SVM with Infinite Volume is not supported. You can transition a 7-Mode volume only to an SVM with FlexVol volumes.

You cannot transition the following 7-Mode volumes or configurations:

- Restricted or offline volumes
- Traditional volumes
- Volumes with NFS-to-CIFS character mapping (charmap)
- Volumes with Storage-Level Access Guard configurations
- Volumes that contain qtrees with Storage-Level Access Guard configurations
  If the target cluster is running Data ONTAP 8.3.1 or later, you can transition volumes that contain qtrees with this configuration.
- Volumes with the `no_i2p` option enabled.
- SnapLock volumes
- FlexCache volumes
- 32-bit volumes and 64-bit volumes that have 32-bit Snapshot copies if the destination cluster is running Data ONTAP 8.3 or later
- FlexClone volumes
  FlexClone volumes can be transitioned as FlexVol volumes, but the clone hierarchy and storage efficiency will be lost.

- Root volume of a vFiler unit, where the root volume is based on a qtree that belongs to the default vFiler unit
- Synchronous SnapMirror configuration
- Qtree SnapMirror relationships
- IPv6 configurations
- SnapVault relationships
- Network compression for SnapMirror
- Restoring the destination volume to a specific Snapshot copy (SnapMirror `break -s` command)
- Volume move operation

Features not supported for SAN transition

You should be aware of the 7-Mode SAN features that are not supported in clustered Data ONTAP so that you can take any necessary actions before the transition.

The following 7-Mode SAN features are not supported in clustered Data ONTAP:

- Snapshot copy-backed LUN clones
  Snapshot copy-backed LUN clones present in the Snapshot copies are not supported for any restore operation. These LUNs are not accessible in clustered Data ONTAP. You must split or delete the 7-Mode Snapshot copy backed LUN clones before transition.
- LUNs with ostype of **`vld`**, **`image`**, or **`any user-defined string LUNs`**
  You must either change the ostype of such LUNs or delete the LUNs before transition.
- LUN clone split
  You must either wait for the active LUN clone split operations to complete or abort the LUN clone split and delete the LUN before transition.
- The `lun share` command
  Sharing a LUN over NAS protocols is not supported in clustered Data ONTAP.
- SnapValidator

7-Mode version requirements for transition

You should be aware of the versions of Data ONTAP operating in 7-Mode that are supported for transitioning to clustered Data ONTAP 8.3 or later.

If the 7-Mode system has only 64-bit aggregates and volumes, you can transition volumes from systems running the following 7-Mode versions to clustered Data ONTAP 8.3 or later:

- Data ONTAP 8.0
- Data ONTAP 8.0.1
- Data ONTAP 8.0.2
- Data ONTAP 8.0.3
- Data ONTAP 8.0.4
- Data ONTAP 8.0.5
- Data ONTAP 8.1
- Data ONTAP 8.1.2

- Data ONTAP 8.1.3
- Data ONTAP 8.1.4
- Data ONTAP 8.2
- Data ONTAP 8.2.1
- Data ONTAP 8.2.2
- Data ONTAP 8.2.3
- Data ONTAP 8.2.4

If the 7-Mode system is running Data ONTAP 8.0.x, 8.1.x, or 8.2 and has 32-bit aggregates or volumes with 32-bit Snapshot copies, you must upgrade to 8.1.4 P4 or 8.2.1. After upgrading, you must expand the 32-bit aggregates to 64-bit, and then find and remove any 32-bit data.

You must upgrade the following 7-Mode versions to Data ONTAP 8.1.4 P4 before transitioning to clustered Data ONTAP 8.3 or later:

- Data ONTAP 7.3.3
- Data ONTAP 7.3.4
- Data ONTAP 7.3.5
- Data ONTAP 7.3.6
- Data ONTAP 7.3.7

Considerations for using SnapMirror for transition

You must be aware of certain considerations when running transition operations simultaneously with SnapMirror or SnapVault operations occurring in the 7-Mode system, such as the maximum number of concurrent SnapMirror transfers, data copy schedules, and using multiple paths for transition.

Maximum number of concurrent SnapMirror transfers

During transition, the maximum number of concurrent SnapMirror transfers supported on the 7-Mode and clustered Data ONTAP systems depends on the number of volume SnapMirror replication operations allowed for a specific storage system model.

For information about the maximum number of concurrent volume SnapMirror transfers for your system model, see the *Data ONTAP Data Protection Online Backup and Recovery Guide for 7-Mode*.

Data copy schedules

Data copy schedules for transition operations should not overlap with existing schedules for SnapMirror or SnapVault operations running on the 7-Mode system.

Using multiple paths for transition

You can specify two paths for transition by using a data copy IP address and a multipath IP address. However, both paths can be used only for load-balancing, not for failover.

Related information

Documentation on the NetApp Support Site: mysupport.netapp.com

Space considerations when transitioning SAN volumes

You must ensure that sufficient space is available in the volumes during transition. In addition to the space required for storing data and Snapshot copies, the transition process also requires 1 MB of space per LUN for updating certain filesystem metadata.

Before cutover, you can use the `df -h` command on the 7-Mode volume to verify whether free space of 1 MB per LUN is available in the volume. If the volume does not have sufficient free space available, the required amount of space must be added to the 7-Mode volume.

If the transition of LUNs fails due to lack of space on the destination volume, the following EMS message is generated: `LUN.vol.proc.fail.no.space: Processing for LUNs in volume vol1 failed due to lack of space.`

In this case, you must set the `filesys-size-fixed` attribute to **`false`** on the destination volume, and then add 1 MB per LUN of free space to the volume.

If there are volumes containing space-reserved LUNs, growing the volume by 1MB per LUN might not provide sufficient space. In such cases, the amount of additional space that has to be added is the size of the Snapshot reserve for the volume. After space is added to the destination volume, you can use the `lun transition start` command to transition the LUNs.

Related information

NetApp Documentation: Data ONTAP 8 (current releases)
NetApp Technical Report 3784: Data Protection Handbook

Preparing for transition

Before you start the transition, you must prepare the 7-Mode storage system and cluster before transitioning 7-Mode volumes to clustered Data ONTAP. You must also create a transition peer relationship between the 7-Mode system and the Storage Virtual Machine (SVM).

License requirements for transition

Before you transition a volume from 7-Mode to clustered Data ONTAP, you must ensure that SnapMirror is licensed on the 7-Mode storage system. If you are transitioning a 7-Mode volume SnapMirror relationship, SnapMirror licenses are also required on the source and destination clusters.

If SnapMirror is already licensed on your 7-Mode system, you can use the same license for transition. If you do not have the 7-Mode SnapMirror license, you can obtain a temporary SnapMirror license for transition from your sales representative.

