

Session 5

[Unit].

~~Day 4~~ Day 5

- Service unit file. (extension will be service).
- Can create a shell script to create a service file for all the Members of the Dev Group (to provide Max Quota of 20%).
- Can set entire Quota for User Block.
- Most of the Automation Tools used is ansible
- To check if command is success / failure.
echo \$? special symbol in linux. $\$?$ \Rightarrow exit code.
other than 0 means false else 1.
- Sometimes useradd itself gives an error.
(How to Identify this) \Rightarrow code shell.

$\begin{cases} \text{Input} \\ \text{Output} \end{cases}$ Redirection

$[0 -lt 1] \Rightarrow 0$ exit code.

(Instead of passing multiple users in cmd, create a file (csv, txt etc.) and from that take user info.

$[0 -eq 0] \Rightarrow 0$ exit code.

$[0 -gt 1] \Rightarrow 1$ false \Rightarrow echo \$?

(Ex)

users=\$@

echo \$users.

users=\$(cat abc.csv).

for i in \$users

do
if id \$i > /dev/null.

then
echo "\$i user already exists"

else useradd \$i.
echo "\$i user created successfully"

done.
fi

if don't want to add bash in the cmd type

which bash

⇒ How do make the file executable command.

`chmod +x manage-user.sh`

Shebang. Shebang or Hashbang

`./manage-user.sh`. (If don't need to add
shebang) → And then can make
the file executable.

⇒ Learn about more & more commands to do good in
Shell scripting.

* Delete users list (Create one more script).

`userdel`, `passwd`

(eg)



Partition/formatting of Hard Disk

. (shell script).

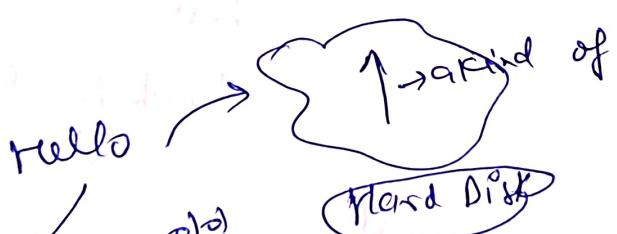
Use Case

Storage Management

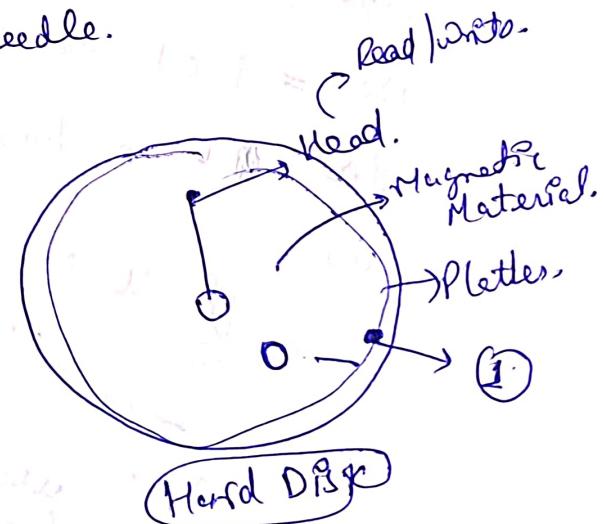
. How do we manage storage.

⇒ How Data stored in Hard Disk. (Binary format)

0101010001010001



Drop a Needle
Some Space created
Space created
Do nothing
Space → 0
No space → 1



Example . Don't provide user names in the terminal.

Users = \$(cat abc.csv) file contains list of users.

for id in \$users.

do

if id \$! > /dev/null garbage like file where will store the id output

echo "\$! user already exist"

else

useradd \$!

echo "\$! user created successfully"

done fi

end of an if block

exit code

\$?

if [0 -eq \$!].

↳

else

* inode table

An inode table is the data structure

that stores all nodes for a file system.

→ when you format a file system (like ext4), a fixed number of nodes are created and placed in this table.

→ Each entry in the inode table corresponds to one file or directory.

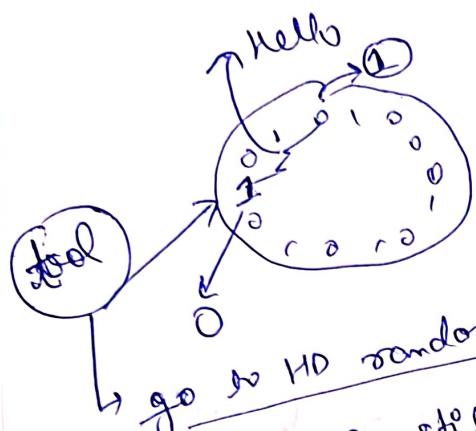
Delete Hard Disk Data.

→ Remove from Inode Table.

Formatting →

Existing Inode Table (Deletion)

Create an empty new Inode Table.



→ go to HD randomly updating the bytes.
Data is still there (But data has been changed now).

