Configuring Chelsio iSCSI Solution

Quick Start Guide

Chelsio LIO Target Offload

Linux-IO Target (LIO) is the in-kernel SCSI target implementation in Linux. This open-source standard supports common storage fabrics, including Fibre Channel, FCoE, iEEE 1394, iSCSI, NVMe-OF, iSER etc. The LIO iSCSI fabric module implements many advanced iSCSI features that increase performance and resiliency. Chelsio T5 can offload the LIO iSCSI target and provides distinct performance advantages over regular NIC.

Installation

1. Download the LIO iSCSI Target Offload driver package from http://service.chelsio.com/
2. Untar the tarball, install the drivers and reboot the system into the newly installed 4.6.4 kernel.

```
[root@host~]# tar zxvfm Chelsio-LIO-iSCSITarget-offload-x.x.x.x.tar.gz
[root@host~]# cd Chelsio-LIO-iSCSITarget-offload-x.x.x.x
[root@host~]# ./install.sh -t
[root@host~]# reboot
```

Configuration

1. Load the Network and LIO iSCSI Target Offload driver

```
[root@host~]# modprobe cxgb4
[root@host~]# modprobe cxgbit
```

2. Bring up the network interface and ensure that the PEER is reachable.

```
[root@host~]# ifconfig ethX <IP Address> up
```

3. Create target using *targetcli*

```
[root@host~]# targetcli
/> backstores/ramdisk create name=ramdisk1 size=550MB
/> iscsi/ create iqn.2016-08.com.marlin.target1
/> iscsi/iqn.2016-08.com.marlin.target1/tpg1/portals/ delete 0.0.0.0 3260
/> iscsi/iqn.2016-08.com.marlin.target1/tpg1/portals/ create
102.10.10.208 3260
/> iscsi/iqn.2016-08.com.marlin.target1/tpg1/luns create lun=0
storage_object=/backstores/ramdisk/ramdisk1
/> iscsi/iqn.2016-08.com.marlin.target1/tpg1/ set attribute
authentication=0 demo_mode_write_protect=0 generate_node_acls=1
cache_dynamic_acls=1
```

4. Offload the target:

```
[root@host~]# echo 1 >
/sys/kernel/config/target/iscsi/<target_iqn>/tpgt_1/np/<target_ip>\:3260/
cxgbit
```

Microsoft Software Initiator, Linux Open iSCSI Initiator, Chelsio iSCSI PDU Offload Initiator etc. can now connect to the target.

Chelsio iSCSI PDU Offload Initiator

Native initiator support is in-boxed in all major operating systems. In addition, Chelsio iSCSI PDU Offload Initiator will be installed by default along with the Unified Wire.

Installation

1. Download the Chelsio Unified Wire Driver for Linux from http://service.chelsio.com/
2. Untar the tarball, install the drivers and reboot the machine for changes to take effect.

```
[root@host~]# tar zxvfm ChelsioUwire-x.xx.x.x.tar.gz
[root@host~]# cd ChelsioUwire-x.xx.x.x
[root@host~]# make install
[root@host~]# reboot
```

Configuration

1. Unload Inbox drivers using the following commands:
   ```
   [root@host~]# rmmod cxgb4i; rmmod libcxgbi; rmmod cxgb4; rmmod csiostor
   ```

2. Load the iSCSI PDU Offload Initiator driver
   ```
   [root@host~]# modprobe cxgb4i
   ```

3. Bring up the Network Interface and ensure that the PEER is reachable.
   ```
   [root@host~]# ifconfig ethX <IP Address> up
   ```

4. Create an interface file (iface)
   ```
   [root@host~]# iscsiadm -m iface
   ```

5. Add the following entry in the iface file, `/etc/iscsi/ifaces/cxgb4i.<MAC>`:
   ```
   iface.ipaddress = <IP Address>
   ```

6. Discover iSCSI Targets
   ```
   [root@host~]# iscsiadm -m discovery -t st -p <target_ip>:<target_port_no>
   -I cxgb4i.<MAC>
   ```

7. Login to Target
   ```
   [root@host~]# iscsiadm -m mode -T <target IQN name> -p
   <target_ip>:<target_port_no> -I cxgb4i.<MAC> -l
   ```

8. Format and mount the iSCSI LUNS shown in `lsscsi/fdisk -l`

9. To logout from the target:
   ```
   [root@host~]# iscsiadm -m node -u all
   ```