Feature licenses that are enabled on the 7-Mode system must be added to the cluster. For information about obtaining feature licenses on the cluster, see the *Clustered Data ONTAP System Administration Guide for Cluster Administrators*.

Related information

Documentation on the NetApp Support Site: mysupport.netapp.com

Preparing the 7-Mode system for transition

Before starting the transition, you must complete certain tasks on the 7-Mode system, such as adding the SnapMirror license and the 7-Mode system to communicate with the target cluster.

Before you begin

All the 7-Mode volumes that you want to transition must be online.

Steps

1. Add and enable the SnapMirror license on the 7-Mode system:
   a. Add the SnapMirror license on the 7-Mode system:
      license add *license_code*
      license_code is the license code you purchased.
   b. Enable the SnapMirror functionality:
      options snapmirror.enable on
2. Configure the 7-Mode system and the target cluster to communicate with each other by choosing one of the following options:
   - Set the `snapmirror.access` option to **all**.
   - Set the value of the `snapmirror.access` option to the IP addresses of all the LIFs on the cluster.
   - If the `snapmirror.access` option is **legacy** and the `snapmirror.checkip.enable` option is **off**, add the SVM name to the `/etc/snapmirror.allow` file.
   - If the `snapmirror.access` option is **legacy** and the `snapmirror.checkip.enable` option is **on**, add the IP addresses of the LIFs to the `/etc/snapmirror.allow` file.
3. Depending on the Data ONTAP version of your 7-Mode system, perform the following steps:
   a. Allow SnapMirror traffic on all the interfaces:
      options interface.snapmirror.blocked ""
   b. If you are running Data ONTAP version 7.3.7, 8.0.3, or 8.1 and you are using the IP address of the e0M interface as the management IP address to interact with 7-Mode Transition Tool, allow data traffic on the e0M interface:
      options interface.blocked.mgmt_data_traffic off

Preparing the cluster for transition

You must set up the cluster before transitioning a 7-Mode system and ensure that the cluster meets requirements such as setting up LIFs and verifying network connectivity for transition.

Before you begin

- The cluster and the SVM must already be set up.
  Clustered Data ONTAP 8.3 Software Setup Guide
  The target SVM must not be in an SVM disaster recovery relationship.
- The cluster must be reachable by using the cluster-management LIF.
- The cluster must be healthy and none of the nodes must be in takeover mode.
- The target aggregates, which will contain the transitioned volumes, must have an SFO policy.
- The aggregates must be on nodes that have not reached the maximum volume limit.
- For establishing an SVM peer relationship when transitioning a volume SnapMirror relationship, the following conditions must be met:
  - The secondary cluster should not have an SVM with the same name as that of the primary SVM.

- The primary cluster should not have an SVM with the same name as that of the secondary SVM.
- The name of the source 7-Mode system should not conflict with any of the local SVMs or already peered SVMs.

About this task

You can set up intercluster LIFs or local LIFs that are in the default IPspace, on each node of the cluster to communicate between the cluster and 7-Mode systems. If you have set up local LIFs, then you do not have to set up intercluster LIFs. If you have set up both intercluster LIFs and local LIFs, then the local LIFs are preferred.

Step

1. Create the intercluster LIF on each node of the cluster for communication between the cluster and 7-Mode system:

   a. Create an intercluster LIF by using the `network interface create` command.

   Example

   ```
   cluster1::> network interface create -vserver cluster1-01 -lif
   intercluster_lif -role intercluster -home-node cluster1-01 -home-
   port e0c -address
   192.0.2.130 -netmask 255.255.255.0
   ```

   b. Create a static route for the intercluster LIF by using the `network route create` command.

   Example

   ```
   cluster1::> network route create -vserver vs0 -destination
   0.0.0.0/0 -gateway 10.61.208.1
   ```

   c. Verify that you can use the intercluster LIF to ping the 7-Mode system by using the `network ping` command.

   Example

   ```
   cluster1::> network ping -lif intercluster_lif -lif-owner
   cluster1-01 -destination system7mode
   system7mode is alive
   ```

   For multipathing, you must have two intercluster LIFs on each node.

   Clustered Data ONTAP 8.3 Network Management Guide

Related tasks

Creating a transition peer relationship on page 11

Related information

NetApp Documentation: Product Library A-Z

Creating a transition peer relationship

You must create a transition peer relationship before you can set up a SnapMirror relationship for transition between a 7-Mode system and a cluster. As a cluster administrator, you can create a transition peer relationship between an SVM and a 7-Mode system by using the `vserver peer transition create` command.

Before you begin

- You must have ensured that the name of the source 7-Mode system does not conflict with any of local SVMs or already peered SVMs.
- You must have created a clustered Data ONTAP volume of type **`DP`** to which the 7-Mode data must be transitioned.
  The size of the clustered Data ONTAP volume must be equal to or greater than the size of the 7-Mode volume.
- You must have ensured that the SVM names do not contain a "."
- If you are using local LIFs, you must have ensured the following:
  - Local LIFs are created in the default IPspace
  - Local LIFs are configured on the node on which the volume resides
  - LIF migration policy is same as the volume node, so that both can migrate to the same destination node

About this task

When creating a transition peer relationship, you can also specify a multipath FQDN or IP address for load balancing the data transfers.

Steps

1. Use the `vserver peer transition create` command to create a transition peer relationship.
2. Use the `vserver peer transition show` to verify that the transition peer relationship is created successfully.

Example of creating and viewing transition peer relationships

The following command creates a transition peer relationship between the SVM vs1 and the 7-Mode system src1 with the multipath address src1-e0d and local LIFs lif1 and lif2:

```
cluster1::> vserver peer transition create -local-vserver vs1 -src-
filer-name src1 -multi-path-address src1-e0d -local-lifs lif1,lif2
```

The following examples show a transition peer relationship between a single SVM (vs1) and multiple 7-Mode systems:

```
cluster1::> vserver peer transition create -local-vserver vs1 -src-
filer-name src3
Transition peering created

cluster1::> vserver peer transition create -local-vserver vs1 -src-
filer-name src2
Transition peering created
```

The following output shows the transition peer relationships of the SVM vs1:

```
cluster1::> vserver peer transition show
Vserver  Source Filer  Multi Path Address   Local LIFs
-------  ------------  -----------------    ---------
vs1      src2          -                    -
vs1      src3          -                    -
```

Transitioning volumes

You can transition a stand-alone volume or volumes that are in data protection relationships (in volume SnapMirror relationships) by using SnapMirror technology.

About this task

If an ongoing scheduled update is aborted due to an NDO operation (takeover or aggregate relocation), then the update will automatically resume after the NDO operation is complete.

After you finish

If you transition a stand-alone volume or a volume SnapMirror relationship with LUNs, you must create igroups and map LUNs. You must then perform the required post-transition tasks on the hosts before configuring access to the transitioned clustered Data ONTAP volumes.

