Moving an FC SAN workload from MetroCluster FC to MetroCluster IP nodes

ONTAP MetroCluster

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April 26, 2021

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Moving an FC SAN workload from MetroCluster FC to MetroCluster IP nodes

When non-disruptively transitioning from MetroCluster FC to IP nodes, you must non-disruptively move FC SAN host objects from MetroCluster FC to IP nodes.

1. Set up new FC interfaces (LIFS) on MetroCluster IP nodes:
   a. If required, on MetroCluster IP nodes, modify FC ports to be used for client connectivity to FC target personality.

      This may require a reboot of the nodes.

   b. Create FC LIFS/interfaces on IP nodes for all SAN vservers. Optionally verify that the WWPNs from newly created FC LIFs are logged into the FC SAN switch
2. Update SAN zoning configuration for newly added FC LIFs on MetroCluster IP nodes.

   To facilitate moving of volumes that contain LUNs actively serving data to FC SAN clients, update existing FC switch zones to allow FC SAN clients to access to LUNs on MetroCluster IP nodes.

   a. On the FC SAN switch (Cisco or Brocade), add the WWPNs of newly added FC SAN LIFs to the zone.
   b. Update, save and commit the zoning changes.
   c. From the client, check for FC initiator logins to the new SAN LIFs on the MetroCluster IP nodes: `sanlun lun show -p`

      At this time, the client should see and be logged in to the FC interfaces on both the MetroCluster FC and MetroCluster IP nodes. LUNs and volumes are still physically hosted on the MetroCluster FC nodes.

      Because LUNs are reported only on MetroCluster FC node interfaces, the client shows only paths over FC nodes. This can be seen in the output of the sanlun lun show -p and multipath -ll -d commands.

```
[root@stemgr]# sanlun lun show -p
ONTAP Path: vsa_1:/vol/vsa_1_vol6/lun_linux_12
 LUN: 4
 LUN Size: 2g
 Product: cDOT
 Host Device: 3600a0980383046465l3f4f674e52774b
 Multipath Policy: service-time 0
 Multipath Provider: Native
--------- ---------- ------- ------------
----------------------------------------------
host vserver
path path /dev/ host vserver
state type node adapter LIF
--------- ---------- ------- ------------
----------------------------------------------
up primary sdk host3 iscsi_lf__n2_p1_
up secondary sdh host2 iscsi_lf__n1_p1_

[root@stemgr]# multipath -ll -d
3600a0980383046465l3f4f674e52774b dm-5 NETAPP ,LUN C-Mode
size=2.0G features='4 queue_if_no_path pg_init_retries 50
retain_attached_hw_handle' hwhandler='1 alua' wp=rw
|-+- policy='service-time 0' prio=50 status=active
| `- 3:0:0:4 sdk 8:160 active ready running
`-+- policy='service-time 0' prio=10 status=enabled
 `- 2:0:0:4 sdh 8:112 active ready running
```

3. Modify the reporting nodes to add the MetroCluster IP nodes
   a. List reporting nodes for LUNs on the SVM: `lun mapping show -vserver svm-name -fields reporting-nodes -ostype linux`

      Reporting nodes shown are local nodes as LUNs are physically on FC nodes A_1 and A_2.

```
cluster_A::> lun mapping show -vserver vsa_1 -fields reporting-nodes
-ostype linux

vserver  path                          igroup         reporting-nodes
-------  ----------------------------- ------------
-------------------------------------
vsa_1    /vol/vsa_1_vol1/lun_linux_2 igroup_linux   A_1,A_2
vsa_1    /vol/vsa_1_vol1/lun_linux_3 igroup_linux   A_1,A_2
vsa_1    /vol/vsa_1_vol2/lun_linux_4 igroup_linux   A_1,A_2
vsa_1    /vol/vsa_1_vol3/lun_linux_7 igroup_linux   A_1,A_2
vsa_1    /vol/vsa_1_vol4/lun_linux_8 igroup_linux   A_1,A_2
vsa_1    /vol/vsa_1_vol4/lun_linux_9 igroup_linux   A_1,A_2
vsa_1    /vol/vsa_1_vol6/lun_linux_12 igroup_linux  A_1,A_2
vsa_1    /vol/vsa_1_vol6/lun_linux_13 igroup_linux  A_1,A_2
vsa_1    /vol/vsa_1_vol7/lun_linux_14 igroup_linux  A_1,A_2
vsa_1    /vol/vsa_1_vol8/lun_linux_17 igroup_linux  A_1,A_2
vsa_1    /vol/vsa_1_vol9/lun_linux_18 igroup_linux  A_1,A_2
vsa_1    /vol/vsa_1_vol9/lun_linux_19 igroup_linux  A_1,A_2
12 entries were displayed.
```

