UCS SAN Troubleshooting

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Introduction

This document provides useful troubleshooting tips for Unified Computing System (UCS) SAN.

Prerequisites

Requirements

Cisco recommends that you have knowledge of UCS SAN.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Troubleshooting Tips

Check vHBA has FLOGI into the SAN fabric.

1. Logon to UCS CLI and connect to NXOS.

```
# connect nxos a|b
(nxos)# show npv flogi-table
```

```
UCS-250-A# connect nxos
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
UCS-250-A(nxos)# show npv flogi-table
--------------------------------------------------------------------------------
SERVER                                                              EXTERNAL
INTERFACE VSAN FCID         PORT NAME              NODE NAME        INTERFACE
--------------------------------------------------------------------------------
vfc3299   1000 0x5e00ec 20:bb:0a:03:00:00:00:1d 50:01:23:45:44:55:66:cf fc2/1
vfc3454   1000 0x5e0105 20:00:00:25:b5:b0:25:2d 20:00:00:25:b5:a0:25:2e fc2/1
vfc3468   1000 0x5e00d8 20:00:00:25:b5:b0:05:1f 20:00:00:25:b5:a0:05:1f fc2/1
vfc3474   1000 0x5e00d2 20:00:00:25:b5:b0:05:3f 20:00:00:25:b5:a0:05:0f fc2/1
vfc3506   1000 0x5e0103 20:00:00:25:b5:b0:25:3f 20:00:00:25:b5:a0:25:1e fc2/1
vfc3528   1000 0x5e010a 20:00:00:25:b5:00:05:1a 20:00:00:25:b5:a0:05:01 fc2/1
vfc3607   1000 0x5e00eb 20:00:00:25:b5:b9:30:02 50:01:23:45:44:55:66:bf fc2/1
vfc3611   1000 0x5e00ca 20:00:00:25:b5:b0:05:00 20:00:00:25:b5:a0:05:06 fc2/1
vfc3617   1000 0x5e00f4 20:00:00:25:b5:b3:36:0e 20:00:00:25:b5:a0:36:0f fc2/1

Total number of flogi = 9.
```

Make sure the FCID of the WWPN is assigned, and VSAN is correct.

2. Alternatively, from the Cisco MDS switch, check that the WWPN has FLOGI.

```
SV-35-06-MDS9222i# show flogi database
SV-35-06-MDS9222i# show fcns database
```
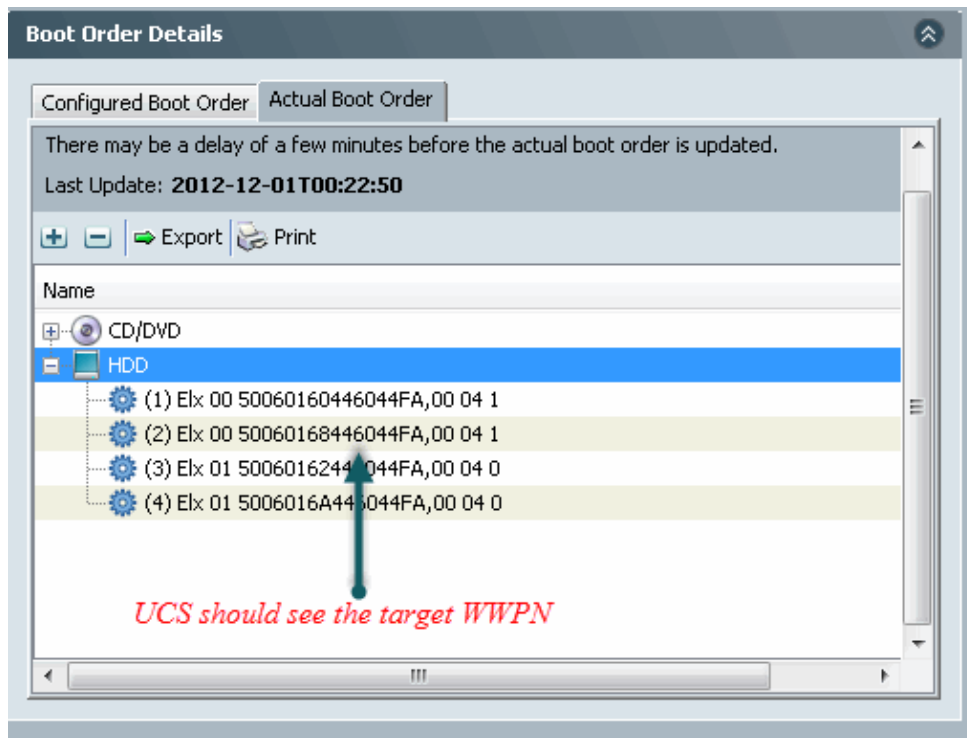
Check the zoning on the MDS switch to make sure that the vHBA(WWPN) and the Storage target are online and in the same zone.

```
SV-35-06-MDS9222i# show zoneset active vsan 1000
```

```
SV-35-06-MDS9222i# show zoneset active vsan 1000 | begin matao
  zone name matao vsan 1000
    pwwn 20:00:00:25:b5:b3:05:0f
  * fcid 0x5e00ef [pwwn 50:06:01:62:44:60:44:fa] [SPA2]   SAN
  * fcid 0x5e01ef [pwwn 50:06:01:6a:44:60:44:fa] [SPB2]  target
  * fcid 0x5e00d2 [pwwn 20:00:00:25:b5:b0:05:3f]
  * fcid 0x5e00d8 [pwwn 20:00:00:25:b5:b0:05:1f]          wwpn online
    pwwn 20:00:00:25:b5:b5:05:0f           wwpn not online
    pwwn 20:00:00:25:b5:b5:05:2f
```

