



Moving Linux iSCSI hosts from MetroCluster FC to MetroCluster IP nodes

ONTAP MetroCluster

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Moving Linux iSCSI hosts from MetroCluster FC to MetroCluster IP nodes

After you transition your MetroCluster nodes from FC to IP, you might need to move your iSCSI host connections to the new nodes.

In this procedure IPv4 interfaces are created.

The host commands and examples given in these procedures are specific to LINUX operating systems.

Setting up new iSCSI connections

To move iSCSI connections, you must set up new iSCSI connections to the MetroCluster IP nodes.

1. Create iSCSI interfaces on the MetroCluster IP nodes and check ping connectivity from the iSCSI clients to the new IP interfaces on the MetroCluster IP nodes.

Creating network interfaces

All iSCSI interfaces from the SVM should be reachable by iSCSI client.

2. On the iSCSI host or client, identify the existing iSCSI connections from the host to the MetroCluster FC node: `iscsiadm -m session`

```
[root@scspr1789621001 ~]# iscsiadm -m session

tcp: [1] 10.230.68.236:3260,1156 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6 (non-flash)

tcp: [2] 10.230.68.237:3260,1158 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6 (non-flash)
```

3. Verify the connections from the MetroCluster IP node: `iscsi session show -vserver svm-name`

```
node_A_1-IP::*> iscsi session show -vserver vsa_1
```

Tpgroup	Initiator	Initiator
Vserver Name	TSIH Name	ISID Alias
-----	-----	-----
-----	-----	-----
vsa_1 iscsi_lf__n1_p1_ 4	iqn.2020-01.com.netapp.englab.gdl:scspr1789621001	00:02:3d:00:00:01
scspr1789621001.gdl.englab.netapp.com		
vsa_1 iscsi_lf__n2_p1_ 4	iqn.2020-01.com.netapp.englab.gdl:scspr1789621001	00:02:3d:00:00:02
scspr1789621001.gdl.englab.netapp.com		

2 entries were displayed.

4. List the iscsi interfaces in ONTAP for the SVM that contains the interfaces: `iscsi interface show -vserver svm-name`

```
sti8200mcchtp001htp_siteA::*> iscsi interface show -vserver vsa_1
```

Logical	Status	Curr	Curr
Vserver	Interface	TPGT	Admin/Oper IP Address Node Port Enabled
-----	-----	-----	-----
-----	-----	-----	-----
vsa_1 iscsi_lf__n1_p1_ 1156	up/up	10.230.68.236	sti8200mcc-htp-001 e0g true
vsa_1 iscsi_lf__n1_p2_ 1157	up/up	fd20:8b1e:b255:805e::78c9	sti8200mcc-htp-001 e0h true
vsa_1 iscsi_lf__n2_p1_ 1158	up/up	10.230.68.237	sti8200mcc-htp-002 e0g true
vsa_1 iscsi_lf__n2_p2_ 1159	up/up	fd20:8b1e:b255:805e::78ca	sti8200mcc-htp-002 e0h true
vsa_1 iscsi_lf__n3_p1_ 1183	up/up	10.226.43.134	sti8200mccip-htp-005 e0c true
vsa_1 iscsi_lf__n4_p1_ 1188	up/up	10.226.43.142	sti8200mccip-htp-006 e0c true

6 entries were displayed.

5. On the iSCSI client, run discovery on any one of the iSCSI IP addresses on the SVM to discover the new targets: `iscsiadm -m discovery -t sendtargets -p iscsi-ip-address`

Discovery can be run on any IP address of the SVM, including non-iSCSI interfaces.

```
[root@scspr1789621001 ~]# iscsiadm -m discovery -t sendtargets -p
10.230.68.236:3260

10.230.68.236:3260,1156 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6
10.226.43.142:3260,1188 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6
10.226.43.134:3260,1183 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6
10.230.68.237:3260,1158 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6
```

