Unit - 8

Linux Networking

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* Networking services & configuration files:

* Network services

- it is a set of applications run in background.
- it enable certain capabilities as necessary.
- eg. connecting to network, file sharing.
- following 3 services are required for N/w activities on Linux system.

1) Network: This service turn on N/w card or power the modem.

2) iptables: - it is kernel based firewall service
- used to filter packets
-

3) xinetd: - it is server
- used to monitor & control other servers
- this service free the CPU load.

* configuration files

- these files for N/w interface are located in /etc/sysconfig/network-script/ directory.
-
- This is used to activate & deactivate these N/w interfaces.
- No. of interface files can differ from system to system
- Three categories of files that exists in this dir.
  1. Interface configuration files
  2. Interface control files
  3. Network function files.

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* Linux Networking tools

1) **Ping** :- used to check a remote system is running or not
- used to detect wheather system is connected to NIW or not

Syntax :- $ ping www.gmail.com ↵

Note :- we can use IP instead domain name.

2) **Host** :- - used to obtain NIW address information
- Infon consist of IP add, domain name, etc

Syntax :- $ host www.google.com ↵

3) **traceroute** :- show path from your current machine to your remote server.

Syntax :- traceroute devdojo.com

4) **SSh** :- stands for secure shell and runs on port-22.
- It is secure way to connecting to remote server.

Syntax :- SSh you-user@domain.com.

5) **who** :- used to see which users are currently online on your system.
- list all users currently connected.
- ~~shows when user logged in, from where, if booting~~

Syn$ $ who ↵

6) **finger** :- ~~show user info~~ this command which gives details of all users logged in.
- used by system admin.
- provide details like, login name, user name, idle time, login time, etc

7) rlogin :- this enables you to log in to other unix machine on your N/W.

Syntax $ rlogin machinname ↵

8) slogin :- Secure login, work as like ssh.
- used to connect securely to remote machine

9) rcp :- used to copies files or directory betn local & remote system. or betn two remote system.

Syntax :- $ rcp -p -r filename direcy ↵

eg. $ rcp /mydire./kk.txt . karthik./kk.txt

10) rsh :- (remote shell)
- enable you to execute a single command on remote machine without login to remote machine

Syntax $rsh storbug ls /etc/skel ↵

* Protocols and services :-

1) SMB :- (Server message BLOCK) :-

- it is client - server comm^{n} protocol.
- used for sharing access to files, printer, serial ports, and other resources..
- used to connect windows computer to Linux systems.
- IBm developed SMB protocol in 1980.
- SMB enables appln and their users to access files or remote servers.
- eg. connect other resources, printers, etc
- it provide Client appln with secure & controlled method for open, read, move, create, update files.
- works in application later
- SMB runs direcly over TCP/IP and uses port No. 445

2) FTP : File Transfer Protocol

- It connect to the remote system to exchange files & directories. from one host to another over a N/w
- Sftp stands for secure ftp.
- Syntax

```
$ ftp ↵
ftp>
```

- when ya write $ ftp it will go to ftp> prompt
- Here we can write ftp commands to perform diff. fun^n.
- Exit from ftp prompt type '!' eg. ftp> ! ↵
- connect to ftp site :- $ ftp, ftp> open IP/Hostname ↵
- Download files :- $ ftp → ftp> get filename ↵
- Upload file :- $ ftp → ftp> put filename ↵
- Download multiple files :- ftp> mget *.txt ↵
- Uploadiy multiple files :- ftp> mput *.txt ↵
- Close command :- when ya waut to connect to another server without existing the ftp command. we close command.
- connect to a new server from ftp prompt

```
$ ftp
ftp> close
```

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* NFS (Network file system)

