iSCSI 配置简介

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1 SERVER 端配置

1.1 RHEL6 系(TGT, Linux SCSI Target)

1) 安装“scsi-target-utils”包

```
#yum install scsi-target-utils*
```

2）启动 tgtd 服务

```
#service tgtd start
```

3) 新增 iSCSI Target Device

```
#tgtadm --lld iscsi --op new --mode target --tid 1 -T ign.2012-04.hostname:iSCSI-data1
```

注：iSCSI Qualified Name (iqn)的格式通常为：iqn.yyyy-mm.<reversed domain name>[:identifier]

4) 将要分享的分区(如：sda1 和 sda2)加入 iSCSI Target Device

```
#tgtadm --lld iscsi --op new --mode logicalunit --tid 1 --lun 1 -b /dev/sda1
#tgtadm --lld iscsi --op new --mode logicalunit --tid 1 --lun 2 -b /dev/sda2
```

注：存储设备可以有以下三种：

a) 镜像文件：(制作过程如下)

   i. if=/dev/zero of=/mnt/sdb1/iscsi_disk.img bs=1M count=500

   ii. chcon -Rv -t tgtd_var_lib_t /mnt/sdb1/

b) 磁盘分区：/dev/sdb2

c) LVM 逻辑卷:/dev/my_vg/my_lv

5) 设置指定 CLIENT 端（iSCSI Initiator Device）可获取本 iSCSI Target Device

```
#tgtadm --lld iscsi --op bind --mode target --tid 1 -I 193.168.116.53
```

注：

192.168.116.53 为 CLIENT 端（iSCSI Initiator Device）的 IP，若不設定具体的 IP，也可以设定为 ALL，这样就表示所有的 CLIENT 端都可使用。

6) 取消指定 CLIENT 端（iSCSI Initiator Device）可获取本 iSCSI Target Device

```
#tgtadm --lld iscsi --op unbind --mode target --tid 1 -I 193.168.116.53
```

7) 设置指定用户可获取本 iSCSI Target Device

```
#tgtadm --lld iscsi --op new --mode account --user redhat --password redhat12345678
#tgtadm --lld iscsi --op bind --mode account --tid 1 --user redhat
```

注：密码要求是 12-16 个字符。

8) 取消指定用户可获取本 iSCSI Target Device

```
#tgtadm --lld iscsi --op unbind --mode target --tid 1 --user user_1
```

9) 确认 iSCSI Targe Device 设定以及查看添加的分区

```
#tgtadm --lld iscsi --op show --mode target
#tgt-admin --show
```

10) 删除 iSCSI Target Device 已分享的分区

```
#tgtadm --lld iscsi --op delete --mode logicalunit --tid 1 --lun 1
#tgtadm --lld iscsi --op delete --mode logicalunit --tid 1 --lun 2
```

11) 删除 target

```
#tgtadm --lld iscsi --op delete --mode target --tid 1
```

注：

SERVER 端需要关闭防火墙，或者打开 3260/tcp 端口（命令为：firewall-cmd --add-port 3260/tcp），否则 CLIENT 端（iSCSI Initiator Device）访问 target 可能会失败。

1.2 RHEL7 系(LIO, Linux-IO Target)

1) 安装“targetcli”包

```
#yum install targetcli*
```

2) 向“backstore”中添加分区

```
# targetcli
targetcli shell version 2.1.fb34
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/> ls
o- / ......................................................................... [...]
  o- backstores .............................................. .......... [...]
  | o- block ..................................................... [Storage Objects: 0]
  | o- fileio .................................................... [Storage Objects: 0]
  | o- pscsi ..................................................... [Storage Objects: 0]
  | o- ramdisk ..................................................... [Storage Objects: 0]
```

```
  o- iscsi ..................................................... [Targets: 0]
  o- loopback .................................................. [Targets: 0]
/> cd /backstores/block/
/backstores/block> create name=my_disk  dev=/dev/sdd3
Created block storage object my_disk using /dev/sdd3.
/backstores/block> ls
o- block ..................................................... [Storage Objects: 1]
  o- my_disk ............................. [/dev/sdd3 (18.6GiB) write-thru deactivated]
/backstores/block>cd /
/> exit
Global pref auto_save_on_exit=true
Last 10 configs saved in /etc/target/backup.
Configuration saved to /etc/target/saveconfig.json
#
```

