Networking in LINUX

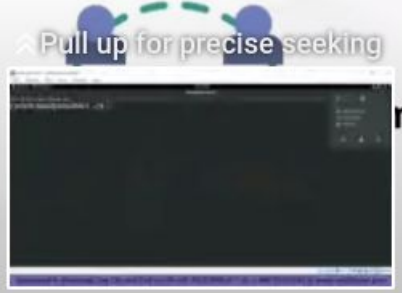
A group of interconnected computers are called as a Network; Working on networks and handling them would be called as Networking

A system administrator's routine tasks include configuring, maintaining, troubleshooting, and managing servers and networks within data centers. There are numerous tools and utilities in Linux designed for theadministrative purposes.

- **Configuring**
- **Maintaining**
- **Troubleshooting**
- **Managing servers & networks**

Why do we need Networking?

Share resources across the network



nmunicate across the network with other users

Network Interfaces:

A network interface is a physical or virtual network adapter that connects your Linux system to a network. Commonly, network interfaces are named with prefixes like `eth` (Ethernet) or `wlan` (wireless LAN) for physical interfaces and other names like `lo` (loopback) or `virbr` (VirtualBox bridge) for virtual interfaces.

ifconfig: Previously used to configure network interfaces, but now replaced by the `ip` command.

ip: The `ip` command is the modern and preferred tool for managing network interfaces. It can be used to display and modify network interface configurations, routes, and other networking aspects.

`lo`: This is the loopback interface, used for local communication within the machine itself. It has the IP address 127.0.0.1, which is the localhost address, meaning it points to the local machine.

`wlp2s0`: This is a wireless network interface that is up and active (`state UP`, `LOWER_UP`). It has been assigned the IP address 192.164.33.65 with a subnet mask of /24 (255.255.255.0). This means it's connected to a local network and is obtaining its IP address dynamically via DHCP (`dynamic`).

`virbr0`: This is a virtual network interface for the VirtualBox NAT networking. It's currently down (`state DOWN`) and has the IP address 192.168.122.1 with a subnet mask of /24.

`docker0`: This is the default bridge network interface used by Docker. It's currently down (`state DOWN`) and has the IP address 172.17.0.1 with a subnet mask of /16.

Network Services:

Linux systems often run various network services, such as Apache for web hosting, SSH for remote access, DHCP for automatic IP assignment, and many more. These services are essential for various networking tasks and communications.

Network Security:

Linux provides robust security features to protect network communications. This includes firewall configurations using iptables/nftables, Virtual Private Networks (VPNs) for secure remote connections, Secure Shell (SSH) for encrypted remote access, and TLS/SSL protocols for securing web communications.

Netstat, ping, ip a, ifconfig, nslookup, ifup, ifdown

Route -n

ip route add <destination_network> via <gateway_ip>

sudo vi /etc/hostsname

sudo vi /etc/hosts

wget https://nginx.org/download/nginx-1.20.1.tar.gz

```
sudo tar -zxvf nginx-1.20.1.tar.gz
cd nginx-1.20.1
./configure
make
sudo make install
```