iSCSI targets

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1   Target provisioning operations

iSCSI provision requires the `tgt` server program.

- The iSCSI `tgt` server can expose physical block devices, partitions, logical volumes (basically anything with an entry in `/dev`) as a LUN.

- It can also expose a disk image file on the filesystem as a LUN.

`tgt` can be installed on Ubuntu/Debian using:

```
apt -y install tgt
```

Imagine our server has LVM set up with a volume group called `vg_main` (possibly amongst others) on it. This VG contains a number of logical volumes, including `lv_data`. We want to expose `lv_data` as a LUN on an iSCSI target. Obviously the `lv_data` volume should not be mounted on the host.

1.1   Basic target and LUN

The `tgt` server program is controlled from the file `iscsi.conf` located in the `/etc/tgt/conf.d` folder. The `iscsi.conf` is almost XML-like and defines one or more targets with one or more LUNs. Each target section defines one or more LUNs.

This example shows a target `iqn.2020-03.ie.peadargrant` containing one LUN backed by the logical volume `/dev/vg_main/lv_data`:

```
<target iqn.2020-03.ie.peadargrant>
    backing-store /dev/vg_main/lv_data
</target>
```

The iSCSI target server needs to be restarted to pick up any changes:

```
sudo systemctl restart tgt
```

We can use the `tgtadm` command to print out information about the running tgt server:

```
tgtadm --mode target --op show
```

Output looks like:

We can then connect to the running tgt server from another machine using any iSCSI initiator. It doesn't matter whether it's a hardware HBA or CNA or a software initiator, or what OS is involved.

1.2   CHAP authentication

Our example above could require for example, `student` and `1Password` as follows:

```
<target iqn.2020-03.ie.peadargrant>
    backing-store /dev/vg_main/lv_data
    incominguser student 1Password
</target>
```

If you want mutual authentication, the `outgoinguser` parameter works in the same way as `incominguser` to handle this. Obviously the initiator will need to be set up correctly too.