ADD/REMOVE OSDS

Adding and removing Ceph OSD Daemons to your cluster may involve a few more steps when compared to adding and removing other Ceph daemons. Ceph OSD Daemons write data to the disk and to journals. So you need to provide a disk for the OSD and a path to the journal partition (i.e., this is the most common configuration, but you may configure your system to your own needs).

By default, `ceph-deploy` will create an OSD with the XFS filesystem. You may override the filesystem type by providing a `--fs-type FS_TYPE` argument, where FS_TYPE is an alternate filesystem such as `ext4` or `btrfs`.

In Ceph v0.60 and later releases, Ceph supports `dm-crypt` on disk encryption. You may specify the `--dm-crypt` argument when preparing an OSD to tell `ceph-deploy` that you want to use encryption. You may also specify the `--dmcrypt-key-dir` argument to specify the location of `dm-crypt` encryption keys.

You should test various drive configurations to gauge their throughput before before building out a large cluster. See Data Storage for additional details.

LIST DISKS

To list the disks on a node, execute the following command:

```
ceph-deploy disk list {node-name [node-name]...}
```

ZAP DISKS

To zap a disk (delete its partition table) in preparation for use with Ceph, execute the following:

```
ceph-deploy disk zap {osd-server-name}:{disk-name}
ceph-deploy disk zap osdserver1:sdb
```

> **Important:**   This will delete all data.

PREPARE OSDS

Once you create a cluster, install Ceph packages, and gather keys, you may prepare the OSDs and deploy them to the OSD node(s). If you need to identify a disk or zap it prior to preparing it for use as an OSD, see List Disks and Zap Disks.

```
ceph-deploy osd prepare {node-name}:{disk}[:{path/to/journal}]
ceph-deploy osd prepare osdserver1:sdb:/dev/ssd1
```

The `prepare` command only prepares the OSD. It does not activate it. To activate a prepared OSD, use the `activate` command. See Activate OSDs for details.

The foregoing example assumes a disk dedicated to one Ceph OSD Daemon, and a path to an SSD journal partition. We recommend storing the journal on a separate drive to maximize throughput. You may dedicate a single drive for the journal too (which may be expensive) or place the journal on the same disk as the OSD (not recommended as it impairs performance). In the foregoing example we store the journal on a partioned solid state drive.

> **Note:**   When running multiple Ceph OSD daemons on a single node, and sharing a partioned journal with each OSD daemon, you should consider the entire node the minimum failure domain for CRUSH purposes, because if the SSD drive fails, all of the Ceph OSD daemons that journal to it will fail too.

ACTIVATE OSDS

Once you prepare an OSD you may activate it with the following command.

```
ceph-deploy osd activate {node-name}:{path/to/disk}[:{path/to/journal}]
ceph-deploy osd activate osdserver1:/dev/sdb1:/dev/ssd1
```

The `activate` command will cause your OSD to come up and be placed in the cluster. The `activate` command uses the path to the partition created when running the `prepare` command.

CREATE OSDS

You may prepare OSDs, deploy them to the OSD node(s) and activate them in one step with the `create` command. The `create` command is a convenience method for executing the `prepare` and `activate` command sequentially.

```
ceph-deploy osd create {node-name}:{disk}[:{path/to/journal}]
ceph-deploy osd create osdserver1:sdb:/dev/ssd1
```

DESTROY OSDS

Note: Coming soon. See Remove OSDs for manual procedures.