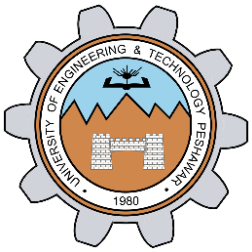
INTRODUCTION TO

CISCO PACKET TRACER

Lab #09



Spring 2021

CSE303L Data Communication and Networks Lab

Submitted by: **Shah Raza**

Registration No. : **18PWCSE1658**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engr. Faiz Ullah

Saturday, July 17, 2021

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

CSE 303L: Data Communication and Computer Networks

Demonstration of Concepts	**Poor (Does not meet expectation (1))** The student failed to demonstrate a clear understanding of the assignment concepts	**Fair (Meet Expectation (2-3))** The student demonstrated a clear understanding of some of the assignment concepts	**Good (Exceeds Expectation (4-5)** The student demonstrated a clear understanding of the assignment concepts	**Score** **30%**
Accuracy	The student mis-configured enough network settings that the lab computer couldn't function properly on the network	The student configured enough network settings that the lab computer partially functioned on the network	The student configured the network settings that the lab computer fully functioned on the network	**30%**
Following Directions	The student clearly failed to follow the verbal and written instructions to successfully complete the lab	The student failed to follow the some of the verbal and written instructions to successfully complete all requirements of the lab	The student followed the verbal and written instructions to successfully complete requirements of the lab	**20%**
Time Utilization	The student failed to complete even part of the lab in the allotted amount of time	The student failed to complete the entire lab in the allotted amount of time	The student completed the lab in its entirety in the allotted amount of time	**20%**

Credit Hours: 1

Lab 9

Introduction to Cisco Packet Tracer

OBJECTIVES OF THE LAB

This lab aims to introduce Cisco Packet Tracer. Some specific topics covered in this lab are

- Creating Networks
- Making Connections
- Making LAN using Hub
- Making LAN using Switch
- Difference between hub and switch

Introduction

Cisco Packet Tracer is an innovative network simulation and visualization tool. This free software helps you to practice your network configuration and troubleshooting skills via your desktop computer or an Android or iOS based mobile device. Packet Tracer is available for both the Linux and Windows desktop environments.

With Packet Tracer you can choose to build a network from scratch, use a pre-built sample network, or complete classroom lab assignments. Packet Tracer allows you to easily explore how data traverses your network. Packet Tracer provides an easy way to design and build networks of varying sizes without expensive lab equipment.

1. **Creating Devices**
    a. Choose a device type from the **Device-Type Selection** box
    b. Click on the desired device model from the **Device-Specific Selection** box
    c. Click on a location in the workspace to put your device in that location
    d. If you want to cancel your selection, press the **Cancel** icon for that device
    e. Alternatively, you can click and drag a device from the **Device-Specific Selection** box onto the workspace
    f. You can also click and drag a device directly from the **Device-Type Selection** box and a default device model will be chosen for you

2. **Making Connections**
    a. To make a connection between two devices, first click the **Connections** icon from the **Device-Type Selection** box to bring up the list of available connections.
    b. Then click the appropriate cable type.
    c. The mouse pointer will change into a "connection" cursor.
    d. Click on the first device and choose an appropriate interface to which to connect.
    e. Then click on the second device and do the same.

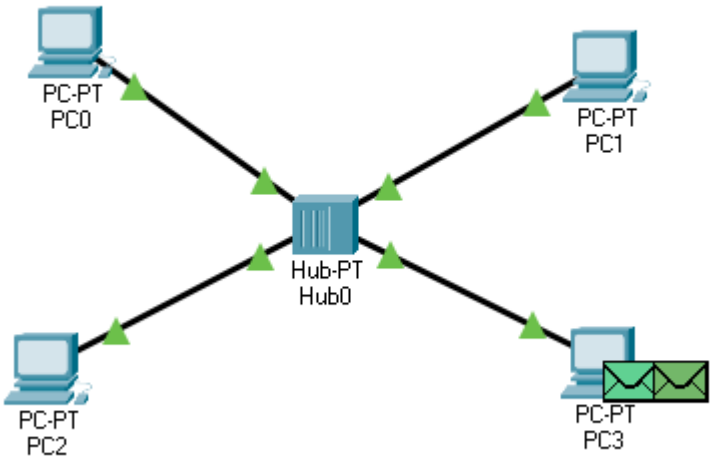
f. A connection cable will appear between the two devices, along with link lights showing the link status on each end (for interfaces that have link lights).