7-Mode Transition Tool 2.2 SAN Host Transition and Remediation Guide

Choices

- Transitioning a stand-alone volume on page 12
- Transitioning a volume SnapMirror relationship on page 17

Related tasks

Transitioning 7-Mode volumes using SnapMirror on page 4

Transitioning a stand-alone volume

Transitioning a stand-alone volume involves creating a SnapMirror relationship, performing a baseline transfer, performing incremental updates, monitoring the data copy operation, breaking the SnapMirror relationship, and moving client access from the 7-Mode volume to the clustered Data ONTAP volume.

Before you begin

- The cluster and SVM must already be set up.
- You must have reviewed the information in *Preparing for transition*.

Steps

1. Copy data from the 7-Mode volume to the clustered Data ONTAP volume:
   a. Use the `snapmirror create` command with the relationship type as **`TDP`** to create a SnapMirror relationship between the 7-Mode system and the SVM.

Example

```
cluster1::> snapmirror create -source-path system7mode:dataVol20 -
destination-path vs1:dst_vol -type TDP
Operation succeeded: snapmirror create the relationship with
destination vs1:dst_vol.
```

b. Use the `snapmirror initialize` command to start the baseline transfer.

Example

```
cluster1::> snapmirror initialize -destination-path vs1:dst_vol
Operation is queued: snapmirror initialize of destination
vs1:dst_vol.
```

c. Use the `snapmirror show` command to monitor the status.

Example

```
cluster1::>snapmirror show -destination-path vs1:dst_vol

                           Source Path: system7mode:dataVol20
                      Destination Path: vs1:dst_vol
                     Relationship Type: TDP
                Relationship Group Type: none
                    SnapMirror Schedule: -
                 SnapMirror Policy Type: async-mirror
                      SnapMirror Policy: DPDefault
                            Tries Limit: -
                      Throttle (KB/sec): unlimited
                           Mirror State: Snapmirrored
                    Relationship Status: Idle
                File Restore File Count: -
                 File Restore File List: -
                      Transfer Snapshot: -
                      Snapshot Progress: -
                         Total Progress: -
              Network Compression Ratio: -
                    Snapshot Checkpoint: -
                        Newest Snapshot: vs1(4080431166)_dst_vol.1
              Newest Snapshot Timestamp: 10/16 02:49:03
                        Exported Snapshot: vs1(4080431166)_dst_vol.1
            Exported Snapshot Timestamp: 10/16 02:49:03
                                Healthy: true
                         Unhealthy Reason: -
               Constituent Relationship: false
                Destination Volume Node: cluster1-01
                        Relationship ID:
97b205a1-54ff-11e4-9f30-005056a68289
                     Current Operation ID: -
                            Transfer Type: -
                           Transfer Error: -
                          Current Throttle: -
              Current Transfer Priority: -
                     Last Transfer Type: initialize
                    Last Transfer Error: -
                     Last Transfer Size: 152KB
Last Transfer Network Compression Ratio: 1:1
                  Last Transfer Duration: 0:0:6
                      Last Transfer From: system7mode:dataVol20
             Last Transfer End Timestamp: 10/16 02:43:53
                   Progress Last Updated: -
                 Relationship Capability: 8.2 and above
                               Lag Time: -
            Number of Successful Updates: 0
                Number of Failed Updates: 0
```

```
            Number of Successful Resyncs: 0
                Number of Failed Resyncs: 0
             Number of Successful Breaks: 0
                 Number of Failed Breaks: 0
                    Total Transfer Bytes: 155648
          Total Transfer Time in Seconds: 6
```

d. Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to...	Then...

Update transfers manually	**i.** Use the `snapmirror update` command.
	`cluster1::> snapmirror update -destination-path vs1:dst_vol`
	ii. Use the `snapmirror show` command to monitor the data copy status.
	`cluster1::> snapmirror show -destination-path vs1:dst_vol`
	`Source Path: system7mode:dataVol20`
	`Destination Path: vs1:dst_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: -`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: vs1(4080431166)_dst_vol.2`
	`Newest Snapshot Timestamp: 10/16 02:52:45`
	`Exported Snapshot: vs1(4080431166)_dst_vol.2`
	`Exported Snapshot Timestamp: 10/16 02:52:45`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: cluster1-01`
	`Relationship ID: 97b205a1-54ff-11e4-9f30-005056a68289`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 120KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:5`
	`Last Transfer From: system7mode:dataVol20`
	`Last Transfer End Timestamp: 10/16 02:47:34`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 278528`
	`Total Transfer Time in Seconds: 11`
	iii. Go to *3*.

If you want to...	Then...

Perform scheduled update transfers	**i.** Use the `job schedule cron create` command to create a schedule for update transfers.
	`cluster1::> job schedule cron create -name 15_minute_sched -minute 15`
	ii. Use the `snapmirror modify` command to apply the schedule to the SnapMirror relationship.
	`cluster1::> snapmirror modify -destination-path vs1:dst_vol -schedule 15_minute_sched`
	iii. Use the `snapmirror show` command to monitor the data copy status.
	`cluster1::> snapmirror show -destination-path vs1:dst_vol`
	`Source Path: system7mode:dataVol20`
	`Destination Path: vs1:dst_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: 15_minute_sched`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: vs1(4080431166)_dst_vol.2`
	`Newest Snapshot Timestamp: 10/16 02:52:45`
	`Exported Snapshot: vs1(4080431166)_dst_vol.2`
	`Exported Snapshot Timestamp: 10/16 02:52:45`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: cluster1-01`
	`Relationship ID:`
	`97b205a1-54ff-11e4-9f30-005056a68289`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 120KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:5`
	`Last Transfer From: system7mode:dataVol20`
	`Last Transfer End Timestamp: 10/16 02:47:34`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 278528`
	`Total Transfer Time in Seconds: 11`

2. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:

a. Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
cluster1::> snapmirror quiesce -destination-path vs1:dst_vol
```

b. Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
cluster1::> snapmirror modify -destination-path vs1:dst_vol -schedule ""
```

c. Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
cluster1::> snapmirror resume -destination-path vs1:dst_vol
```

3. Wait for any ongoing transfers between the 7-Mode volumes and the clustered Data ONTAP volumes to finish, and then disconnect client access from the 7-Mode volumes to start cutover.
4. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror update -destination-path vs1:dst_vol
Operation is queued: snapmirror update of destination vs1:dst_vol.
```

5. Use the `snapmirror show` command to verify that the last transfer was successful.
6. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror break -destination-path vs1:dst_vol
[Job 60] Job succeeded: SnapMirror Break Succeeded
```

7. If your volumes have LUNs configured, at the advanced privilege level, use the `lun transition 7-mode show` command to verify that the LUNs were transitioned.

   You can also use the `lun show` command on the clustered Data ONTAP volume to view all of the LUNs that were successfully transitioned.
8. Use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror delete -destination-path vs1:dst_vol
```

9. Use the `snapmirror release` command to remove the SnapMirror relationship information from the 7-Mode system.

Example

```
system7mode> snapmirror release dataVol20 vs1:dst_vol
```

After you finish

You must delete the SVM peer relationship between the 7-Mode system and the SVM when all of the required volumes in the 7-Mode system are transitioned to the SVM.