Check if the vHBA can see the target during the SAN Boot.

On the UCS Manager, if the blade can boot from SAN, then the UCS Manager Actual Boot Order should be able to see the WWPN of all the targets.

Boot Order Details

Configured Boot Order | Actual Boot Order

There may be a delay of a few minutes before the actual boot order is updated.

Last Update: **2012-12-01T00:22:50**

⊕ ⊖ | ⇒ Export | 🖨 Print

Name

⊞ 💿 CD/DVD

⊟ 🖥 HDD

- ⚙ (1) Elx 00 50060160446044FA,00 04 1
- ⚙ (2) Elx 00 50060168446044FA,00 04 1
- ⚙ (3) Elx 01 5006016244 044FA,00 04 0
- ⚙ (4) Elx 01 5006016A44 044FA,00 04 0

UCS should see the target WWPN

When booting up the blade, press F2 to enter BIOS and navigate to the Boot Manager. BIOS should be able to see the LUN to boot.
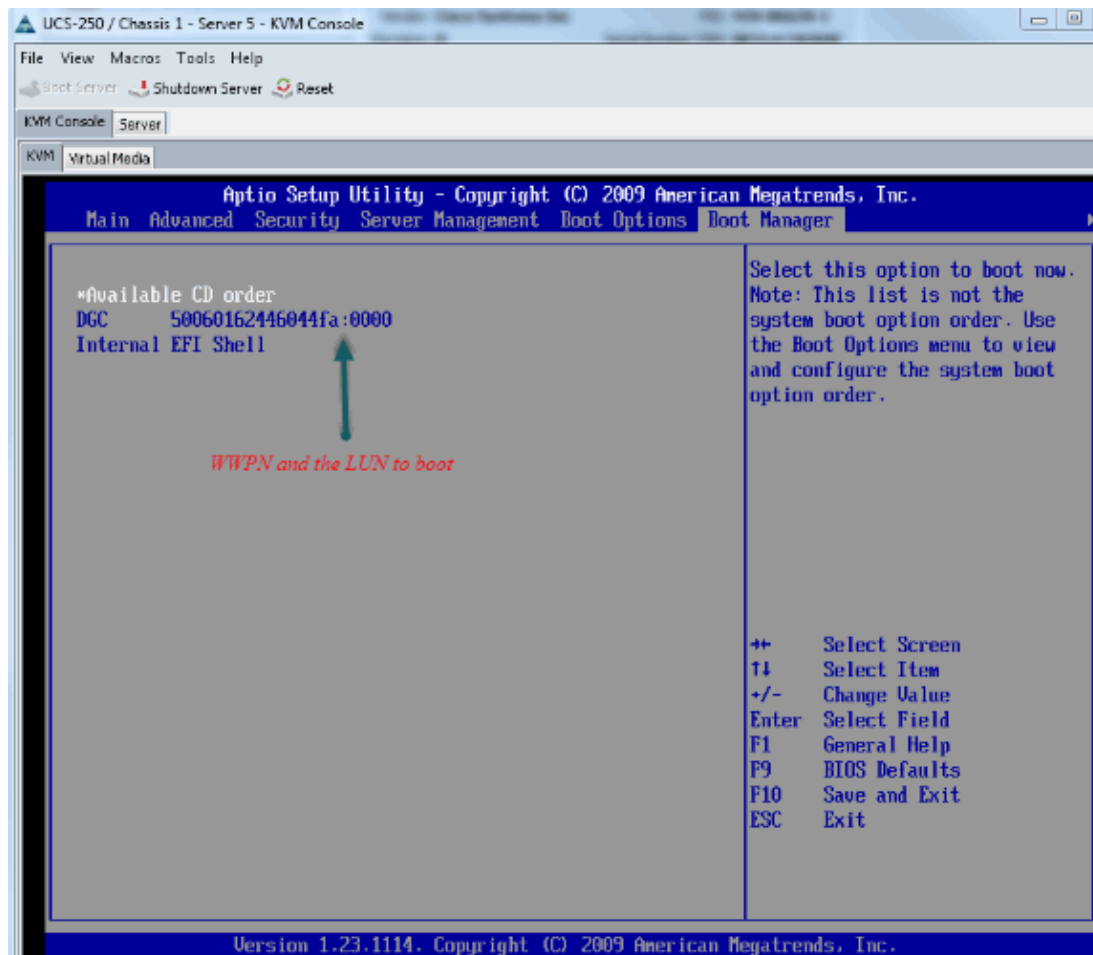
For the PALO adapter, at this stage (when OS has not started yet), you can also connect to the adapter to check whether the vHBA has FLOGI and PLOGI.

