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Lab Report

Course Code: CSE 320

Course Title: Computer Networks Lab

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Report name: Simple Network Configuration using hub.

Objectives:

The purpose of this lab was to build a simple network in Cisco Packet Tracer using hub from scratch.

Tools and Technology:

- Cisco Packet Tracer (version 8.0.0)
- End devices
- Hubs
- Copper Straight-Through Connection

Theory:

A network can be defined as a group of computers and other devices connected in some ways so as to be able to exchange data. Each of the devices on the network can be thought of as a node; each node has a unique address. Addresses are numeric quantities that are easy for computers to work with, but not for humans to remember, Example: 204.160.241.98. For designing a simple network, we need end devices, hubs and connections to connect the devices with the hub.

End devices: If network devices are the core, end devices are the ones that use this core. Packet Tracer offers a wide range of end devices, starting from PCs and laptops, to tablets, PDAs, and even a TV.

Figure 1: End devices

Hubs: It is a very simple network device that is used in LANs. It is basically a multiport repeater. Hubs do not decide anything and forwards any traffic to all of the ports. So, they are not smart devices. They have multiple ports that connects different network equipment in the same network. There are two major problems with.

1. Only one PC at a time can send data so having one big collision domain.

2. One large broadcast domain.

Figure 2: Hubs

Connections: We have to Choose the Connections as per our need to connect different end devices with the hub. For this we need to choose icon from the device-type selection box lists several cables in the device-specific selection box. Packet Tracer provides several cables that can be used to connect devices. For this lab we used automatically choose connection type and used copper straight through wire to connect the devices.

Automatically choose connection type

Copper Straight - Through

Figure 3: Connections

Figures:

Here, I used single hub to design a simple network. As end devices I used three computers (A, B, C) and three laptops (D, E, F).
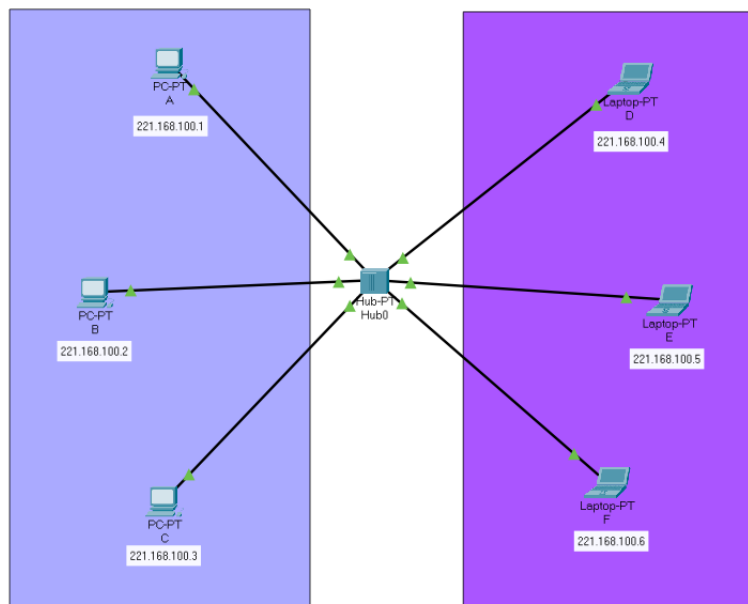
Figure 4: Simple network using single hub

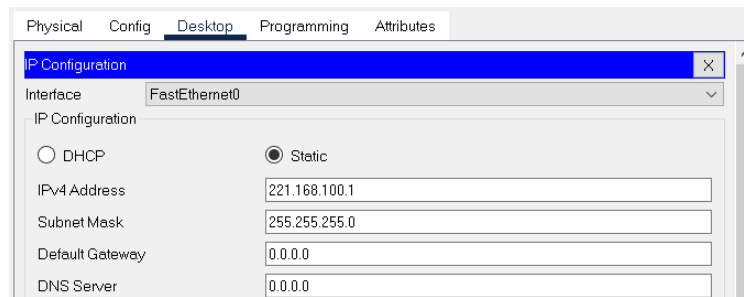To build this network I used IP4 address:

Figure 5: IP configuration for an end device

Here, I used two hubs to design a simple network. As end devices I used four computers (P, Q, R, S) and four laptops (L, M, N, O).
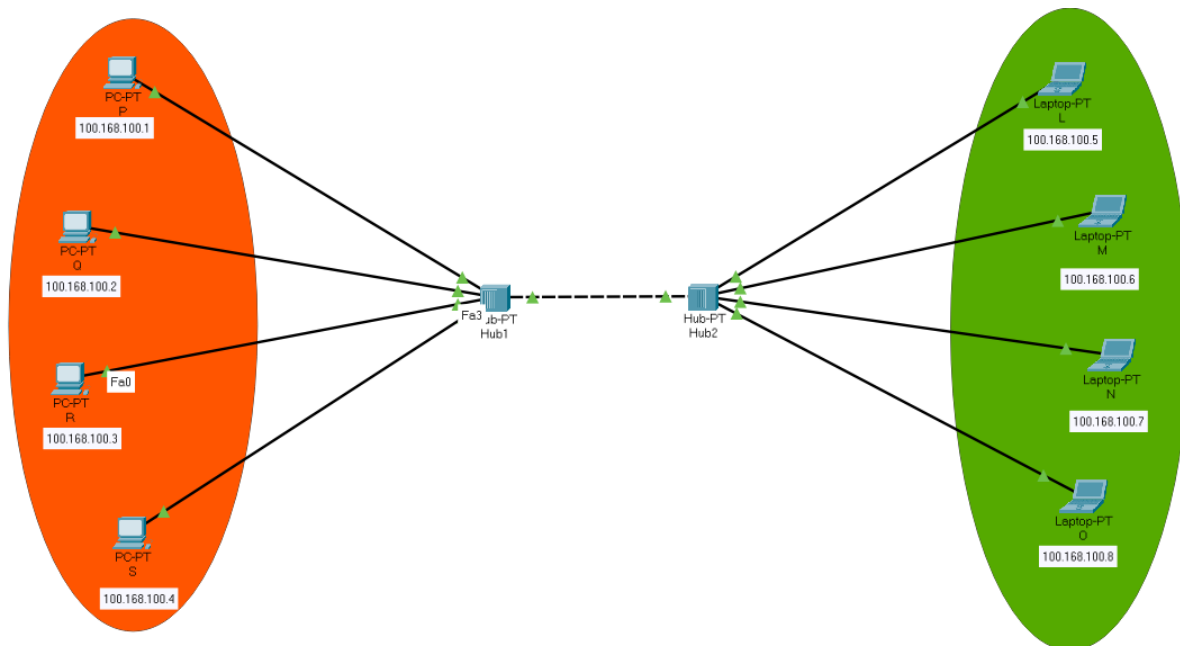

Figure 6: Simple network using two hub

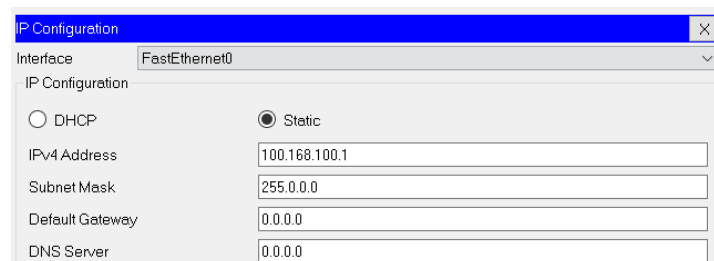To build this network I used IP4 address:

Figure 7: IP configuration for an end device

Output:

After designing the simple network, a packet was transmitted successfully from a source device to a destination device.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	P	N	ICMP	■	0.000	N	0	(edit)	(delete)
●	Successful	Q	S	ICMP	■	0.000	N	1	(edit)	(delete)

Figure 8: PDU Packet transmission from source to destination (Single hub)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	A	F	ICMP	■	0.000	N	0	(edit)	(delete)
●	Successful	B	C	ICMP	■	0.000	N	1	(edit)	(delete)

Figure 9: PDU Packet transmission from source to destination (Two hub)

Conclusions:

In this lab we have gained the knowledge of how to use Cisco Packet Tracer, about end device, network devices, hubs, how to make a connection among devices and at last we learned how to build a simple network configuration using hubs, end devices. During designing the simple network I didn't face any problem and I have successfully passed several simple PDU through the network that I designed.