⇒ formatting only removes the Inode Table
which is all at not safe / still can restore.

chpasswd ⇒ allows you to set both username / password together.

```
echo "$i:$password" | chpasswd
```

openssl ⇒ command line tools used to perform cryptographic operations.

↳ Supports

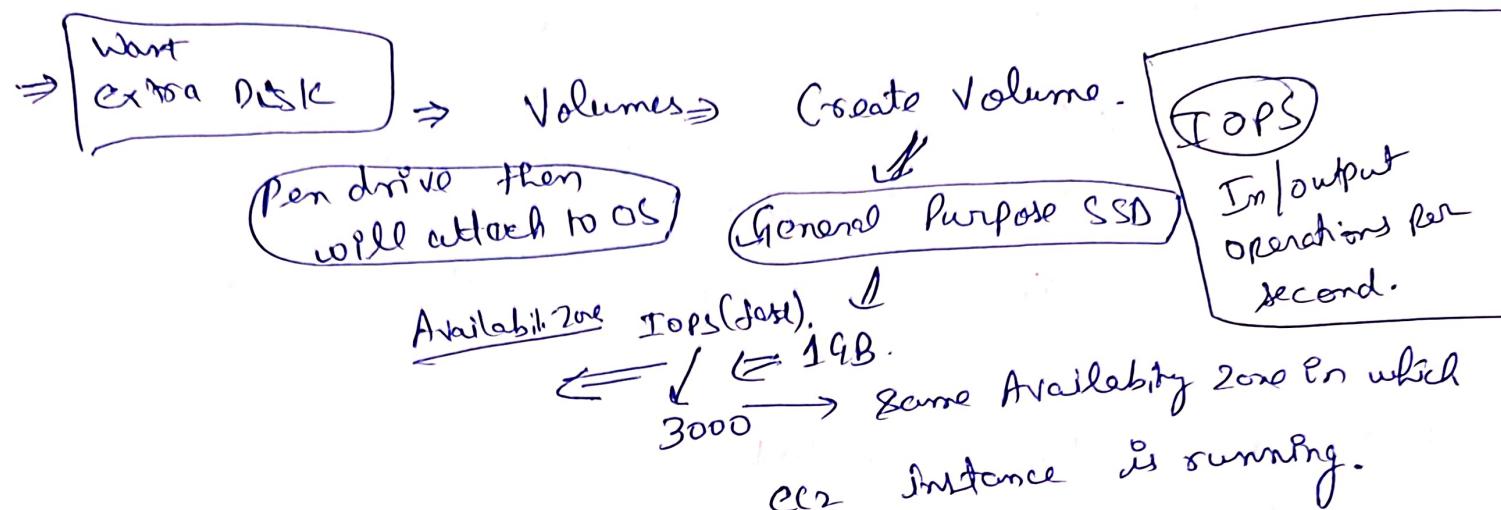
↳ encryption & decryption.

↳ Generate random passwords.

↳ Creating & Managing SSL certificates.

↳ Generating keys & Managing secure connections.

⇒ fdisk -l (How much disk is attached while creating EC2 instance).



Want to store Data

Partition ⇒ formatting ⇒ mount the disk.

fdisk /dev/hd^d (tool).

m → entire help documentation

n → primary/extended partition
↳ Max 4 in a disk.

P

+ 200 MB.

w Sudo

↓

fdisk -l

In one Disk,

Max 4
primary
partitions can
be created.

IOPS → No of r/w operations.

that can be performed
on a storage volume per
second.

Now need to format (Inode Table creation)

Buid new Inode Table.

Disk should be in same Availability Zone in which EC2 is.

Different Types of formatting.

[General Purpose]: Linux formatting types

→ [ext 4] (good & fast performance).

[Windows ⇒ NTFS.]

[XFS] ⇒ Good only when to Have a Bigger file.

(Cmd) → mkfs.ext4 /dev/xvdb1

(Make file system)

To use it, need to Mount to a particular Directory

(steps)

Mount :

mount /dev/xvdb1 myvol1 → directory.

df -h ⇒ All the file system present in OS.

(Steps)

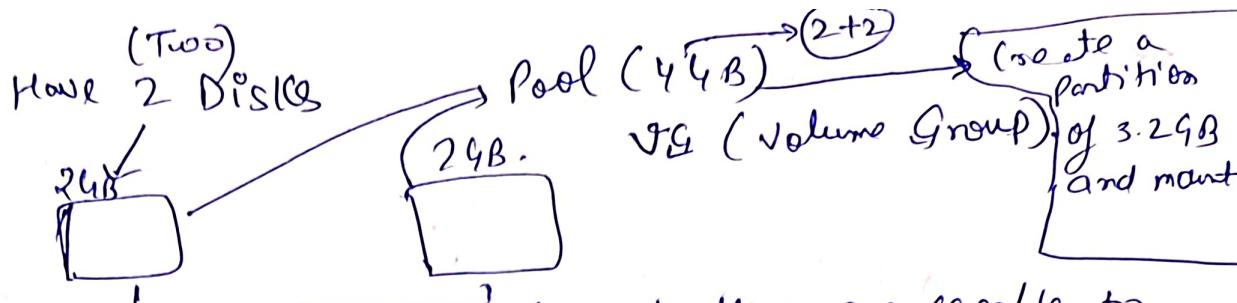
Volume attached → Partition of Disk ⇒ format of Disk

Store Data

Most often used

Mounting Need to be done.