Related tasks

Resuming a failed SnapMirror baseline transfer on page 36
Recovering from a failed LUN transition on page 36

Transitioning a volume SnapMirror relationship

You can transition a 7-Mode volume SnapMirror relationship and retain the data protection relationship by transitioning the secondary volume before the primary volume.

Before you begin

- The primary and secondary clusters and SVMs must already be set up.
- For establishing an SVM peer relationship when transitioning a volume SnapMirror relationship, the following conditions must be met:
  - The secondary cluster should not have an SVM with the same name as that of the primary SVM.
  - The primary cluster should not have an SVM with the same name as that of the secondary SVM.
  - You must have reviewed the information in *Preparing for transition*.

Steps

1. Transitioning a secondary volume on page 17
2. Transitioning a primary volume on page 22

Related tasks

Resuming a failed SnapMirror baseline transfer on page 36

Transitioning a secondary volume

Transitioning a secondary volume involves creating a SnapMirror relationship, performing a baseline transfer, performing incremental updates, and setting up a SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Before you begin

The secondary cluster and SVM must already be set up.

Steps

1. Copy data from the 7-Mode volume to the clustered Data ONTAP volume:
   a. Use the `snapmirror create` command with the relationship type as **`TDP`** to create a SnapMirror relationship between the 7-Mode system and the SVM.

      Example

      ```
      sec_cluster::> snapmirror create -source-path sec_system:dst_7_vol
      -destination-path dst_vserver:dst_c_vol -type TDP
      Operation succeeded: snapmirror create the relationship with
      destination dst_vserver:dst_c_vol.
      ```

   b. Use the `snapmirror initialize` command to start the baseline transfer.

Example

```
sec_cluster::> snapmirror initialize -destination-path
dst_vserver:dst_c_vol
Operation is queued: snapmirror initialize of destination
dst_vserver:dst_c_vol.
```

c. Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to...	Then...

Update transfers manually	**i.** Use the `snapmirror update` command.
	`sec_cluster::> snapmirror update -destination-path dst_vserver:dst_c_vol`
	ii. Use the `snapmirror show` command to monitor the data copy status.
	`sec_cluster::> snapmirror show -destination-path dst_vserver:dst_c_vol`
	`Source Path: sec_system:dst_7_vol`
	`Destination Path: dst_vserver:dst_c_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: -`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: dst_vserver(4080431166)_dst_c_vol.2`
	`Newest Snapshot Timestamp: 10/16 02:52:45`
	`Exported Snapshot: dst_vserver(4080431166)_dst_c_vol.2`
	`Exported Snapshot Timestamp: 10/16 02:52:45`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: sec_cluster1-01`
	`Relationship ID: 97b205a1-54ff-11e4-9f30-005056a68289`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 120KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:5`
	`Last Transfer From: sec_system:dst_7_vol`
	`Last Transfer End Timestamp: 10/16 02:47:34`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 278528`
	`Total Transfer Time in Seconds: 11`
	iii. Go to *3*.

If you want to...	Then...

Perform scheduled update transfers	**i.** Use the `job schedule cron create` command to create a schedule for update transfers.
	`sec_cluster::> job schedule cron create -name 15_minute_sched -minute 15`
	ii. Use the `snapmirror modify` command to apply the schedule to the SnapMirror relationship.
	`sec_cluster::> snapmirror modify -destination-path dst_vserver:dst_c_vol -schedule 15_minute_sched`
	iii. Use the `snapmirror show` command to monitor the data copy status.
	`sec_cluster::> snapmirror show -destination-path dst_vserver:dst_c_vol`
	`Source Path: sec_system:dst_7_vol`
	`Destination Path: dst_vserver:dst_c_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: 15_minute_sched`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: dst_vserver(4080431166)_dst_c_vol.2`
	`Newest Snapshot Timestamp: 10/16 02:52:45`
	`Exported Snapshot: dst_vserver(4080431166)_dst_c_vol.2`
	`Exported Snapshot Timestamp: 10/16 02:52:45`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: sec_cluster1-01`
	`Relationship ID: 97b205a1-54ff-11e4-9f30-005056a68289`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 120KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:5`
	`Last Transfer From: sec_system:dst_7_vol`
	`Last Transfer End Timestamp: 10/16 02:47:34`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 278528`
	`Total Transfer Time in Seconds: 11`

2. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:

a. Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
sec_cluster::> snapmirror quiesce -destination-path dst_vserver:dst_vol
```

b. Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
sec_cluster::> snapmirror modify -destination-path dst_vserver:dst_vol -
schedule ""
```

c. Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
sec_cluster::> snapmirror resume -destination-path dst_vserver:dst_vol
```

3. Wait for any ongoing transfers between the 7-Mode volumes and the clustered Data ONTAP volumes to finish, and then disconnect client access from the 7-Mode volumes to start cutover.
4. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP volume.

Example

```
sec_cluster::> snapmirror update -destination-path dst_vserver:dst_vol
Operation is queued: snapmirror update of destination
dst_vserver:dst_vol.
```

5. Use the `snapmirror show` command to verify that the last transfer was successful.
6. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode secondary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror break -destination-path dst_vserver:dst_vol
[Job 60] Job succeeded: SnapMirror Break Succeeded
```

7. If your volumes have LUNs configured, at the advanced privilege level, use the `lun transition 7-mode show` command to verify that the LUNs were transitioned.

   You can also use the `lun show` command on the clustered Data ONTAP volume to view all of the LUNs that were successfully transitioned.
8. Use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode secondary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror delete -destination-path dst_vserver:dst_vol
```

9. Use the `snapmirror release` command to remove the SnapMirror relationship information from the 7-Mode system.

Example

```
system7mode> snapmirror release dataVol20 vs1:dst_vol
```

10. Establish a disaster recovery relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume:

a. Use the `vserver peer transition create` command to create an SVM peer relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> vserver peer transition create -local-vserver
dst_vserver -src-filer-name src_system
Transition peering created
```

b. Use the `job schedule cron create` command to create a job schedule that matches the schedule configured for the 7-Mode SnapMirror relationship.

