

# 18 MPI Cluster

// To check ip address → ip -a

## Master:

- ① \$ sudo apt-get install -y mpich // Install in both client & master
- ② \$ sudo nano /etc/hosts // To add ip addr of master & clients  
Ex: 172.16.51.52 master  
172.16.51.39 client1
- ③ \$ sudo adduser mpiuser // mpiuser - is client  
Enter - for everything then , y
- ④ \$ sudo usermod -aG sudo mpiuser // Making mpiuser a sudoer
- ⑤ \$ sudo apt-get install openssh-server // add open-ssh server
- ⑥ \$ su - mpiuser // Login to newly created user by switch to mpiuser if needed
- ⑦ \$ ssh-keygen -t rsa // It will generate the key i.e authorized-key
  - \$ cd .ssh
  - cat id\_rsa.pub >> authorized\_keys
  - ssh-copy-id client1
  - exit cd..Aft client creation → ssh client 1 to connect without password

## In client:

- ① \$ sudo apt-get install mpich
- ② \$ sudo nano /etc/hosts  
172.16.51.52 Master  
172.16.51.39 Client 1
- ③ sudo apt-get install open-ssh-server
- ④ \$ ssh-copy-id master
- ⑤ \$ ssh master // Key generation optional & same to client 2 with new client 2
- ⑥ \$ ssh master

## N Mounting in nfs

### Setting up NFS

In Master:

① \$ sudo apt-get install nfs-kernel-server

② \$ sudo nano /etc/exports

// add line → /home/nriuser/cloud \*(rw,sync,no-root-squash,no-subtree-check)

→ here instead of " \* " we can use ip to which we want to share

③ \$ exportfs -a      (or)      Sudo exportfs -a

④ \$ sudo service nfs-kernel-server restart

In client:

① \$ sudo apt-get install nfs-common

② \$ mkdir cloud

③ \$ sudo mount -t nfs master:/home/nriuser/cloud ~ /cloud

④ \$ df -h      // To check the mounted directories

② Experiment WebDAV filesharing with FreeNAS

→  
① Download freenas

Freenas → stable → Release → X64 → FreeNAS - 11.2 - RELEASE

② Go to VM Ware → Click on create a new VM

③ Select the Installer disc image file i.e. freenas file. (Iso file)  
i.e. c:\Users\MSIS\Downloads\FreeNAS-11.2-RELEASE.iso (here)  
next

④ Give VM name : Freenas & location → [next]

⑤ Give 2048 to memory → [next]

⑥ Click on customized hardware → add 4GB to "memory"  
Add & Finish

⑦ Install / update ⑧ For inside click ctrl + g EMP  
outside the VM ctrl + alt

⑨ Yes → <sup>Not</sup> (span bar) \* com1, ok → then give password  
soisC123, confirm password sois@P23 → ok

⑩ Then click → Boot via BIOS, Then we get ip address  
after booting (like http://192.168.10.131)

⑪ Then ~~11~~ <sup>switch</sup> ~~12~~ ~~H~~ <sup>12</sup> reboot system (Reboot system)

⑫ After booting successfully installed (11) Then reboot the  
system we get ip address

Signature of the Lecturer

(12) ~~Right~~ Copy the ip address & paste in browser  
Then → Legacy Web interface ↳ (click on)

(13) Log in to legacy Web interface?  
(continued) → Welcome to FreeNAS  
username: root  
password: seis@123

(14) Then go to VM ware & select FreeNAS (or launch VM)  
→ Edit VM setting  
→ Select IDE in ~~memory~~ Hard disk (m)  
SATA in harddisk  
→ Add memory 20GB → power on button  
→ Reboot

(15) Come again to browser  
login → Then  
→ storage → Volume Manager  
→ Volume Name: smarti  
→ in Volume layout drag till '1'   
→ Add Volume  
Existing data

(16) Go to shell (In left side scroll down)  
Add any file you want to add  
# cd /mnt/smarti/  
# touch file1.txt  
# ls  
file1.txt  
file2.txt

## ① Go to Services

(5)

Services → WebDAV → give password (sois@123) → ok

② In left side WebDAV → check WebDAV is running or not

③ Activate

④ give ip address

⑤ Activate the window SMB

SMB

⑥ In top click on the add window(smb) share, give the name (webshare) & start select the path and give allow guest access.