3) 创建 iSCSI target

```
# targetcli
targetcli shell version 2.1.fb34
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/> ls
o- / ......................................................................... [...]
  o- backstores .............................................................. [...]
    | o- block ................................................ [Storage Objects: 1]
    | | o- my_disk ....................... [/dev/sdd3 (18.6GiB) write-thru deactivated]
    | o- fileio ............................................... [Storage Objects: 0]
    | o- pscsi ................................................ [Storage Objects: 0]
    | o- ramdisk .............................................. [Storage Objects: 0]
    o- iscsi ................................................ [Targets: 0]
    o- loopback ............................................. [Targets: 0]
/> cd iscsi
/iscsi> create
Created target iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.8be45ad4a30a.
Created TPG 1.
/iscsi> ls
o- iscsi ....................................................... [Targets: 1]
    o- iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.8be45ad4a30a ..... [TPGs: 1]
      o- tpg1 ..................................... [no-gen-acls, no-auth]
        o- acls ..................................................... [ACLs: 0]
        o- luns ..................................................... [LUNs: 0]
        o- portals ................................................. [Portals: 0]
/iscsi>cd /
/> exit
```

```
Global pref auto_save_on_exit=true
Last 10 configs saved in /etc/target/backup.
Configuration saved to /etc/target/saveconfig.json
#
```

4) 向已创建的 iSCSI target 设置 acls、luns、portals

```
# targetcli
targetcli shell version 2.1.fb34
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/> ls
o- / ..... [...]
  o- backstores ..... [...]
  | o- block ..... [Storage Objects: 1]
  | | o- my_disk ..... [/dev/sdd3 (18.6GiB) write-thru deactivated]
  | o- fileio ..... [Storage Objects: 0]
  | o- pscsi ..... [Storage Objects: 0]
  | o- ramdisk ..... [Storage Objects: 0]
  o- iscsi ..... [Targets: 1]
  | o- iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.8be45ad4a30a ..... [TPGs: 1]
  |   o- tpg1 ..... [no-gen-acls, no-auth]
  |     o- acls ..... [ACLs: 0]
  |     o- luns ..... [LUNs: 0]
  |     o- portals ..... [Portals: 0]
  o- loopback ..... [Targets: 0]
/> cd iscsi/iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.8be45ad4a30a/tpg1/
/iscsi/iqn.20...5ad4a30a/tpg1> ls
  o- tpg1 ..... [no-gen-acls, no-auth]
    o- acls ..... [ACLs: 0]
    o- luns ..... [LUNs: 0]
    o- portals ..... [Portals: 0]
/iscsi/iqn.20...5ad4a30a/tpg1>cd  acls
/iscsi/iqn.20...30a/tpg1/acls> create  iqn.1994-05.com.redhat:ef2fe972d17c
Created Node ACL for iqn.1994-05.com.redhat:ef2fe972d17c
/iscsi/iqn.20...30a/tpg1/acls>cd ../luns
/iscsi/iqn.20...30a/tpg1/luns>create  /backstores/block/my_disk
Created LUN 0.
Created LUN 0->0 mapping in node ACL iqn.1994-05.com.redhat:ef2fe972d17c
/iscsi/iqn.20...30a/tpg1/luns> cd ../portals
/iscsi/iqn.20.../tpg1/portals> create
Using default IP port 3260
Binding to INADDR_ANY (0.0.0.0)
Created network portal 0.0.0.0:3260.
```

