DAY 4: 16/10/24

Router and Switches

Here we will first discuss about Basic of Networking.

What is Network?
Network is a collection of devices.
Networks are used for a number of reasons as given below.

1. **Information Sharing.**
2. **File Sharing**
3. **Resources Sharing**
4. **Applications Sharing**

A Network can be as small as two computers that are directly connected or large as the internet with millions of devices.

So now we will start from Router.

What is a router?

A router is a device which makes communication between two or more different networks.

It works in layer 3 that is Network layer.

Example:

The router selects the best path from the router table.

Let see different Types of Routers:

Wired Routers:

- **It is typically box shaped devices that connect directly to computer with wired connections.**
- **It use Ethernet cables to connect your computer to a router.**
- **Like one end is connect to router and other end is connected to switch and then computer etc.**
- **It support NAT (Network address translation) technologies also . Which allow Multiple computer to use same public IP.**

Wireless Routers:

- **It is similar to a wired router, a wireless router connects directly to a modem via a cable for receiving internet data packets.**
- **Wireless Router distribute data packets using one or more antennae.**
- **The router convert that data packets, which are written in binary code like o's or 1's in to radio signals which antenna broadcast wirelessly.**
- **A machine with a wireless receiver can then receive these radio signals and convert then back into binary code etc. same like Wired router which established wired local area (LAN) & wireless router establishes Wire Local Area.**

Core Routers:

- **A Core router is a wired or wireless router that distributes internet data packets within a network but does not distribute data packets between multiple networks.**

Edge Routers:

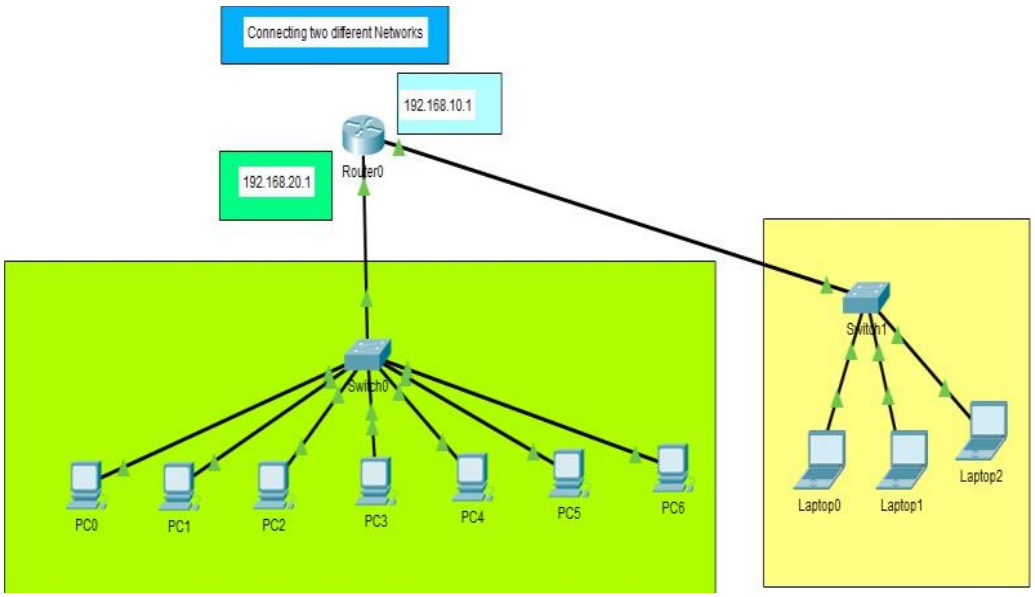
- **An Edge router is a wired or wireless router that distributes Internet data packets between one or more networks, but not distribute data packets with a network.**

Virtual Router:

- **Unlike a Physical wired or wireless router , a virtual router is there it is logical router for redundancy. Like we have HSRP (Hot Standby router redundancy protocol) and VRRP(Virtual router redundancy Protocol) etc. In this we will create logical router in between two router like if any router go down then other router start working. We will see this in our course.**

Router:

- **Routers interconnect different networks or In simple way we can say switch is use to connect devices with a network where as router is use**
- **to connect different networks.**
- **It works on Layer 3 (Network Layer)**
- **It choose the best path**
- **It perform Routing.**



^^ Aswath Arya^^

-cyber security engineer

CCNA V.1.1 (200-301)

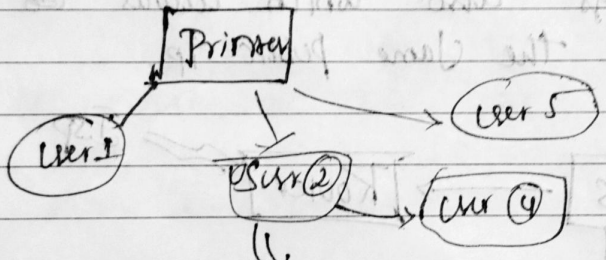
1 What is Network?