□  ok

⑦ Share Name → share Name : studishare

□  change user & group ownership  
→ ok

⑧ Go to browser & give ip address / webshare.

→ Then give username: WebDAV  
password: sois@123

Output:

StudiLapsus

## ③ SMB in Windows:

For shared folder the same step till sharing

Then open edit policy in windows

Click on the computer config → administration templates → network → lanbda → work lambda workstation → enable insecure guest logons (keep it enable) → ok

→ Then go to This PC → This PC → Add (above ... dot) click  
→ Add new location → next → choose a custom new location → next  
Wizard  
→ Add New location → next ⇒ Then you will get your shared folder  
(in This PC) 

#### 4 Sharing in Ubuntu (FreeNAS)

- ① Download VM ware
- ② Download FreeNAS i.e. stable → release → x64 → FreeNAS-11.2  
= RELEASE-150
- ③ In Terminal ⇒ sudo ~/Downloads/VMware-Player\*
- ④ Go to VMware & click the Create new VM
- ⑤ Then select the Installer disc image i.e., FreeNAS file. (/home/naveen)  
After choosing click on next  
Downloads/FreeNAS-11.2  
-RELEASE-150
- ⑥ Give name & add location → **next**  
Name: FreeNAS  
location: /home/naveen (known) VM locat: /home/naveen/FreeNAS (new)
- ⑦ Give 2048B to memory **next** → Customized H/w (select) → Memory  
→ Then add 4GB to memory
- ⑧ **Finish** → Then we get install page  
Then → Install/upgrade → **OK**
- ⑨ For moving inside VM 'ctrl+g' → outside area → ctrl+alt
- ⑩ Give **Y/N** → ~~tab~~ (space bar) **\*** → OK
- ⑪ Give password - sain@123, confirm password - sain@123 → **OK**
- ⑫ Click on <Boot via BIOS> ⑬ Then we get IP address
- ⑭ Agree u / shutdown ⑮ Open VM → select name of VM  
Then "Go to edit VM setting"
- ⑯ Select IDE ~~P~~ SCSI → **next**
- ⑰ Click on Create a new virtual disk
- ⑱ Add memory 2048 & keep hard disk to 4GB (Memory-4GB)  
**Add**
- ⑲ Then click on finish button it will reboot system
- ⑳ Click on power on button
- ㉑ Then take the ip address of freeNAS & paste in browser

We set freenox page → select "Legacy web interface" ⊕

→ Username : root

→ password : sois@123 →

(21) Then Go to storage

→ Storage → Volume → manage volume

'Give Volume name : ~~sois~~ StructVol,

then click on available (it works only when you add extra memory)

In freenox after installation) → drag to 1

(22) Then click on add volume

(23) Go to services

(24) Activet the linear NFS

NFS  A check

Running

(25) Service → Linear nfs → give password (sois@123)

(26) Add Unix (~~NFS~~) Share

Path  Trust me

D rule

(27) Go to shell :

Add any file you want to add

# cd '/mnt/StructVol'

# ls

# touch test.txt

# ls

test.txt

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Then go to terminal

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- \$ mkdir cam // Make a directory named as "cam"
  - \$ cd cam (check bat about no)
  - \$ pwd b // check the directory  
It <sup>should</sup> give /home/musi/cam
  - \$ sudo mount 172.16.159.129 :/mnt/snativol /home/musi/cam
- // This command is used for mounting the file from <sup>ip of</sup> freenas to our local repository

- \$ sudo cd cam
- \$ ls
- file, bat
- \$ df -h
- best

ip :/mnt/snativol/freens  
(at last we get ↑ ) => which means mounted 4 shares