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Disaster recovery for FlexGroup volumes

Disaster recovery workflow for FlexGroup volumes

When a disaster strikes on the source FlexGroup volume, you should activate the destination FlexGroup volume and redirect client access. Depending on whether the source FlexGroup volume can be recovered, you should either reactivate the source FlexGroup volume or reverse the SnapMirror relationship.

**About this task**

Client access to the destination FlexGroup volume is blocked for a brief period when some SnapMirror
operations, such as SnapMirror break and resynchronization, are running. If the SnapMirror operation fails, it is possible that some of the constituents remain in this state and access to the FlexGroup volume is denied. In such cases, you must retry the SnapMirror operation.

**Activate the destination FlexGroup volume**

When the source FlexGroup volume is unable to serve data due to events such as data corruption, accidental deletion or an offline state, you must activate the destination FlexGroup volume to provide data access until you recover the data on the source FlexGroup volume. Activation involves stopping future SnapMirror data transfers and breaking the SnapMirror relationship.

**About this task**
You must perform this task from the destination cluster.

**Steps**

1. Disable future transfers for the FlexGroup volume SnapMirror relationship: `snapmirror quiesce`
   
   ```
   dest_svm:dest_flexgroup
   
   cluster2::> snapmirror quiesce -destination-path vsd:dst
   ```

2. Break the FlexGroup volume SnapMirror relationship: `snapmirror break`
   
   ```
   dest_svm:dest_flexgroup
   
   cluster2::> snapmirror break -destination-path vsd:dst
   ```

3. View the status of the SnapMirror relationship: `snapmirror show -expand`
cluster2::> snapmirror show -expand

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
<th>Mirror</th>
<th>Relationship</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Path</td>
<td>Type</td>
<td>Path</td>
<td>State</td>
<td>Status</td>
</tr>
<tr>
<td>Updated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

```
---------- ---- ------------ ------- -------------- --------- -------
--------
vss:s   XDP  vsd:dst  Broken-off
       Idle  -         true    -
vss:s__0001 XDP  vsd:dst__0001 Broken-off
       Idle  -         true    -
vss:s__0002 XDP  vsd:dst__0002 Broken-off
       Idle  -         true    -
vss:s__0003 XDP  vsd:dst__0003 Broken-off
       Idle  -         true    -
vss:s__0004 XDP  vsd:dst__0004 Broken-off
       Idle  -         true    -
vss:s__0005 XDP  vsd:dst__0005 Broken-off
       Idle  -         true    -
vss:s__0006 XDP  vsd:dst__0006 Broken-off
       Idle  -         true    -
vss:s__0007 XDP  vsd:dst__0007 Broken-off
       Idle  -         true    -
vss:s__0008 XDP  vsd:dst__0008 Broken-off
       Idle  -         true    -
...
```

The SnapMirror relationship status of each constituent is **Broken-off**.

4. Verify that the destination FlexGroup volume is read/write: `volume show -vserver svm_name`
cluster2::> volume show -vserver vsd

<table>
<thead>
<tr>
<th>Vserver</th>
<th>Volume</th>
<th>Aggregate</th>
<th>State</th>
<th>Type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vsd</td>
<td>dst</td>
<td>-</td>
<td>online</td>
<td><strong>RW</strong></td>
<td>2GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vsd</td>
<td>d2</td>
<td>-</td>
<td>online</td>
<td>DP</td>
<td>2GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vsd</td>
<td>root_vs0</td>
<td>aggr1</td>
<td>online</td>
<td>RW</td>
<td>100MB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.54GB</td>
<td>22%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.55GB</td>
<td>22%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94.02MB</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 entries were displayed.

5. Redirect clients to the destination FlexGroup volume.

**Reactivate the original source FlexGroup volume after disaster**

When the source FlexGroup volume becomes available, you can resynchronize the original source and original destination FlexGroup volumes. Any new data on the destination FlexGroup volume is lost.

**About this task**

Any active quota rules on the destination volume are deactivated and the quota rules are deleted before resynchronization is performed.

You can use the `volume quota policy rule create` and `volume quota modify` commands to create and reactivate quota rules after the resynchronization operation is complete.

