3DC Disk Expand

Tuesday, June 15, 2021   15:00

Expanding DP-VOL capacity when GAD pair is used with Universal Replicator

1. Verify that each volume of the P-VOLs and S-VOLs in a GAD pair and DP-VOL pairs with which the GAD pair shares the same volumes meets the prerequisites.
   Pair status must not be in COPY status

2. Display the detailed information about the GAD pair, UR pair, and UR delta resync pair on CCI.
   Verify whether the current differential data management method is the SM difference management or the hierarchical difference management by a drive.

   Sample for GAD

   ```
   # pairdisplay -g oradb -fe
   Group PairVol(L/R) (Port#,TID, LU),Seq#, LDEV#.P/S,Status,Fence,Seq#, P-LDEV# M CTG JID AP EM E-Seq# E-LDEV# R/W QM DM P
   oradb dev1(L) (CL5-A-0,30, 0) 64568 301.P-VOL PAIR ASYNC,64568 303 - 0 2 1 - - - -/- AA S N
   oradb dev1(R) (CL5-A-0,30, 2) 64568 303.S-VOL PAIR ASYNC,----- 301 - 0 4 1 - - - -/- AA S N
   oradb dev2(L) (CL5-A-0,30, 1) 64568 302.P-VOL PAIR ASYNC,64568 304 - 0 3 1 - - - -/- AA D N
   oradb dev2(R) (CL1-A-0,30, 3) 64568 304.S-VOL PAIR ASYNC,----- 302 - 0 5 1 - - - -/- AA D N
   ```

   - Sample for UR

   ```
   # pairdisplay -g oradb -fe -fcx
   Group PairVol L/R Port# TID  LU  Seq# LDEV# P/S Status Fence    % P-LDEV# M CTG JID AP EM    E-Seq# E-LDEV# R/W QM DM P
   oradb dev1 L CL5-A-0 30 0 64568 301 P-VOL PAIR ASYNC 100 303 - 0 8 1 - - - -/- - S N
   oradb dev1 R CL5-A-0 30 2 64568 303 S-VOL PAIR ASYNC 100 301 - 0 1 1 - - - -/- - S N
   oradb dev2 L CL5-A-0 30 1 64568 302 P-VOL PAIR ASYNC 100 304 - 0 8 1 - - - -/- - D N
   oradb dev2 R CL1-A-0 30 3 64568 304 S-VOL PAIR ASYNC 100 302 - 0 1 1 - - - -/- - D N
   ```

   - If the SM difference management(shows S) is applied, proceed to **step 3**.
   - If the hierarchical difference management(shows D) is applied, proceed to **step 9**.
   - If using HDvM - SN, verify the advanced system settings No.5 and No.6.
   - If both the advanced system settings No.5 and No. 6 are set to **Disable**, the SM difference management is applied. Go to **Step 3**.
   - If either or both the advanced system settings No.5 and No.6 are set to **Enable**, the hierarchical difference management is applied. Go to **Step 9**.

3. Change the differential data management method to the hierarchical difference management.
   Change system settings for hierarchical difference management.
   - If using CCI, set the system option mode (SOM) 1198 to ON and 1199 to OFF by using theraidcom modify system_opt command.
     Command example:
     raidcom modify system_opt -system_option_mode system -mode_id 1198 -mode enable
     raidcom modify system_opt -system_option_mode system -mode_id 1199 -mode disable
   - If using HDvM - SN, set the advanced system settings No. 5 to **Enable** and No.6 to **Disable** in the **Edit Advanced System Settings** window.

4. Swap suspend the GAD pair.

   Example: Instance 33642 for GAD Primary   Instance 31196 for GAD Secondary Instance 31166 for UR

   pairresync -g xxxxx -d yyyy -swaps -I31196   -->>(xxxxx group name for GAD in horcm31196.conf   yyyy device name for GAD in horcm31196.conf which need to be expanded)

   The delta resync operation can be performed automatically.

   Wait till status is PAIR

5. Verify the pair statuses of the GAD pair, UR pair, and UR delta resync pair, and that the delta resync operation is complete correctly.

6. Swap suspend the GAD pair again.
   Example: Instance 33642 for GAD Primary   Instance 31196 for GAD Secondary Instance 31166 for UR

   pairresync -g xxxxx -d yyyy -swaps -I33642   -->>(xxxxx group name for GAD in horcm33642.conf   yyyy device name for GAD in horcm33642.conf which need to be expanded)

   The delta resync operation can be performed automatically.

   Wait till status is PAIR

7. Verify the pair statuses of the GAD pair, UR pair, and UR delta resync pair, and that the delta resync operation is complete correctly.

8. Display the detailed information about the GAD pair, UR pair, and UR delta resync pair on CCI, and then verify that the current differential data management method is the hierarchical difference management.

9. Suspend the GAD pair and UR pairs.

   Example: Instance 33642 for GAD Primary -   Instance 31196 for GAD Secondary Instance 31166 for UR

   UR
   pairsplit -g zzzzz -d vvvv -I33642   -->>(zzzzz group name for UR in horcm33642.conf   vvvv device name for UR in horcm33642.conf which need to be expanded)

   GAD
   pairsplit -g xxxxx -d yyyy -I33642   -->>(xxxxx group name for GAD in horcm33642.conf   yyyy device name for GAD in horcm33642.conf which need to be expanded)

10. Expand each volume capacity, and then verify that the expansion is complete in the following expansion order:
    1. Expand S-VOL in the UR pair (S-VOL in the UR delta resync pair).
    2. Expand Snapshot Disks if snapshot exists
       If you cannot expanding the S-VOL capacity in the UR pair, expanding the P-VOL capacity in the GAD pair, or resynchronizing the GAD pair or UR pair, make sure to perform the recovery procedure described in **Recovering from failure if one volume capacity in GAD pair cannot be expanded**.
    3. Expand S-VOL in the GAD pair. (Expand if exists any GAD S-VOL snapshots)
    4. Expand P-VOL in the GAD pair. (Expand if exists any GAD P-VOL snapshots)
    5. Resynchronize the GAD pair and UR pair.

       Example: Instance 33642 for GAD Primary -   Instance 31196 for GAD Secondary Instance 31166 for UR

       GAD
       pairresync -g xxxxx -d yyyy -I33642   -->>(xxxxx group name for GAD in horcm33642.conf   yyyy device name for GAD in horcm33642.conf which need to be expanded)

       UR
       pairresync -g zzzzz -d vvvv -I33642   -->>(zzzzz group name for UR in horcm33642.conf   vvvv device name for UR in horcm33642.conf which need to be expanded)

    6. Verify that both the pair statuses of the P-VOL and S-VOL in each pair of the GAD pair have changed to PAIR(Mirror(RL)) and in each pair of the UR pair have changed to PAIR.
       In addition, verify that each volume capacity in the GAD pair, UR pair, and UR delta resync pair is not being expanded.
       The following table shows how the expansion process is displayed.

Expansion status	CCI	HDvM - SN
	P column in the **pairdisplay** command	**Processing Status** field in the **Remote Replication** window
Not being expanded	N	Blank
Being expanded	E*	Expanding*
* These statuses have been displayed after expanding the P-VOL or S-VOL capacity in the GAD pair or the UR pair, and before performing the pair resync operation. After the resync operation is complete, the status is migrated to the Not being expanded status. In the UR delta resync pair, the Being expanded status will not be displayed on CCI or HDvM - SN because the expansion in the UR delta resync pair is complete concurrently with the GAD pair and the UR pair.		