6. On the iSCSI client, login to all the discovered addresses: `iscsiadm -m node -L all -T node-address -p portal-address -l`

```
[root@scspr1789621001 ~]# iscsiadm -m node -L all -T iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6 -p
10.230.68.236:3260 -l

Logging in to [iface: default, target: iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6, portal:
10.226.43.142,3260] (multiple)
Logging in to [iface: default, target: iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6, portal:
10.226.43.134,3260] (multiple)
Login to [iface: default, target: iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6, portal:
10.226.43.142,3260] successful.
Login to [iface: default, target: iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6, portal:
10.226.43.134,3260] successful.
```

7. On the iSCSI client, verify the login and connections: `iscsiadm -m session`

```
[root@scspr1789621001 ~]# iscsiadm -m session

tcp: [1] 10.230.68.236:3260,1156 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6 (non-flash)
tcp: [2] 10.230.68.237:3260,1158 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6 (non-flash)
tcp: [3] 10.226.43.142:3260,1188 iqn.1992-
08.com.netapp:sn.58d7f6df2cc611eaa9c500a098a71638:vs.6 (non-flash)
```

8. From the MetroCluster node, verify the login and connection with the client: `iscsi initiator show -vserver vsa_1`

```
sti8200mcchtp001htp_siteA:.*> iscsi initiator show -vserver vsa_1

Tpgroup Initiator

Vserver Name          TSIH Name          ISID
Igroup Name
-----
vsa_1 iscsi_lf__n1_p1_ 4 iqn.2020-
01.com.netapp.englab.gdl:scspr1789621001 00:02:3d:00:00:01 igroup_linux
vsa_1 iscsi_lf__n2_p1_ 4 iqn.2020-
01.com.netapp.englab.gdl:scspr1789621001 00:02:3d:00:00:02 igroup_linux
vsa_1 iscsi_lf__n3_p1_ 1 iqn.2020-
01.com.netapp.englab.gdl:scspr1789621001 00:02:3d:00:00:04 igroup_linux
vsa_1 iscsi_lf__n4_p1_ 1 iqn.2020-
01.com.netapp.englab.gdl:scspr1789621001 00:02:3d:00:00:03 igroup_linux

4 entries were displayed.
```

At the end of this tasks, the client can see all iSCSI interfaces (on the MetroCluster FC and MetroCluster IP nodes) and is logged in to all those interfaces.

LUNs and volumes are still physically hosted on FC nodes. Because LUNs are reported only on MetroCluster FC node interfaces, the client will show only paths over MetroCluster FC nodes. This can be seen in `sanlun lun show -p` and `multipath -ll -d` command outputs. The next step is to add IP nodes as reporting nodes.

```
[root@scspr1789621001 ~]# sanlun lun show -p
ONTAP Path: vsa_1:/vol/vsa_1_vol6/lun_linux_12
LUN: 4
LUN Size: 2g
Product: cDOT
Host Device: 3600a098038304646513f4f674e52774b
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@scspr1789621001 ~]# multipath -ll -d
3600a098038304646513f4f674e52774b 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
```

Adding the MetroCluster IP nodes as reporting nodes

After setting up the connections to the new MetroCluster IP nodes, you must add new reporting nodes.

1. On the MetroCluster node, list reporting nodes for LUNs on the SVM: `lun mapping show -vserver vsa_1 -fields reporting-nodes -ostype linux`

The following reporting nodes are local nodes as LUNs are physically on FC nodes node_A_1-FC and node_A_2-FC.

```
node_A_1-IP::*> 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 node_A_1-FC,node_A_2-FC
.
.
.
vsa_1 /vol/vsa_1_vol9/lun_linux_19 igroup_linux node_A_1-FC,node_A_2-FC
12 entries were displayed.
```

2. On the MetroCluster node, add reporting nodes: `lun mapping add-reporting-nodes -vserver svm-name -path /vol/vsa_1_vol*/lun_linux_* -nodes node1,node2 -igroup igroup_linux`

```
node_A_1-IP::*> lun mapping add-reporting-nodes -vserver vsa_1 -path
/vol/vsa_1_vol*/lun_linux_* -nodes node_A_1-IP,node_A_2-IP
-igroup igroup_linux

12 entries were acted on.
```

