

19, 20 → 29,  
29, 30 → 34, 35

## Session-188

Date \_\_\_\_\_  
Page \_\_\_\_\_

- \* When we write something on a terminal or any other text editor they save on the clipboard first.
- \* When you do (ctrl + c) → data stored some part of memory, i.e., clipboard.
- \* Without coming to laptop & any body retrieve those data by command.
- \* # xclip -o  
→ (Show the data of clipboard)  
**xclip** → Software / package
- # yum list xclip
- # rpm -q xclip-release
- # cd /etc/yum.repos.d/
- # ls
- # yum list xclip
- # yum install xclip
- \* Now, when we put something in clipboard →  
# xclip -o  
→ (Show clipboard data)

They have  
xclip

# xclip -o

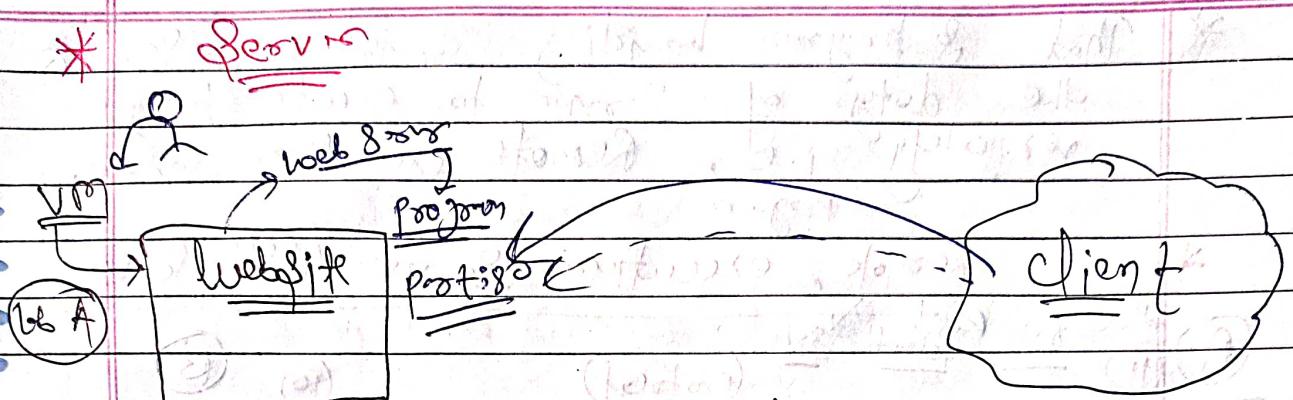
(By)

[ ]  
(from here we can see data)

- \* If you want to store copy data into clipboard without using graphical mouse.

# date | xclip -i (Take data in clipboard)

# xclip -o



\* → you have to decide what kind of service you want to provide.

\* If you want to run any program in VM, you have to be in front of them physically in that system.

\* But I want from anywhere in the world we want to run that program from any VM the program is available in VM.

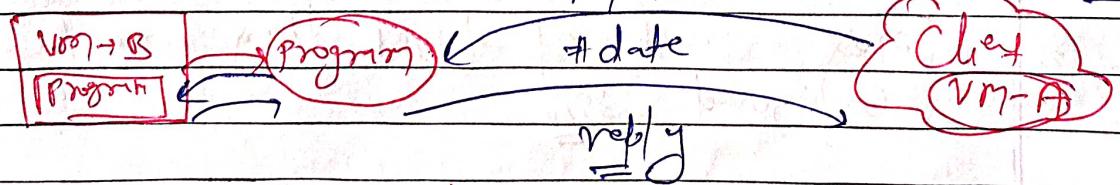
\* i.e., Local Execution.

\* Mean if you running your program from in your VM if you are physically in front of VM.

\* If program executed remotely from laptop B you are running program of laptop (A) i.e., remote execution. (Through how they execute)

\* for this you have to create a program that take request of client and that request go to VM locally and if they ask for data and then execute, reply Large file output of data and to client. This program

\* This program is giving service to B. i.e. Service request



i.e., remote execution

\* That is program providing service i.e., Server the duty of Server to execute program remotely i.e., Remote execution Server.

program

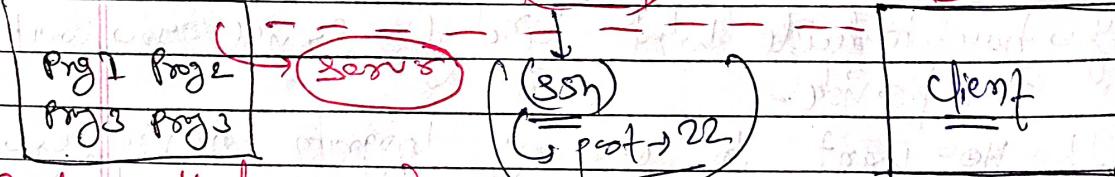
### Remote execution Server / SSH Server

(A)

ssh ← → telnet

(Protocol)

(B)



(→ Configure that system as Server i.e., from my laptop we can run programs remotely to perform tasks.)

