Storage Partitioning and Management

We have decided to use ZFS as our file system, also I have designed the storage hierarchy of our feeds. I'll be mentioning how file system, and other storage management logics will be working.

Partitioning of Drives: For production server we will setup the servers and drives on own. Though there will be a script/program which will help us to automate the server setup for the first time use.

Programs like fdisk, cfdisk etc. but I'll be using sfdisk as it offer a non-interactive methods to partition our drive. Like we can first manually partition and structure our drive at first and then we can make a backup copy of that structure and later can be applied on the same.

I have tested that on our current server at IITB Electrical Lab on the HDD i.e. TOSHIBA MG04ACA200E (FP5B). Below are the current structure which is in raidz1.

```
label
: gpt
        label-id: E3B7FE9A-1618-4E8B-9EC7-4CA0340043DF
        device: /dev/sdb
        unit: sectors
        first-lba: 34
        last-lba: 3907029134


        /dev/sdb1 : start=        2048, size=   195313664, type=0FC63DAF-8483-4772-8E79-
        3D69D8477DE4, uuid=010F6E0C-BE91-42D9-9F1B-6885ACB3387F
        /dev/sdb2 : start=   195315712, size=   195313664, type=0FC63DAF-8483-4772-8E79-
        3D69D8477DE4, uuid=C183F619-DBD8-4728-82B8-BD369B5458D4
        /dev/sdb3 : start=   390629376, size=   195313664, type=0FC63DAF-8483-4772-8E79-
        3D69D8477DE4, uuid=DFFCD8B4-7800-4784-9236-CFC86C7F0C0F
        /dev/sdb4 : start=   585943040, size=   195313664, type=0FC63DAF-8483-4772-8E79-
        3D69D8477DE4, uuid=B598E863-37D6-4D27-9299-D9D5B636A410
        /dev/sdb5 : start=   781256704, size=   195313664, type=0FC63DAF-8483-4772-8E79-
        3D69D8477DE4, uuid=8E9C1E9E-FFE9-49F3-85CE-1AFEFF13EEC3
        /dev/sdb6 : start=   976570368, size=   195313664, type=0FC63DAF-8483-4772-8E79-
        3D69D8477DE4, uuid=851EF8D8-CE80-49C7-9750-40C3B9996FFD
```

Using the command: sfdisk -d /dev/sdb > IITB_Sample_Server_partition_with_raidz1_layout.sfd_layout

And can be applied using: sfdisk -d /dev/sdb < IITB_Sample_Server_partition_with_raidz1_layout.sfd_layout

As sfdisk is a part of util-linux just like fdisk, so availability should be the same.

Mount points

Sample partition structure below, parted using sfdisk.

```
Model: TOSHIBA MG04ACA200E (FP5B)
Disk /dev/sdb/: 1TB

NAME   MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda      8:0    0 931.5G  0 disk
├─sda1   8:1    0   512M  0 part /boot/efi
└─sda2   8:2    0   931G  0 part /
sdb      8:16   0   1.8T  0 disk
├─sdb1   8:17   0  93.1G  0 part /mnt/data/raw/
├─sdb2   8:18   0  93.1G  0 part /mnt/data/calc/
├─sdb3   8:19   0  93.1G  0 part /mnt/arch/raw/
├─sdb4   8:20   0  93.1G  0 part /mnt/arch/calc/
├─sdb5   8:21   0  93.1G  0 part /mnt/data/tsdb/
└─sdb6   8:22   0  93.1G  0 part
```

Zpool status, formatted using zpool tool.

```
  pool: iit_bsp
 state: ONLINE
  scan: none requested
config:

        NAME        STATE     READ WRITE CKSUM
        iit_bsp     ONLINE       0     0     0
          raidz1-0  ONLINE       0     0     0
            sdb1    ONLINE       0     0     0
            sdb2    ONLINE       0     0     0
            sdb3    ONLINE       0     0     0
            sdb4    ONLINE       0     0     0
            sdb5    ONLINE       0     0     0
            sdb6    ONLINE       0     0     0

errors: No known data errors
```