该 iqn 为 CLIENT 端的，可以在 CLIENT 端通过命令“cat /etc/iscsi/initiatorname.iscsi”查看

这条命令如果报错，那么可以使用命令“netstat -nlp |grep 3260”看下，是不是 tgtd 服务占用了 3260 号端口。

```
/iscsi/iqn.20.../tpg1/portals> cd /
/> ls
  o- / ..................................................................... [...]
    o- backstores ........................................................... [...]
    | o- block ..................................... [Storage Objects: 1]
    | | o- my_disk ....................... [/dev/sdd3 (18.6GiB) write-thru activated]
    | o- fileio .................................... [Storage Objects: 0]
    | o- pscsi ..................................... [Storage Objects: 0]
    | o- ramdisk ................................... [Storage Objects: 0]
    o- iscsi ......................................................... [Targets: 1]
    | o- iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.8be45ad4a30a ..... [TPGs: 1]
    |   o- tpg1 ............................................ [no-gen-acls, no-auth]
    |     o- acls ....................................................... [ACLs: 1]
    |     | o- iqn.1994-05.com.redhat:ef2fe972d17c ................. [Mapped LUNs: 1]
    |     |   o- mapped_lun0 ............................ [lun0 block/my_disk (rw)]
    |     o- luns ....................................................... [LUNs: 1]
    |     | o- lun0 ................................... [block/my_disk (/dev/sdd3)]
    |     o- portals ................................................. [Portals: 1]
    |       o- 0.0.0.0:3260 .................................................. [OK]
    o- loopback ...................................................... [Targets: 0]
/> saveconfig
Last 10 configs saved in /etc/target/backup.
Configuration saved to /etc/target/saveconfig.json
/> exit
Global pref auto_save_on_exit=true
Last 10 configs saved in /etc/target/backup.
Configuration saved to /etc/target/saveconfig.json
#
```

切换到根目录保存配置，这样重启后配置依然生效。

注：

1) targetcli 是通过交换式的方式执行的，不同目录下可执行的命令是不同的，可以通过双击 Tab 键来显示在不同目录可执行的命令，以及可用参数。

2) 需要注意，默认情况下全局参数 auto_save_on_exit=ture。

2 CLIENT 端配置

1) 安装“iscsi-initiator-utils”包

```
#yum install yum install iscsi-initiator-utils*
```

2) 启动 iscsi 和 iscsid 服务

```
#service iscsi start  &&  service iscsid start
```

注：iscsi 服务其实可以不用启动。iscsiadm 命令会自动启动 iscsid 服务。

3) 侦测 SERVER 端的 target

```
#iscsiadm  -m  discovery  -t  sendtargets  -p  193.168.181.231
193.168.181.231:3260,1
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb
#
```

4) 查看可用的 target

```
# ls -al /var/lib/iscsi/nodes/*
total 0
drw-------. 3 root root 35 Apr 23 12:58 .
drwxr-xr-x. 3 root root 75 Apr 23 12:58 ..
drw-------. 2 root root 20 Apr 23 12:58 193.168.181.231,3260,1
# iscsiadm -m node
193.168.181.231:3260,1
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb
#
```

5) 设置 Server 的访问账号和密码（7 系不需要设置）

```
#cat /etc/iscsi/iscsid.conf   #将相关项前面的注释符#删除掉
…
node.session.auth.authmethod = CHAP     //开启 CHAP 认证
node.session.auth.username = redhat       //配置账号
node.session.auth.password = redhat12345678    //密码
…
```

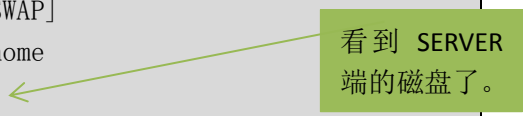
6) 载入 target

```
#iscsiadm                              -m              node              -T
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb  --login
Logging        in        to        [iface:        default,        target:
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb,      portal:
193.168.181.231,3260] (multiple)
Login          to          [iface:          default,          target:
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb,      portal:
```

```
193.168.181.231,3260] successful.
#
```