=> Network is a collection of device.

* Network are used for the number of reasons listed below.
  * Information Sharing.
  * File Sharing.
  * Resources Sharing
  * Applications Sharing.

A network can be a small as two computers that directly connect or large as the internet with millions of devices.

Ex:



By using networking single Printer can share the entire organization.

Switch: Switch is used for same network.
Router: Router is used for the different network.

=> What is Router:

Router is a device which makes the communication b/w two or more different network.

If work in a Layer - 3 - That is network layer.

Different types of Routers:-

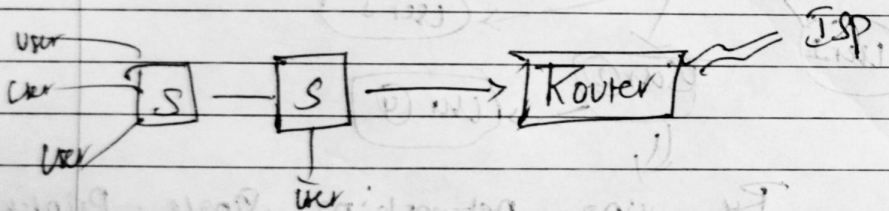
Wired routers:-

* It was a box shapped router that was directly connected with computer with wired.

* It use eathernt cables to connect your computer to a router.

* One End is connected to the router & another End is connected to the Swich then computer etc.

* It supports (NAT) Network Address translation Technology also which allows to multiple computer to use the same public ip.



Wireless routers:- (Wifi)

* A wiress router connects directly to the modem via cable for reciving internet data packets.
* Wireless router distrubute the data packets using one or more anteana.
* The router converts the data packets which are written in the binary code like 0, 1 in to radio signals which Anteana broadcast Wirelessy.

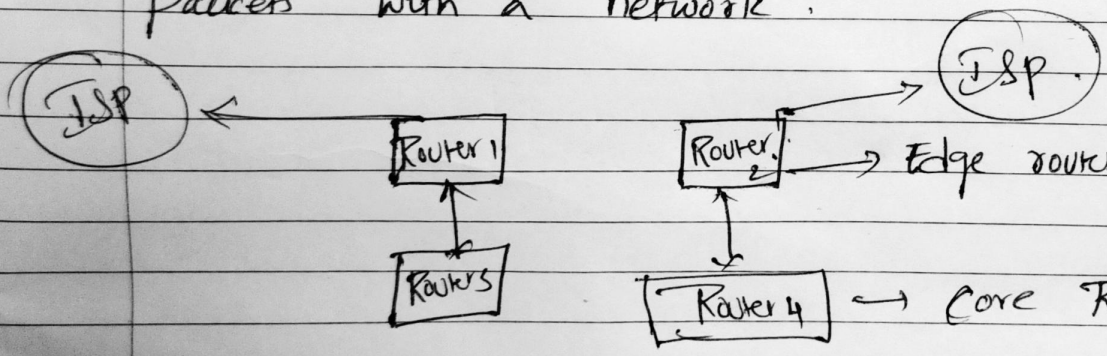
* A machine with a wireless reciver can then recive these radio signals and convert back into the ~~Establishes~~ binary etc. (Same like wired router which is established wired Local Area (LAN) & wireless router Esthablish (wire Local Area)

CORE Routers:

* A core router is a wired or wireless router that distrubute the internet data packets within a network but donot distrubute data packets b/w multiple Networks.

Edge router:

It is also like as wired or wireless router it distrubute the data packets b/w one or more routers but not distrubute the data packets with a network.



Virtual Router

* A Virtal router there is a logical router for redunency (Redundency) like we have (HSRP Hot Standby Router Redutency) Protocol - (VRRP) Virtual router redundancy Protocal). In this we will create a logic router in b/w two routers

Like if any router go down, Then another router start looping -