Example

```
sec_cluster::> job schedule cron create -name 15_minute_sched -
minute 15
```

c. Use the `snapmirror create` command to create a SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror create -source-path src_system:src_7_vol
-destination-path dst_vserver:dst_c_vol -type TDP -schedule
15_minute_sched
Operation succeeded: snapmirror create the relationship with
destination dst_vserver:dst_c_vol.
```

d. Use the `snapmirror resync` command to resynchronize the clustered Data ONTAP secondary volume.

For successful resynchronization, a common 7-Mode Snapshot copy must exist between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror  resync -destination-path
dst_vserver:dst_c_vol
```

After you finish

- If the target cluster is running Data ONTAP 8.3.2 or later, create the required igroups and map the LUNs manually.
- If the target cluster is running Data ONTAP 8.3.1 or earlier, map the secondary LUNs manually after completing the storage cutover of the primary volumes.
- Delete the SVM peer relationship between the secondary 7-Mode system and the secondary SVM when all of the required volumes in the 7-Mode system are transitioned to the SVM.
- Delete the SnapMirror relationship between the 7-Mode primary and the 7-Mode secondary systems.

Related tasks

Recovering from a failed LUN transition on page 36

Transitioning a primary volume

Transitioning a primary volume involves copying data from the 7-Mode primary volumes to the clustered Data ONTAP primary volumes, deleting the disaster recovery relationship between the 7-Mode primary and clustered Data ONTAP secondary volumes, and establishing a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Before you begin

The primary cluster and SVM must already be set up.

Steps

1. Copy the data from the 7-Mode primary volume to the clustered Data ONTAP primary volume:
   a. Use the `snapmirror create` command with the relationship type as **`TDP`** to create a SnapMirror relationship between the 7-Mode system and the SVM.

      Example

      ```
      pri_cluster::> snapmirror create -source-path src_system:finance -
      destination-path src_vserver:src_c_vol -type TDP
      Operation succeeded: snapmirror create the relationship with
      destination src_vserver:src_c_vol.
      ```

   b. Use the `snapmirror initialize` command to start the baseline transfer.

      Example

      ```
      pri_cluster::> snapmirror  initialize -destination-path
      src_vserver:src_c_vol
      Operation is queued: snapmirror initialize of destination
      src_vserver:src_c_vol.
      ```

   c. Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to...	Then...

Update transfers manually	**i.** Use the `snapmirror update` command.
	`pri_cluster::> snapmirror update -destination-path src_vserver:src_c_vol`
	ii. Use the `snapmirror show` command to monitor the data copy status.
	`pri_cluster::> snapmirror show -destination-path src_vserver:src_c_vol`
	`Source Path: pri_system:src_7_vol`
	`Destination Path: src_vserver:src_c_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: -`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: src_vserver(4053132614)_src_c_vol.1`
	`Newest Snapshot Timestamp: 02/13 08:10:46`
	`Exported Snapshot: src_vserver(4053132614)_src_c_vol.1`
	`Exported Snapshot Timestamp: 02/13 08:10:46`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: cluster1-01`
	`Relationship ID: e106827a-75b3-11e2-add9-123478563412`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 580KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:6`
	`Last Transfer From: pri_system:src_7_vol`
	`Last Transfer End Timestamp: 09/30 08:05:06`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 473163808768`
	`Total Transfer Time in Seconds: 43405`
	iii. Go to *3*.

If you want to...	Then...

Perform scheduled update transfers	**i.** Use the `job schedule cron create` command to create a schedule for update transfers.
	`pri_cluster::> job schedule cron create -name 15_minute_sched -minute 15`
	ii. Use the `snapmirror modify` command to apply the schedule to the SnapMirror relationship.
	`pri_cluster::> snapmirror modify -destination-path src_vserver:src_c_vol -schedule 15_minute_sched`
	iii. Use the `snapmirror show` command to monitor the data copy status.
	`pri_cluster::> snapmirror show -destination-path src_vserver:src_c_vol`
	`Source Path: pri_system:src_7_vol`
	`Destination Path: src_vserver:src_c_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: 15_minute_sched`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: src_vserver(4053132614)_src_c_vol.1`
	`Newest Snapshot Timestamp: 02/13 08:10:46`
	`Exported Snapshot: src_vserver(4053132614)_src_c_vol.1`
	`Exported Snapshot Timestamp: 02/13 08:10:46`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: cluster1-01`
	`Relationship ID: e106827a-75b3-11e2-add9-123478563412`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 580KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:6`
	`Last Transfer From: pri_system:src_7_vol`
	`Last Transfer End Timestamp: 09/30 08:05:06`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 473163808768`
	`Total Transfer Time in Seconds: 43405`

2. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:

a. Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
pri_cluster::> snapmirror quiesce -destination-path src_vserver:src_c_vol
```

b. Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
pri_cluster::> snapmirror modify -destination-path src_vserver:src_c_vol -
schedule ""
```

c. Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
pri_cluster::> snapmirror resume -destination-path src_vserver:src_c_vol
```

3. Create an SVM peer relationship between the clustered Data ONTAP secondary and primary SVMs.

a. Use the `cluster peer create` command to create a cluster peer relationship.

Example

```
pri_cluster::> cluster peer create -peer-addrs cluster2-d2,
10.98.234.246 -timeout 60

Notice: Choose a passphrase of 8 or more characters. To ensure the
authenticity of the peering relationship, use a phrase or sequence
of characters that would be hard to guess.

Enter the passphrase: ********
Confirm the passphrase: ********
```

b. From the source cluster, use the `vserver peer create` command to create the SVM peer relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
pri_cluster::> vserver peer create -vserver src_vserver -
peervserver src_c_vserver -applications snapmirror -peer-cluster
sec_cluster
```

c. From the destination cluster, use the `vserver peer accept` command to accept the SVM peer request and establish the SVM peer relationship.

Example

```
sec_cluster::> vserver peer accept -vserver dst_vserver -
peervserver src_vserver
```

4. From the destination cluster, use the `snapmirror quiesce` command to suspend any data transfers between the 7-Mode primary volume and the clustered Data ONTAP secondary volume if a schedule is set up for update transfers.

Example

```
sec_cluster::> snapmirror quiesce -destination-path dst_vserver:dst_c_vol
```

5. Monitor the data copy operation and initiate cutover:

a. Wait for any ongoing transfers from the 7-Mode primary volumes to the clustered Data ONTAP primary and clustered Data ONTAP secondary volumes to finish, and then disconnect client access from the 7-Mode primary volume to start cutover.

b. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP primary volume from the 7-Mode primary volume.

Example

```
pri_cluster::> snapmirror update -destination-path
src_vserver:src_c_vol
```

c. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode primary volume and clustered Data ONTAP primary volume.

Example

```
pri_cluster::> snapmirror  break -destination-path
src_vserver:src_c_vol
[Job 1485] Job is queued: snapmirror break for destination
src_vserver:src_c_vol.
```

d. If your volumes have LUNs configured, at the advanced privilege level, use the `lun transition 7-mode show` command to verify that the LUNs have been transitioned.