3. On the MetroCluster node, verify that the newly added nodes are present: `lun mapping show -vserver svm-name -fields reporting-nodes -ostype linux vserver path igroup reporting-nodes`

```
node_A_1-IP::*> 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 node_A_1-FC,node_A_2-
FC,node_A_1-IP,node_A_2-IP
vsa_1 /vol/vsa_1_vol1/lun_linux_3 igroup_linux node_A_1-FC,node_A_2-
FC,node_A_1-IP,node_A_2-IP.
.
.
.
12 entries were displayed.
```


4. On the host, issue the following command to rescan the scsi bus on the host and 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.
```

5. On the host, issue the following command to list the newly added paths: `sanlun lun show -p`

Four paths are shown for each LUN.

```
[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: 3600a098038304646513f4f674e52774b
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_
```

6. On the MetroCluster, move the volume/volumes containing LUNs from FC to IP nodes.

```

node_A_1-IP::*> vol move start -vserver vsa_1 -volume vsa_1_vol1
-destination-aggregate sti8200mccip_htp_005_aggr1
[Job 1877] Job is queued: Move "vsa_1_vol1" in Vserver "vsa_1" to
aggregate "sti8200mccip_htp_005_aggr1". Use the "volume move show
-vserver
vsa_1 -volume vsa_1_vol1" command to view the status of this operation.
node_A_1-IP::*> vol move show
Vserver      Volume      State      Move      Phase      Percent-
Complete    Time-To-Complete
-----
-----
vsa_1        vsa_1_vol1  healthy                    initializing  -
-

```

7. When the volume move is completed, on the MetroCluster, use the volume show command to confirm that the volume or LUN is online.
8. The iSCSI 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` and `multipath -v3` or simply wait for multipath rescanning to take place.

In the following example, the primary path is a LIF on the MetroCluster IP node.

```

[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: 3600a098038304646513f4f674e52774b
Multipath Policy: service-time 0
Multipath Provider: Native
-----
host vserver
path path /dev/ host vserver
state type node adapter LIF
-----
up      primary  sdag  host4  iscsi_lf__n4_p1_
up      secondary sdk    host3  iscsi_lf__n2_p1_
up      secondary sdh    host2  iscsi_lf__n1_p1_
up      secondary sdah   host5  iscsi_lf__n3_p1_

```

Removing reporting nodes and rescanning paths

You must remove the reporting nodes and rescan the paths.

1. From the MetroCluster IP node, remove remote reporting nodes (the MetroCluster IP nodes) for the Linux LUNs: `lun mapping remove-reporting-nodes -vserver vsa_1 -path * -igroup igroup_linux -remote-nodes true`

In this case, the remote nodes are FC nodes.

```
node_A_1-IP::*> lun mapping remove-reporting-nodes -vserver vsa_1 -path
* -igroup igroup_linux -remote-nodes true

12 entries were acted on.
```

2. From the MetroCluster IP node, check reporting nodes for the LUNs: `lun mapping show -vserver vsa_1 -fields reporting-nodes -ostype linux`

```
node_A_1-IP::*> 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	node_A_1-IP,node_A_2-IP
vsa_1	/vol/vsa_1_vol1/lun_linux_3	igroup_linux	node_A_1-IP,node_A_2-IP
vsa_1	/vol/vsa_1_vol2/lun_linux_4	group_linux	node_A_1-IP,node_A_2-IP
.			
.			
.			

```
12 entries were displayed.
```

3. On the iSCSI host, rescan the scsi bus: `/usr/bin/rescan-scsi-bus.sh -r`

The paths that are removed are the paths from FC nodes.

```

[root@scspr1789621001 ~]# /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]
.
.
.

```

4. On the iSCSI host, verify that only paths from the MetroCluster IP nodes are visible: `sanlun lun show -p`multipath -ll -d`

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