b. Add reporting nodes to include MetroCluster IP nodes.

```
cluster_A::> lun mapping add-reporting-nodes -vserver vsa_1 -path
/vol/vsa_1_vol*/lun_linux_* -nodes B_1,B_2 -igroup igroup_linux

12 entries were acted on.
```

c. List reporting nodes and verify the presence of the new nodes:

```
cluster_A::> lun mapping show -vserver vsa_1 -fields reporting-nodes
-ostype linux

vserver path                            igroup          reporting-nodes
------- ------------------------------  ------------
-------------------------------------------------------------------------
----------

vsa_1   /vol/vsa_1_vol1/lun_linux_2   igroup_linux    A_1,A_2,B_1,B_2
vsa_1   /vol/vsa_1_vol1/lun_linux_3   igroup_linux    A_1,A_2,B_1,B_2
vsa_1   /vol/vsa_1_vol2/lun_linux_4   igroup_linux    A_1,A_2,B_1,B_2
vsa_1   /vol/vsa_1_vol3/lun_linux_7   igroup_linux    A_1,A_2,B_1,B_2
...

12 entries were displayed.
```

d. Rescan the scsi bus on the host to discover the newly added paths: `/usr/bin/rescan-scsi-bus.sh -a`

```
[root@stemgr]# /usr/bin/rescan-scsi-bus.sh -a
Scanning SCSI subsystem for new devices
Scanning host 0 for SCSI target IDs 0 1 2 3 4 5 6 7, all LUNs
Scanning host 1 for SCSI target IDs 0 1 2 3 4 5 6 7, all LUNs
Scanning host 2 for SCSI target IDs 0 1 2 3 4 5 6 7, all LUNs
 Scanning for device 2 0 0 0 ...
.
.
.
OLD: Host: scsi5 Channel: 00 Id: 00 Lun: 09
 Vendor: NETAPP Model: LUN C-Mode Rev: 9800
 Type: Direct-Access ANSI SCSI revision: 05
0 new or changed device(s) found.
0 remapped or resized device(s) found.
0 device(s) removed.
```

e. Display the newly added paths: `sanlun lun show -p`

Each LUN will have four paths.

```
[root@stemgr]# sanlun lun show -p
ONTAP Path: vsa_1:/vol/vsa_1_vol6/lun_linux_12
 LUN: 4
 LUN Size: 2g
 Product: cDOT
 Host Device: 3600a0980383046465l3f4f674e52774b
 Multipath Policy: service-time 0
 Multipath Provider: Native
--------- ---------- ------- ------------
----------------------------------------------
host vserver
path path /dev/ host vserver
state type node adapter LIF
--------- ---------- ------- ------------
----------------------------------------------
up primary sdk host3 iscsi_lf__n2_p1_
up secondary sdh host2 iscsi_lf__n1_p1_
up secondary sdag host4 iscsi_lf__n4_p1_
up secondary sdah host5 iscsi_lf__n3_p1_
```

f. On the controllers, move the volumes containing LUNs from the MetroCluster FC to the MetroCluster IP nodes.

```
cluster_A::> vol move start -vserver vsa_1 -volume vsa_1_vol1
-destination-aggregate A_1_htp_005_aggr1
[Job 1877] Job is queued: Move "vsa_1_vol1" in Vserver "vsa_1" to
aggregate "A_1_htp_005_aggr1". Use the "volume move show -vserver
vsa_1 -volume vsa_1_vol1"
command to view the status of this operation.
cluster_A::> volume move show
Vserver    Volume    State    Move Phase   Percent-Complete Time-To-
Complete
--------- ---------- -------- ----------   ----------------
----------------
vsa_1     vsa_1_vol1 healthy  initializing
 - -
```

g. On the FC SAN client, display the LUN information: `sanlun lun show -p`

The FC interfaces on the MetroCluster IP nodes where the LUN now resides are updated as primary paths. If the primary path is not updated after the volume move, run /usr/bin/rescan-scsi-bus.sh -a or simply wait for multipath rescanning to take place.