You can also use the `lun show` command on the clustered Data ONTAP volume to view all of the LUNs that were successfully transitioned.

e. Use the `snapmirror delete` command to delete the relationship.

Example

```
pri_cluster::> snapmirror  delete -destination-path
src_vserver:src_c_vol
```

f. Use the `snapmirror release` command to remove the SnapMirror relationship information from the 7-Mode system.

Example

```
system7mode> snapmirror release dataVol20 vs1:dst_vol
```

6. From the destination cluster, break and delete the disaster recovery relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume.

a. Use the `snapmirror break` command to break the disaster recovery relationship between the 7-Mode primary volume and clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror  break -destination-path
dst_vserver:dst_c_vol
[Job 1485] Job is queued: snapmirror break for destination
dst_vserver:dst_c_vol.
```

b. Use the `snapmirror delete` command to delete the relationship.

Example

```
sec_cluster::> snapmirror  delete -destination-path
dst_vserver:dst_c_vol
```

c. Use the `snapmirror release` command to remove the SnapMirror relationship information from the 7-Mode system.

Example

```
system7mode> snapmirror release dataVol20 vs1:dst_vol
```

7. From the destination cluster, establish a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes:

a. Use the `snapmirror create` command to create a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
sec_cluster::> snapmirror create -source-path
src_vserver:src_c_vol -destination-path dst_vserver:dst_c_vol -
type DP -schedule 15_minute_sched
```

b. Use the `snapmirror resync` command to resynchronize the SnapMirror relationship between the clustered Data ONTAP volumes.

For successful resynchronization, a common Snapshot copy must exist between the clustered Data ONTAP primary and secondary volumes.

Example

```
sec_cluster::> snapmirror  resync -destination-path
dst_vserver:dst_c_vol
```

c. Use the `snapmirror show` command to verify that the status of SnapMirror resynchronization shows **`SnapMirrored`**.

Note: You must ensure that the SnapMirror resynchronization is successful to make the clustered Data ONTAP secondary volume available for read-only access.

After you finish

You must delete the SVM peer relationship between the 7-Mode system and the SVM when all the required volumes in the 7-Mode system are transitioned to the SVM.

Related tasks

Recovering from a failed LUN transition on page 36

Recovering from a disaster at the 7-Mode site during transition

If you have established a SnapMirror disaster recovery (DR) relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume and if a disaster occurs at the 7-Mode primary site, you can direct client access to the clustered Data ONTAP secondary volume. After the 7-Mode primary volume is brought back online, you have to perform additional steps to redirect the clients to the clustered Data ONTAP primary volume.

About this task

To retain any data written on the clustered Data ONTAP secondary volume after the disaster, you must transition the 7-Mode primary volume after the 7-Mode primary volume is back online and establish a SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes. You can then redirect the clients to the clustered Data ONTAP primary volumes.

SnapMirror resynchronization from clustered Data ONTAP volumes to the 7-Mode volumes is not supported. Therefore, if you reestablish the DR relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume after the disaster, any data written on the secondary clustered Data ONTAP will be lost.

Steps

1. Redirecting clients to the clustered Data ONTAP secondary volume after disaster on page 28
   When a disaster strikes at the 7-Mode primary volume, you can redirect the clients from the 7-Mode primary volume to the clustered Data ONTAP secondary volume.
2. Transitioning the 7-Mode primary as a stand-alone volume on page 29
   After the 7-Mode primary volume comes back online after the disaster, you must transition the 7-Mode primary volume. Because all SnapMirror relationships to the 7-Mode primary volume are broken and deleted at this stage, you can transition a stand-alone volume for this type of transition
3. Redirecting clients to the clustered Data ONTAP primary volume on page 34
   After transition to the clustered Data ONTAP primary volume is complete, you can resynchronize the clustered Data ONTAP primary volume for the data written on the clustered Data ONTAP secondary volume. You can then redirect the clients to the clustered Data ONTAP primary volume.

Redirecting clients to the clustered Data ONTAP secondary volume after a disaster

If you have established a SnapMirror disaster recovery (DR) relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume and if a disaster occurs at the 7-Mode primary site, you must redirect client access to the clustered Data ONTAP secondary volume.

Steps

1. From the secondary cluster, use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror break -destination-path
dst_vserver:dst_c_vol
```

2. From the secondary cluster, use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode primary volume and the clustered Data ONTAP secondary volume.

   Example

   ```
   sec_cluster::> snapmirror delete -destination-path
   dst_vserver:dst_c_vol
   ```

3. Redirect client access to the clustered Data ONTAP secondary volume.

   For more information about setting up client access in clustered Data ONTAP, see the *Clustered Data ONTAP File Access and Protocols Management Guide*.

Transitioning the 7-Mode primary as a stand-alone volume

After the 7-Mode primary volume is back online after a disaster, you must transition the 7-Mode primary volume. Because all SnapMirror relationships to the 7-Mode primary volume are broken and deleted at this stage, you can transition a stand-alone volume for this type of transition.

Steps

1. Copy data from the 7-Mode volume to the clustered Data ONTAP volume:

   a. Use the `snapmirror create` command with the relationship type as **`TDP`** to create a SnapMirror relationship between the 7-Mode system and the SVM.

      Example

      ```
      cluster1::> snapmirror create -source-path system7mode:dataVol20 -
      destination-path vs1:dst_vol -type TDP
      Operation succeeded: snapmirror create the relationship with
      destination vs1:dst_vol.
      ```

   b. Use the `snapmirror initialize` command to start the baseline transfer.

      Example

      ```
      cluster1::> snapmirror initialize -destination-path vs1:dst_vol
      Operation is queued: snapmirror initialize of destination
      vs1:dst_vol.
      ```

   c. Use the `snapmirror show` command to monitor the status.

      Example

      ```
      cluster1::>snapmirror show -destination-path vs1:dst_vol

                                  Source Path: system7mode:dataVol20
                               Destination Path: vs1:dst_vol
                             Relationship Type: TDP
                       Relationship Group Type: none
                           SnapMirror Schedule: -
      ```