**Steps**

1. From the destination cluster, resynchronize the FlexGroup volume SnapMirror relationship: `snapmirror resync -destination-path dst_svm:dest_flexgroup`
2. View the status of the SnapMirror relationship: `snapmirror show -expand`
cluster2::> snapmirror show -expand

<table>
<thead>
<tr>
<th>Progress</th>
<th>Source</th>
<th>Destination</th>
<th>Mirror</th>
<th>Relationship</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Path</td>
<td>Type</td>
<td>Path</td>
<td>State</td>
<td>Status</td>
<td>Progress</td>
</tr>
<tr>
<td>Last</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

```
----------- ---- ------------ ------- -------------- --------- -------
--------

vss:s    XDP  vsd:dst  Snapmirrored
         Idle         -         true  -
vss:s__0001 XDP  vsd:dst__0001  Snapmirrored
         Idle         -         true  -
vss:s__0002 XDP  vsd:dst__0002  Snapmirrored
         Idle         -         true  -
vss:s__0003 XDP  vsd:dst__0003  Snapmirrored
         Idle         -         true  -
vss:s__0004 XDP  vsd:dst__0004  Snapmirrored
         Idle         -         true  -
vss:s__0005 XDP  vsd:dst__0005  Snapmirrored
         Idle         -         true  -
vss:s__0006 XDP  vsd:dst__0006  Snapmirrored
         Idle         -         true  -
vss:s__0007 XDP  vsd:dst__0007  Snapmirrored
         Idle         -         true  -
vss:s__0008 XDP  vsd:dst__0008  Snapmirrored
         Idle         -         true  -
...
```

The SnapMirror relationship status of each constituent is Snapmirrored.

Reverse a SnapMirror relationship between FlexGroup volumes during disaster recovery

When a disaster disables the source FlexGroup volume of a SnapMirror relationship, you can use the destination FlexGroup volume to serve data while you repair or replace the source FlexGroup volume. After the source FlexGroup volume is online, you can make the original source FlexGroup volume a read-only destination and reverse the SnapMirror relationship.

About this task

Any active quota rules on the destination volume are deactivated and the quota rules are deleted before resynchronization is performed.
You can use the `volume quota policy rule create` and `volume quota modify` commands to create and reactivate quota rules after the resynchronization operation is complete.

**Steps**

1. On the original destination FlexGroup volume, remove the data protection mirror relationship between the source FlexGroup volume and the destination FlexGroup volume: `snapmirror delete -destination-path svm_name:volume_name`  
   
   ```
   cluster2::> snapmirror delete -destination-path vsd:dst
   ```

2. On the original source FlexGroup volume, remove the relationship information from the source FlexGroup volume: `snapmirror release -destination-path svm_name:volume_name -relationship -info-only`  
   
   After deleting a SnapMirror relationship, you must remove the relationship information from the source FlexGroup volume before attempting a resynchronization operation.  
   
   ```
   cluster1::> snapmirror release -destination-path vsd:dst -relationship -info-only true
   ```

3. On the new destination FlexGroup volume, create the mirror relationship: `snapmirror create -source-path src_svm_name:volume_name -destination-path dst_svm_name:volume_name -type XDP -policy MirrorAllSnapshots`  
   
   ```
   cluster1::> snapmirror create -source-path vsd:dst -destination-path vss:src -type XDP -policy MirrorAllSnapshots
   ```

4. On the new destination FlexGroup volume, resynchronize the source FlexGroup: `snapmirror resync -source-path svm_name:volume_name`  
   
   ```
   cluster1::> snapmirror resync -source-path vsd:dst
   ```

5. Monitor the SnapMirror transfers: `snapmirror show -expand`
```
cluster2::> snapmirror show -expand

Progress
Source            Destination Mirror  Relationship   Total
Last Path        Type  Path        State   Status         Progress  Healthy
Updated          -------- ---- ------------ ------- -------------- --------- -------

--------
vsd:dst   XDP  vss:src       Snapmirrored
          Idle           -         true    -
vsd:dst__0001 XDP  vss:src__0001  Snapmirrored
          Idle           -         true    -
vsd:dst__0002 XDP  vss:src__0002  Snapmirrored
          Idle           -         true    -
vsd:dst__0003 XDP  vss:src__0003  Snapmirrored
          Idle           -         true    -
vsd:dst__0004 XDP  vss:src__0004  Snapmirrored
          Idle           -         true    -
vsd:dst__0005 XDP  vss:src__0005  Snapmirrored
          Idle           -         true    -
vsd:dst__0006 XDP  vss:src__0006  Snapmirrored
          Idle           -         true    -
vsd:dst__0007 XDP  vss:src__0007  Snapmirrored
          Idle           -         true    -
vsd:dst__0008 XDP  vss:src__0008  Snapmirrored
          Idle           -         true    -
...
```

The SnapMirror relationship status of each constituent shows as `Snapmirrored` that indicates that the resynchronization was successful.