The primary path in the following example is the LIF on MetroCluster IP node.

```
[root@localhost ~]# sanlun lun show -p

                    ONTAP Path: vsa_1:/vol/vsa_1_vol1/lun_linux_2
                           LUN: 22
                      LUN Size: 2g
                       Product: cDOT
                   Host Device: 3600a098038302d324e5d50305063546e
              Multipath Policy: service-time 0
            Multipath Provider: Native
--------- ---------- ------- ------------
----------------------------------------------
host      vserver
path      path       /dev/   host         vserver
state     type       node    adapter      LIF
--------- ---------- ------- ------------
----------------------------------------------
up        primary    sddv    host6        fc_5
up        primary    sdjx    host7        fc_6
up        secondary  sdgv    host6        fc_8
up        secondary  sdkr    host7        fc_8
```

h. Repeat the above steps for all volumes, LUNs and FC interfaces belonging to a FC SAN host.

   When completed, all LUNs for a given SVM and FC SAN host should be on MetroCluster IP nodes.

4. Remove the reporting nodes and re-scan paths from client.

   a. Remove the remote reporting nodes (the MetroCluster FC nodes) for the linux LUNs: `lun mapping remove-reporting-nodes -vserver vsa_1 -path * -igroup igroup_linux -remote -nodes true`

```
cluster_A::> lun mapping remove-reporting-nodes -vserver vsa_1 -path
* -igroup igroup_linux -remote-nodes true
12 entries were acted on.
```

   b. Check reporting nodes for the LUNs: `lun mapping show -vserver vsa_1 -fields reporting-nodes -ostype linux`

```
cluster_A::> lun mapping show -vserver vsa_1 -fields reporting-nodes
-ostype linux

vserver path igroup reporting-nodes
------- --------------------------- ------------
----------------------------------------
vsa_1 /vol/vsa_1_vol1/lun_linux_2 igroup_linux B_1,B_2
vsa_1 /vol/vsa_1_vol1/lun_linux_3 igroup_linux B_1,B_2
vsa_1 /vol/vsa_1_vol2/lun_linux_4 igroup_linux B_1,B_2
...

12 entries were displayed.
```

c. Rescan the scsi bus on the client: `/usr/bin/rescan-scsi-bus.sh -r`

The paths from the MetroCluster FC nodes are removed:

```
[root@stemgr]# /usr/bin/rescan-scsi-bus.sh -r
Syncing file systems
Scanning SCSI subsystem for new devices and remove devices that have
disappeared
Scanning host 0 for SCSI target IDs 0 1 2 3 4 5 6 7, all LUNs
Scanning host 1 for SCSI target IDs 0 1 2 3 4 5 6 7, all LUNs
Scanning host 2 for SCSI target IDs 0 1 2 3 4 5 6 7, all LUNs
sg0 changed: LU not available (PQual 1)
REM: Host: scsi2 Channel: 00 Id: 00 Lun: 00
DEL: Vendor: NETAPP Model: LUN C-Mode Rev: 9800
 Type: Direct-Access ANSI SCSI revision: 05
sg2 changed: LU not available (PQual 1)
.
.
.
OLD: Host: scsi5 Channel: 00 Id: 00 Lun: 09
 Vendor: NETAPP Model: LUN C-Mode Rev: 9800
 Type: Direct-Access ANSI SCSI revision: 05
0 new or changed device(s) found.
0 remapped or resized device(s) found.
24 device(s) removed.
 [2:0:0:0]
 [2:0:0:1]
...
```

d. Verify that only paths from the MetroCluster IP nodes are visible from the host: `sanlun lun show -p`

e. If required, remove iSCSI LIFs from the MetroCluster FC nodes.

   This should be done if there are no other LUNs on the nodes mapped to other clients.