Use Case



Have a file 3 GB size
→ In Linux Logical Volume (LV) Concept.

→ Logical Volume will help to extend the existing partition.

↓
NOT Real Pool of volume (Mix volumes together)
With kernel → Do illusion.
OS

→ LVM (How Data is stored, How 2 pool will be combined, How volume is being managed)

Need to install

PV → LV ⇒ Partition (Logical).

Google ⇒ LVM in Linux

⇒ Creating volume one (2 GB) & then one (3 GB)
(V1) (V2)

Logical partition,

Need to install

yum install lvm2

Create partition using LVM. (Not traditional)

→ A snapshot in AWS is a point-in-time backup of an Amazon EBS (Elastic Block Store). Snapshot allows to create restorable copies of your data, which can be used for backup migration or cloning.



Physical Storage



To create
1 VM
with create
2 Journals

Steps (Create PV (Physical Volume)).

1st

↓
pvdisplay (list).



fdisk -l (native).



pvcreate /dev/sd[bd]1.



pvdisplay.



pvcreate /dev/sd[bd]1



pvdisplay (working separately).

2nd.

Volume Group

Have 2 PV.

↓
vg create abcdef

↑ /dev/sdc /dev/sdg



vgdisplay (Display).

3rd

Partition

lv create --size 13.39

--name mylv abcdef

↓
lv display.

yum install lvm2

Volume Group Name
Logical Volume Name

(4th) Now Need to format (Inode Table)
(LVM)

→ mkfs.ext4

/dev/gfg/mylv ↴

(df -hT)

Command.

5th Step

Now need

mkdir gfg ↴

mount /dev/gfg/gf ↴ → Directory.

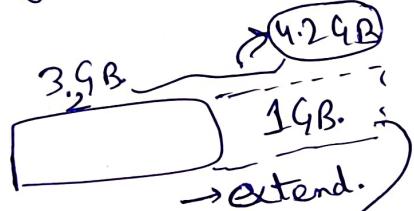


(df -hT)



Create files Now

(2) Need to extend the logical volume (But Data will be lost).



In case of LVM will add this part and format new part only and not the whole part.



lvmextend --size +1g /dev/gfg/gf ↴



lvdisplay.

↓
vgdisplay.

↓
df -hT

Want to
extend
logical
volume

Now Need to format only the New Added Part.

→ `resize2fs /dev/gsgvg/mnt`

↓
`df -hT`

Suppose 708 MB is left and want to Add 29 B More.

It will add one more DISK

39 B.

Mirroring

39 B → □ □ □ □

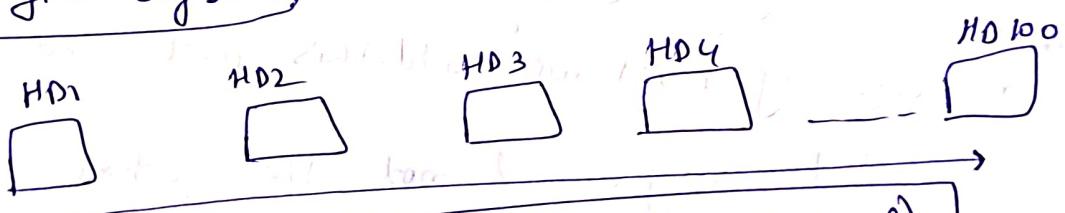
chunks

↳ Means storing
the same data

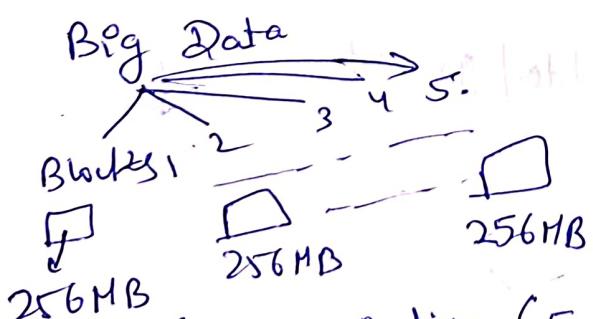
across the disks

(2x Space is required).

⇒ Distributed file System



* LVM (Used at OS level)



↳ Replication (Each block will be stored 3 times)

Concept

SSH concept

(How 2 systems can communicate to each other).

AWS Service

Each of the users should have Limited Access.

IAM

(Identity & Access Management).

Groups \Rightarrow Users

\Rightarrow Once create a group \Rightarrow then create users.

Similar permission to multiple user

Attach Policies

Give the permission to entire group.

(#) Need to study in detail about Group Rules

User Specific Need to create separate Directories/files or can be one common point from where can do this so should be Applicable to all.

Httpd.conf

SSH (P. Authentication)

/etc/ssh/sshd-conf/