```
                 SnapMirror Policy Type: async-mirror
                      SnapMirror Policy: DPDefault
                            Tries Limit: -
                      Throttle (KB/sec): unlimited
                           Mirror State: Snapmirrored
                    Relationship Status: Idle
                  File Restore File Count: -
                   File Restore File List: -
                      Transfer Snapshot: -
                      Snapshot Progress: -
                         Total Progress: -
              Network Compression Ratio: -
                    Snapshot Checkpoint: -
                        Newest Snapshot: vs1(4080431166)_dst_vol.1
              Newest Snapshot Timestamp: 10/16 02:49:03
                       Exported Snapshot: vs1(4080431166)_dst_vol.1
            Exported Snapshot Timestamp: 10/16 02:49:03
                                Healthy: true
                         Unhealthy Reason: -
                 Constituent Relationship: false
                  Destination Volume Node: cluster1-01
                          Relationship ID:
97b205a1-54ff-11e4-9f30-005056a68289
                    Current Operation ID: -
                           Transfer Type: -
                          Transfer Error: -
                         Current Throttle: -
              Current Transfer Priority: -
                     Last Transfer Type: initialize
                    Last Transfer Error: -
                     Last Transfer Size: 152KB
Last Transfer Network Compression Ratio: 1:1
                  Last Transfer Duration: 0:0:6
                      Last Transfer From: system7mode:dataVol20
             Last Transfer End Timestamp: 10/16 02:43:53
                   Progress Last Updated: -
                 Relationship Capability: 8.2 and above
                                Lag Time: -
            Number of Successful Updates: 0
                Number of Failed Updates: 0
            Number of Successful Resyncs: 0
                Number of Failed Resyncs: 0
             Number of Successful Breaks: 0
                 Number of Failed Breaks: 0
                    Total Transfer Bytes: 155648
          Total Transfer Time in Seconds: 6
```

d. Depending on whether you want to update the clustered Data ONTAP volume manually or by setting up a SnapMirror schedule, perform the appropriate action:

If you want to...	Then...

Update transfers manually	**i.** Use the `snapmirror update` command.
	`cluster1::> snapmirror update -destination-path vs1:dst_vol`
	ii. Use the `snapmirror show` command to monitor the data copy status.
	`cluster1::> snapmirror show -destination-path vs1:dst_vol`
	`Source Path: system7mode:dataVol20`
	`Destination Path: vs1:dst_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: -`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: vs1(4080431166)_dst_vol.2`
	`Newest Snapshot Timestamp: 10/16 02:52:45`
	`Exported Snapshot: vs1(4080431166)_dst_vol.2`
	`Exported Snapshot Timestamp: 10/16 02:52:45`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: cluster1-01`
	`Relationship ID: 97b205a1-54ff-11e4-9f30-005056a68289`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 120KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:5`
	`Last Transfer From: system7mode:dataVol20`
	`Last Transfer End Timestamp: 10/16 02:47:34`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 278528`
	`Total Transfer Time in Seconds: 11`
	iii. Go to *3*.

If you want to...	Then...

Perform scheduled update transfers	**i.** Use the `job schedule cron create` command to create a schedule for update transfers.
	`cluster1::> job schedule cron create -name 15_minute_sched -minute 15`
	ii. Use the `snapmirror modify` command to apply the schedule to the SnapMirror relationship.
	`cluster1::> snapmirror modify -destination-path vs1:dst_vol -schedule 15_minute_sched`
	iii. Use the `snapmirror show` command to monitor the data copy status.
	`cluster1::> snapmirror show -destination-path vs1:dst_vol`
	`Source Path: system7mode:dataVol20`
	`Destination Path: vs1:dst_vol`
	`Relationship Type: TDP`
	`Relationship Group Type: none`
	`SnapMirror Schedule: 15_minute_sched`
	`SnapMirror Policy Type: async-mirror`
	`SnapMirror Policy: DPDefault`
	`Tries Limit: -`
	`Throttle (KB/sec): unlimited`
	`Mirror State: Snapmirrored`
	`Relationship Status: Idle`
	`File Restore File Count: -`
	`File Restore File List: -`
	`Transfer Snapshot: -`
	`Snapshot Progress: -`
	`Total Progress: -`
	`Network Compression Ratio: -`
	`Snapshot Checkpoint: -`
	`Newest Snapshot: vs1(4080431166)_dst_vol.2`
	`Newest Snapshot Timestamp: 10/16 02:52:45`
	`Exported Snapshot: vs1(4080431166)_dst_vol.2`
	`Exported Snapshot Timestamp: 10/16 02:52:45`
	`Healthy: true`
	`Unhealthy Reason: -`
	`Constituent Relationship: false`
	`Destination Volume Node: cluster1-01`
	`Relationship ID: 97b205a1-54ff-11e4-9f30-005056a68289`
	`Current Operation ID: -`
	`Transfer Type: -`
	`Transfer Error: -`
	`Current Throttle: -`
	`Current Transfer Priority: -`
	`Last Transfer Type: update`
	`Last Transfer Error: -`
	`Last Transfer Size: 120KB`
	`Last Transfer Network Compression Ratio: 1:1`
	`Last Transfer Duration: 0:0:5`
	`Last Transfer From: system7mode:dataVol20`
	`Last Transfer End Timestamp: 10/16 02:47:34`
	`Progress Last Updated: -`
	`Relationship Capability: 8.2 and above`
	`Lag Time: -`
	`Number of Successful Updates: 1`
	`Number of Failed Updates: 0`
	`Number of Successful Resyncs: 0`
	`Number of Failed Resyncs: 0`
	`Number of Successful Breaks: 0`
	`Number of Failed Breaks: 0`
	`Total Transfer Bytes: 278528`
	`Total Transfer Time in Seconds: 11`

2. If you have a schedule for incremental transfers, perform the following steps when you are ready to perform cutover:

a. Optional: Use the `snapmirror quiesce` command to disable all future update transfers.

Example

```
cluster1::> snapmirror quiesce -destination-path vs1:dst_vol
```

b. Use the `snapmirror modify` command to delete the SnapMirror schedule.

Example

```
cluster1::> snapmirror modify -destination-path vs1:dst_vol -schedule ""
```

c. Optional: If you quiesced the SnapMirror transfers earlier, use the `snapmirror resume` command to enable SnapMirror transfers.

Example

```
cluster1::> snapmirror resume -destination-path vs1:dst_vol
```

3. Wait for any ongoing transfers between the 7-Mode volumes and the clustered Data ONTAP volumes to finish, and then disconnect client access from the 7-Mode volumes to start cutover.
4. Use the `snapmirror update` command to perform a final data update to the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror update -destination-path vs1:dst_vol
Operation is queued: snapmirror update of destination vs1:dst_vol.
```

5. Use the `snapmirror show` command to verify that the last transfer was successful.
6. Use the `snapmirror break` command to break the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror break -destination-path vs1:dst_vol
[Job 60] Job succeeded: SnapMirror Break Succeeded
```

7. If your volumes have LUNs configured, at the advanced privilege level, use the `lun transition 7-mode show` command to verify that the LUNs were transitioned.

   You can also use the `lun show` command on the clustered Data ONTAP volume to view all of the LUNs that were successfully transitioned.
8. Use the `snapmirror delete` command to delete the SnapMirror relationship between the 7-Mode volume and the clustered Data ONTAP volume.

Example