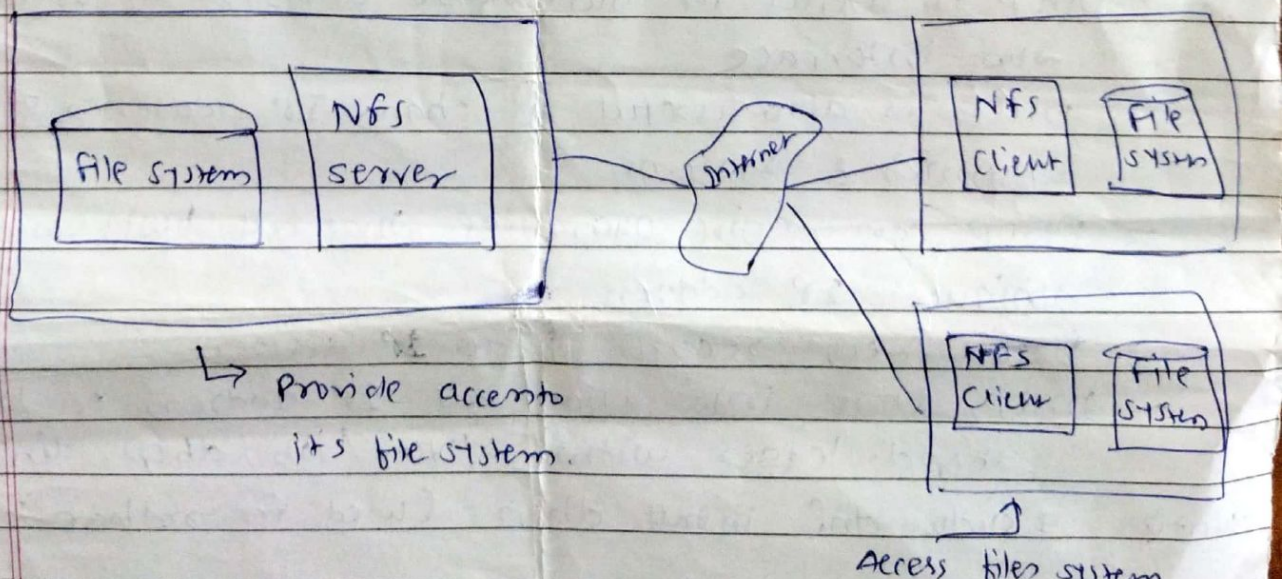
- It allows system to share directories and files with other over a ntw.
- Using NFS user and programs can access files on remote system. similar to local system.
- it is distributed file system protocol, designed by Sun microsystem in 1984.

* Installation & server

- $ sudo apt install nfs-kernel-server
* to start NFS server
- $ sudo systemctl start nfs-kernel-server.service
* for client system
- sudo apt install nfs-common
- it is client server appln that allow user to view & modify files on remote computer as like local files.
- it is one of several standard for Distributed file system on Network attached ~~ser~~ storage.

advant - Low cost, Easy to setup, Enable central mgmt & shared files, Reduce disk space,

disadvt - Need trusted ntw
Slow down Ntw if high traffic



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3) LDAP (Lightweight Directory Access Protocol)

- It is a set of open protocols used to access centrally stored info. over a NIW.
- It is based on X.500 standards for directory sharing;
- X500 is standard that contains hierarchical and categorized infon.
- infon includes names, address, phone numbers.
- Like X500, LDAP organize. infon in a hierarchical manner using directories.
- LDAP is commonly used within individual organizations like universities, govt. departments, private companies.
- LDAP is a client-server system.
- LDAP is mainly used to organize all data centrally.
- LDAP also supports backend databases. which store directory.

4) DHCP:- (Dynamic Host Configuration Protocol)

- it is NIW protocol that assign TCP/IP infon to client machine
- Each DHCP client connects to centrally located DHCP server.
- DHCP is useful for automatic configuration of client-NIW interface
- DHCP is also useful to chang IP addresses & large number & systems.
- DHCP can give guarantee that all hosts on NIW have unique IP address.
- DHCP keep records & all IP address.
- DHCP store info about all IP address in below file. dhcpd.leases within /var/lib/dhcp. directory.

Syntx: $ sudo dnf install dhcp (used for redhat)