(Protocol)

for Configure Server →

RPM package (lsof)

(1) Configure files

(2) Service → daemon (Start)

Step 1

Step 2

\*

# open -q OpenSSH-Server

# vi /etc/ssh/sshd\_config

(Copy all ports except for ssh directory)

file port 20-22

→ Already Configured

Step 3

\*

Systemctl status sshd

\* Linux most of time they have pre-configured sshd

- \* If you want to make a system of Client then they have need to follow two steps-
    - (i) Software (firefox)
    - (ii) Connect to the server.
  - \* If from **VM-B**: You want to Connect to the ssh server → you are now ssh client they won't use software firefox bcz firefox doesn't support ssh.
  - \* from client side software: # ssh -9 openSSH clients
    - # which -qf /usr/libexec/ssh  
(tell to the software name)

↓  
**Client Software**
  - \* Now, Connect →
  - \* If you want to run a program of **VM-B**
    - No ways →
    - (i) You go to that system physically.  
then do local login, then you need shell to run the program. Then run the cmd program.
    - (ii) Other way from **VM-A** we want to run the program / cmd from **VM-B** through remotely so, here they use IP & remote login to that system. **(Remote login)**
  - \* Here, we are doing local execution or local host. We are doing everything locally.
  - (ii) Other way from **VM-A** we want to run the program / cmd from **VM-B** through remotely so, here they use IP & remote login to that system. **(Remote login)**
- # ssh -2 root 172.20.10.12  
**(destination IP)**

\* After login you get the shell, this is the shell come from other (Vm-B), the shell you have got is remote shell.

\* The prompt you get of (Vm-B)

# if config changes

(you can see the IP of system-B)

\* Now, you got the shell of (Vm-B) then you can run any program they execute, by using that system main CPU.

i.e., remote execution of remote host.

Two host will be seen → local host, remote host

# exit

to (exit from local)

\*

Server ssh

→ Client Software  
→ Command

Linux  
Lsh

Mac  
Lsh

G  
SSH Client  
Putty

Windows  
Putty

\*

① ssh Server  
Configure

②

Program

\* If you want to run any program/ lsh-client code from one system to other then you can use ssh →

# ssh root @ 192.168.10.10

password:

\* If your requirement is to run only one cmd from one system to other system then you don't have to login →

# ssh root@172.10.20.72 date  
(They login run & exit) =

\* If you have requirement to run multiple cmds -  
① login run & exit.  
② By one line multiple cmds we run and exit.

# date ; Cal ; ls  
→ multiple cmd in one single prompt.

# ssh root@172.20.10.11 date ; Cal ; rm -rf /tmp/\*  
\* Here we can see they run all cmd's in System B, but only they execute #date; then they exit or other two cmd #cal, rm -rf run in local system. # ls

\* This syntax is wrong for execute multiple cmd's in one line.

→ for this →

# ssh root@172.20.10.72 "date; Cal; rm -rf /tmp/\*"  
→ Now they run all cmd in off system.

\* When we do ssh we get the shell of off system remotely, but if we run any GUI cmd they won't run because we use any graphical program they failed.

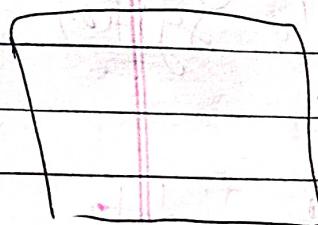
\* When the shell comes they only share the shell not the graphics drivers.

# ssh root@172.10.20.72 date

# ssh root@172.10.20.72 firefox  
⇒ (failed)

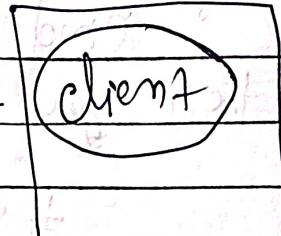
(A) 21

(B) → 20



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# date



# date

↳ output

↳ formular  
Browser

→ by this way gothic on client

# 88h -X root@172 -- firefox

firefox

G67

→ Client (-x) → XII forwarding

→ server side (gothic)  
forwarding