7） 验证 target

```
# lsblk
NAME          MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda             8:0    0 465.8G  0 disk
`-sda2          8:2    0 465.3G  0 part
  |-rhel-root 253:0    0    50G  0 lvm  /
  |-rhel-swap 253:1    0   3.8G  0 lvm  [SWAP]
  `-rhel-home 253:2    0 411.5G  0 lvm  /home
sdb             8:16   0     8G  0 disk
#
```



8） 查看活动的会话，并且列出有效的 LUNs

```
# iscsiadm -m session -P 3

iSCSI Transport Class version 2.0-870

version 6.2.0.873-28

...

scsi6 Channel 00 Id 0 Lun: 0

        Attached scsi disk sdb          State: running
```

9） 格式化

```
# parted  /dev/sdb -s  mklabel gpt
# parted -s /dev/sdb  mkpart primary xfs 1049KB 4GB
Warning: The resulting partition is not properly aligned for best performance.
# mkfs.xfs -f  /dev/sdb1
meta-data=/dev/sdb1              isize=256    agcount=8, agsize=122039 blks
         =                       sectsz=4096  attr=2, projid32bit=1
         =                       crc=0
data     =                       bsize=4096   blocks=976306, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=0
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=4096  sunit=1 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
# lsblk
NAME          MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
```

```
sda               8:0    0 465.8G  0 disk
|-sda1            8:1    0   500M  0 part /boot
`-sda2            8:2    0 465.3G  0 part
  |-rhel-root 253:0    0    50G  0 lvm  /
  |-rhel-swap 253:1    0   3.8G  0 lvm  [SWAP]
  `-rhel-home 253:2    0 411.5G  0 lvm  /home
sdb               8:16   0     8G  0 disk
`-sdb1            8:17   0   3.7G  0 part
#
```

注：

a) 在/etc/fstab 中要使用 UUID，而不要使用具体路径比如/dev/sdb。

b) 具体的路径在你重新连接磁盘的时候可能会发生改变，比如第一次是/dev/sd，第二次是/dev/sdc。（可以使用 blkid 命令查看块设备和分区的 UUID）

10) 卸载 target

```
#iscsiadm                    -m                    node                    -T
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb --logout
Logging        out        of        session        [sid:        1,        target:
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb,      portal:
193.168.181.231,3260]
Logout              of              [sid:              1,              target:
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb,      portal:
193.168.181.231,3260] successful.
# lsblk
NAME          MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda             8:0    0 465.8G  0 disk
|-sda1          8:1    0   500M  0 part /boot
`-sda2          8:2    0 465.3G  0 part
  |-rhel-root 253:0    0    50G  0 lvm  /
  |-rhel-swap 253:1    0   3.8G  0 lvm  [SWAP]
  `-rhel-home 253:2    0 411.5G  0 lvm  /home
#
```

卸载后，就看不到 sdb 磁盘了。

11) 删除 target

```
# ls -al /var/lib/iscsi/nodes/*
total 0
drw-------. 3 root root 35 Apr 23 12:58 .
drwxr-xr-x. 3 root root 75 Apr 23 12:58 ..
drw-------. 2 root root 20 Apr 23 12:58 193.168.181.231,3260,1
#iscsiadm          -m          node          -o          delete          -T
iqn.2003-01.org.linux-iscsi.compute-node.x8664:sn.426e96765bdb
# ls -al /var/lib/iscsi/nodes/*
ls: cannot access /var/lib/iscsi/nodes/*: No such file or directory
#
```

删除后，就看不到 target 连接了。

3 参考

1) http://www.cnitblog.com/201/archive/2012/05/04/79560.html
2) http://linux-iscsi.org/wiki/Targetcli
3) http://dngood.blog.51cto.com/446195/842658/
4) https://www.ibm.com/developerworks/community/blogs/5144904d-5d75-45ed-9d2b-cf1754ee936a/entry/linux_io_target%25e4%25bb%258b%25e7%25bb%258d_%25e4%25b8%2580?lang=en