```
cluster1::> snapmirror delete -destination-path vs1:dst_vol
```

9. Use the `snapmirror release` command to remove the SnapMirror relationship information from the 7-Mode system.

Example

```
system7mode> snapmirror release dataVol20 vs1:dst_vol
```

Redirecting clients to the clustered Data ONTAP primary volume

After the 7-Mode primary volume comes back online, you can transition the 7-Mode primary volume, establish a SnapMirror relationship with the clustered Data ONTAP secondary volume, and redirect client access to the clustered Data ONTAP primary volume.

Steps

1. Create the SVM peer relationship between the primary and secondary SVMs.

   a. Use the `cluster peer create` command to create the cluster peer relationship.

   Example

   ```
   pri_cluster::> cluster peer create -peer-addrs cluster2-d2,
   10.98.234.246 -timeout 60

   Notice: Choose a passphrase of 8 or more characters. To ensure the
   authenticity of the peering relationship, use a phrase or sequence
   of characters that would be hard to guess.

   Enter the passphrase: ********
   Confirm the passphrase: ********
   ```

   b. From the source cluster, use the `vserver peer create` command to create an SVM peer relationship between the clustered Data ONTAP primary volume and clustered Data ONTAP secondary volume.

   Example

   ```
   pri_cluster::> vserver peer create -vserver src_vserver -
   peervserver src_c_vserver -applications snapmirror -peer-cluster
   sec_cluster
   ```

   c. From the destination cluster, use the `vserver peer accept` command to accept the SVM peer request and establish the SVM peer relationship.

   Example

   ```
   sec_cluster::> vserver peer accept -vserver dst_vserver -
   peervserver src_vserver
   ```

2. Use the `snapmirror create` command to create a SnapMirror relationship with the clustered Data ONTAP secondary volume as the source and the clustered Data ONTAP primary volume as destination.

   Example

   ```
   pri_cluster::> snapmirror create -source-path dst_vserver:dst_c_vol -
   destination-path src_vserver:src_c_vol
   ```

3. From the primary cluster, use the `snapmirror resync` command to resynchronize the clustered Data ONTAP secondary volume.

Example

```
pri_cluster::> snapmirror resync -source-path dst_vserver:dst_c_vol -
destination-path src_vserver:src_c_vol
```

You must wait till the resynchronization finishes. The SnapMirror state changes to **`SnapMirrored`** when resynchronization is complete.

4. When you are ready to switch over to the clustered Data ONTAP primary volume, disconnect client access from the clustered Data ONTAP secondary volume.
5. From the primary cluster, use the `snapmirror update` command to update the primary volume.

Example

```
pri_cluster::> snapmirror update -destination-path
src_vserver:src_c_vol
```

6. From the primary cluster, use the `snapmirror break` command to break the SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
pri_cluster::> snapmirror break -destination-path
src_vserver:src_c_vol
```

7. Enable client access to the clustered Data ONTAP primary volume.
8. From the primary cluster, use the `snapmirror delete` command to delete the SnapMirror relationship between the clustered Data ONTAP primary and secondary volumes.

Example

```
pri_cluster::> snapmirror delete -destination-path
src_vserver:src_c_vol
```

9. From the secondary cluster, use the `snapmirror create` command to create a SnapMirror relationship with the clustered Data ONTAP primary volume as the source and the clustered Data ONTAP secondary volume as destination, with a schedule similar to the previous schedule between the 7-Mode primary volume and clustered Data ONTAP secondary volume.

Example

```
sec_cluster::> snapmirror create -source-path src_vserver:src_c_vol -
destination-path dst_vserver:dst_c_vol -schedule 15_minute_sched
```

10. From the secondary cluster, use the `snapmirror resync` command to resynchronize the clustered Data ONTAP primary volume.

Example

```
sec_cluster::> snapmirror resync -source-path src_vserver:src_c_vol -
destination-path dst_vserver:dst_c_vol
```

Troubleshooting transition issues when using SnapMirror

Troubleshooting information helps you to identify and resolve issues that occur when transitioning 7-Mode data using SnapMirror commands.

Resuming a failed SnapMirror baseline transfer

During transition, SnapMirror baseline transfers can fail due to a number of reasons, such as loss of network connectivity, transfer aborted, or controller failover. After rectifying the cause of failure, you can resume the SnapMirror transfers if a restart checkpoint is available.

About this task

If the restart checkpoint for the baseline transfer is not available, you must delete and re-create the volume, reestablish the SnapMirror relationship, and initiate the transition again.

Steps

1. From the destination cluster, use the `snapmirror show` command with the `-snapshot-checkpoint` parameter to view the status of the baseline transfer and the restart checkpoint.

   Example

   ```
   cluster2::> snapmirror show -destination-path dest_vserver:vol3 -
   fields snapshot-checkpoint
   source-path          destination-path snapshot-checkpoint
   -------------------- ---------------- -------------------
   src_system:vol3    dest_vserver:vol3 50MB
   ```

2. If the SnapMirror checkpoint exists, use the `snapmirror initialize` command to resume the baseline transfer.

   Example

   ```
   cluster2::> snapmirror initialize -destination-path dest_vserver:vol3
   ```

Recovering from a failed LUN transition

If the transition of volumes with LUNs fails, you can use the `lun transition 7-mode show` command to check which LUNs were not transitioned to clustered Data ONTAP, and then determine a corrective action.

Steps

1. From the advanced privilege level, run the `lun transition 7-mode show` command to check which LUNs failed.

   Clustered Data ONTAP 8.3.2 man page: lun transition 7-mode show - Display the 7-Mode LUN Inventory

2. Review the EMS logs and determine the corrective action that you must take.

3. Perform the required steps shown in the EMS message to correct the failure.
4. If any supported LUNs failed to transition, run the `lun transition start` command to complete the transition.

   Clustered Data ONTAP 8.3.2 man page: lun transition start - Start LUN Transition Processing
5. Run the `lun transition show` command to view the transition status of the volumes.

   The transition status can be one of following values:

   - **`active`**: The volume is in an active SnapMirror transition relationship and not yet transitioned.
   - **`complete`**: All supported LUNs are transitioned for this volume.
   - **`failed`**: LUN transition failed for the volume.
   - **`none`**: The volume did not contain LUNs to transition from Data ONTAP operating in 7-Mode.

   Clustered Data ONTAP 8.3.2 man page: lun transition show - Display the status of LUN transition processing

Example

```
cluster1::*> lun transition show
Vserver             Volume             Transition Status
------------------- ------------------ -----------------
vs1                 vol0               none
                    vol1               complete
                    vol2               failed
                    vol3               active
```

Related concepts

Space considerations when transitioning SAN volumes on page 8

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