After the OS has boot up, the output is different. This is expected.


For an M71KR–E adapter, when booting the server, press control + E to enter the Emulex HBA configuration utility. Then, choose the vHBA and list the booting device. The vHBA should be able to see the target.

```
        Adapter 01:  S_ID: 6E00AC     PCI Bus, Device, Function (04,00,01)


        List of Saved Boot Devices:

     1. Used      DID:000000 WWPN:50060160 446044FA LUN:00  Primary Boot
     2. Used      DID:000000 WWPN:500604 58 446044FA LUN: 9
     3. Unused    DID:000000 WWPN:000000 00 00000000 LUN: 0
     4. Unused    DID:000000 WWPN:000000 00 00000000 LUN: 0
     5. Unused    DID:000000 WWPN:000000 00 00000000 LUN: 0
     6. Unused    DID:000000 WWPN:000000 00 00000000 LUN: 0
     7. Unused    DID:000000 WWPN:000000 00 00000000 LUN: 0
     8. Unused    DID:000000 WWPN:000000 00 00000000 LUN: 0

                              Target WWPN

                                              LUN ID


        Select a Boot Entry: _

                                              default booting device

     Enter <x> to Exit            <Esc> to Previous Menu
```

Check if the vHBA has the right LUN ID to boot from SAN.

The Boot Policy associated with the service profile has the booting configuration. Make sure that the WWPN of the target is correct and the LUN ID also matches the LUN defined in the storage.
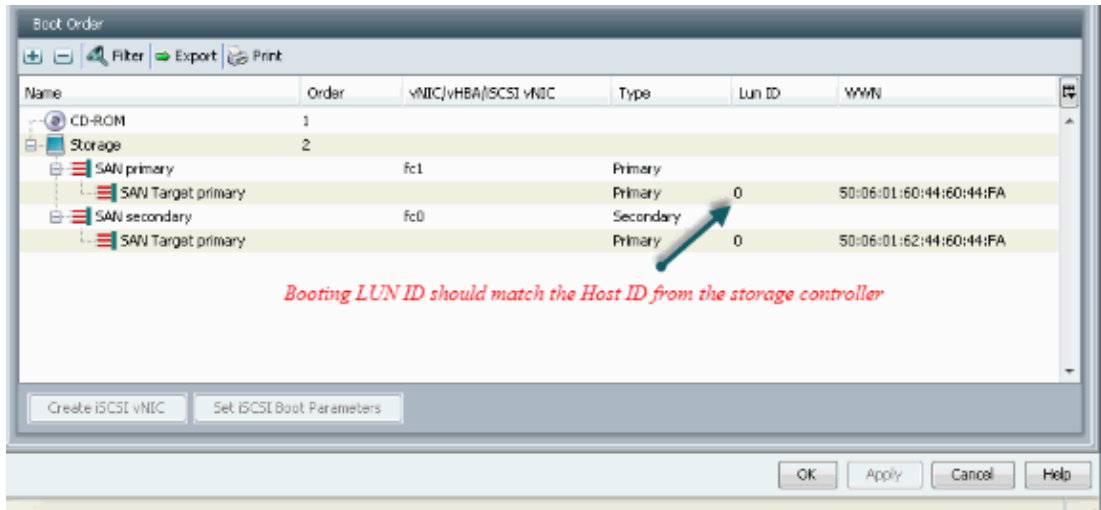
Next is an example in for EMC storage. In the storage group, the LUN 1301 is mapped to the host with ID 0, which must match the ID defined in the boot policy.
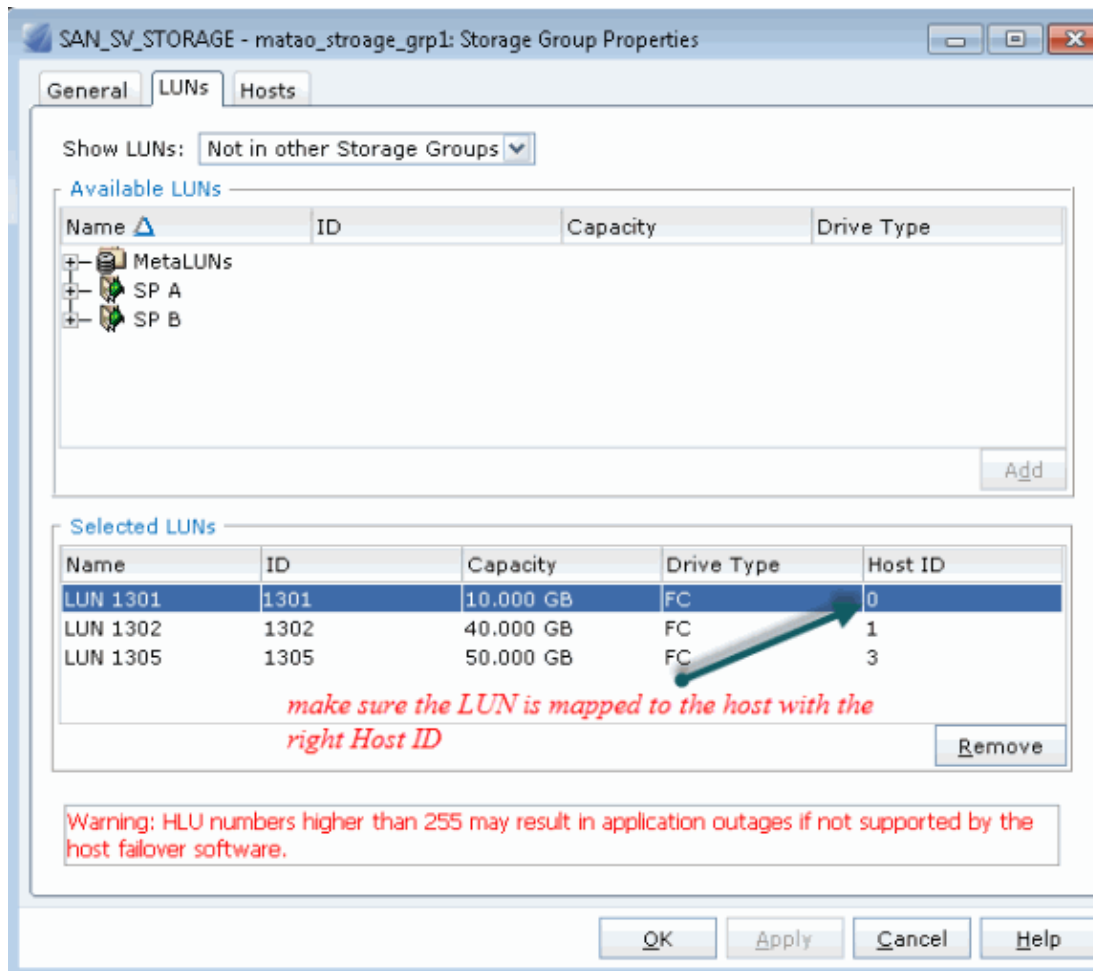
Check if the FC target can see the vHBA(WWPN) and whether it has PLOGI to the target.

Check if Cisco customized ESXi image is used for SAN Boot.

If ESXi fails to see the LUN on the SAN while the vHBA does see the LUN during boot stage, it is likely the ESXi image does not have the right driver. Check whether the customer is using the Cisco customized ESXi image. Go to the VMware website and search for Cisco ESXi to download the Cisco customized image.

Cisco Customized image for ESXi 5.1.0

https://my.vmware.com/web/vmware/details?downloadGroup=CISCO–ESXI–5.1.0–GA–25SEP2012&productId=285

Cisco Customized image for ESXi 5.0.0 U1

https://my.vmware.com/web/vmware/details?downloadGroup=CISCO–ESXI–5.0.0–U1–28AUG2012&productId=268

Cisco Customized image for ESXi 4.1 U2

https://my.vmware.com/web/vmware/details?downloadGroup=OEM–ESXI41U2–CISCO&productId=230

vSphere 5.0 Rollp ISO images (provides an installable ESXi ISO image that includes drivers for various products produced by VMware partners), for example with C220 M3 server, CIMC 1.46c and LSI 9266–8i. Even the customized ESXi image does not have the driver to detect local storage.

https://my.vmware.com/web/vmware/details?downloadGroup=ROLLUPISO_50_2&productId=229

Also, refer to the rollup release note

http://www.vmware.com/support/vsphere5/doc/vsphere–esxi–50–driver–rollup2–release–notes.html

Check if ESXi is using the same correct fnic driver.

Enable SSH and ESX SHELL and logon to the ESXi host. Then, run vmkload_mod s fnic.

Check if the host can see all the paths to the storage target from VMware ESXi.

1. Check the LUN information that can be seen by any vHBA.

```
~ # esxcfg-scsidevs -c
Device UID                                Device Type      Console
Device                                      Size             Multipath PluginDisplay Name
naa.6006016081f0280000e47af49150e111  Direct-Access    /vmfs/devices/disks/naa.60060
16081f0280000e47af49150e111  40960MB   NMP    DGC Fibre Channel Disk (naa.600601608
1f0280000e47af49150e111)
naa.6006016081f028007a6ffec12985e111  Direct-Access    /vmfs/devices/disks/naa.60060
6081f028007a6ffec12985e111  51200MB   NMP    DGC Fibre Channel Disk (naa.6006016081
028007a6ffec12985e111)
naa.6006016081f02800ca79c3b09150e111  Direct-Access    /vmfs/devices/disks/naa.60060
6081f02800ca79c3b09150e111  10240MB   NMP    DGC Fibre Channel Disk (naa.6006016081
02800ca79c3b09150e111)
```

2. Check which vHBA can see which LUNs.

```
~ # esxcfg-scsidevs -A
vmhba1      naa.6006016081f0280000e47af49150e111
vmhba1      naa.6006016081f028007a6ffec12985e111
vmhba1      naa.6006016081f02800ca79c3b09150e111
vmhba2      naa.6006016081f0280000e47af49150e111
```

```
            vmhba2      naa.6006016081f028007a6ffec12985e111
            vmhba2      naa.6006016081f02800ca79c3b09150e111
```

In this example above, both vmhba1 and vmhba2 can see the 3 LUNs.

3. Check the paths to the LUNs.

```
~ # esxcfg-mpath -b
naa.6006016081f0280000e47af49150e111 : DGC Fibre Channel Disk (naa.6006016081f02800
00e47af49150e111)
   vmhba1:C0:T0:L1 LUN:1 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:3f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:6a:
   44:60:44:fa
   vmhba1:C0:T1:L1 LUN:1 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:3f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:62:
   44:60:44:fa
   vmhba2:C0:T0:L1 LUN:1 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:2f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:60:
   44:60:44:fa
   vmhba2:C0:T1:L1 LUN:1 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:2f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:68:
   44:60:44:fa

naa.6006016081f028007a6ffec12985e111 : DGC Fibre Channel Disk (naa.6006016081f028007
6ffec12985e111)
   vmhba1:C0:T0:L3 LUN:3 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:3f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:6a:
   44:60:44:fa
   vmhba1:C0:T1:L3 LUN:3 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:3f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:62:
   44:60:44:fa
   vmhba2:C0:T0:L3 LUN:3 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:2f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:60:
   44:60:44:fa
   vmhba2:C0:T1:L3 LUN:3 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:2f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:68:
   44:60:44:fa

naa.6006016081f02800ca79c3b09150e111 : DGC Fibre Channel Disk (naa.6006016081f02800c
79c3b09150e111)
   vmhba1:C0:T0:L0 LUN:0 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:3f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:6a:
   44:60:44:fa
   vmhba1:C0:T1:L0 LUN:0 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:3f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:62:
   44:60:44:fa
   vmhba2:C0:T0:L0 LUN:0 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:2f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:60:
   44:60:44:fa
   vmhba2:C0:T1:L0 LUN:0 state:active fc Adapter: WWNN: 20:00:00:25:b5:a0:05:0f WWPN
   20:00:00:25:b5:b0:05:2f  Target: WWNN: 50:06:01:60:c4:60:44:fa WWPN: 50:06:01:68:
   44:60:44:fa
```

In this example, there are four paths to each LUN: two from vmhba1 and two from vmhba2.

Related Information

- **Technical Support & Documentation – Cisco Systems**