3. Creating Networks

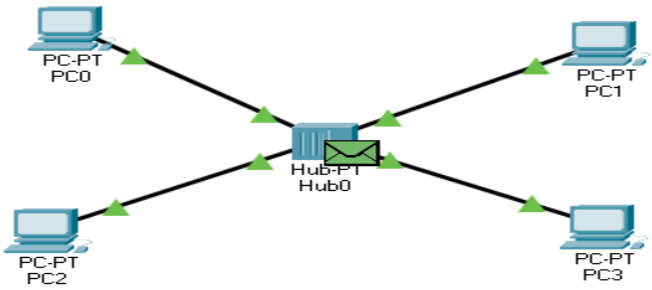
Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface.

1. Make a LAN using HUB in Cisco Packet Tracer.

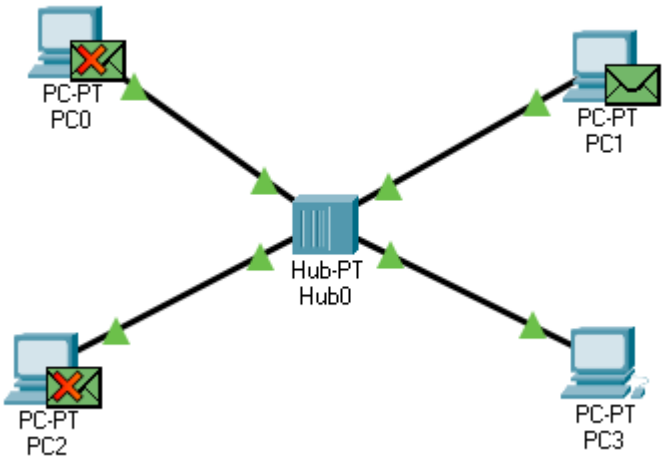
I made a LAN consisting of 4 PCs using a HUB and to check the connectivity I sent a PDU from PC3 to PC1:



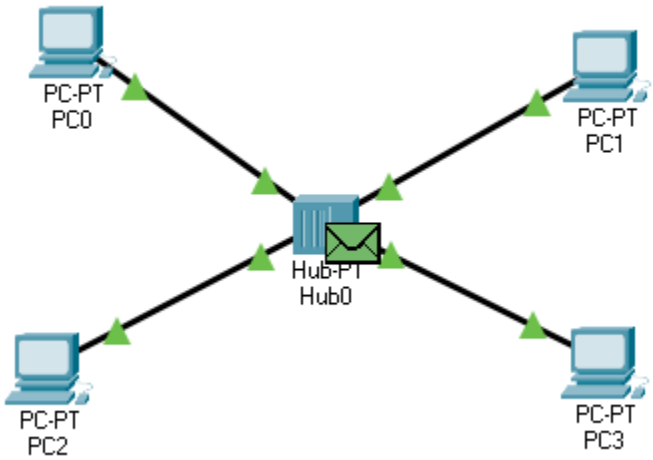
PC3 sends the message to HUB:



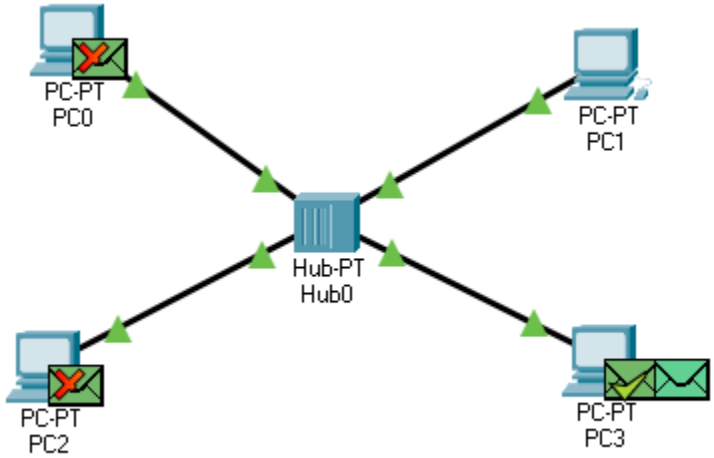
HUB sends the message to all the other devices but only PC1 accepts it:



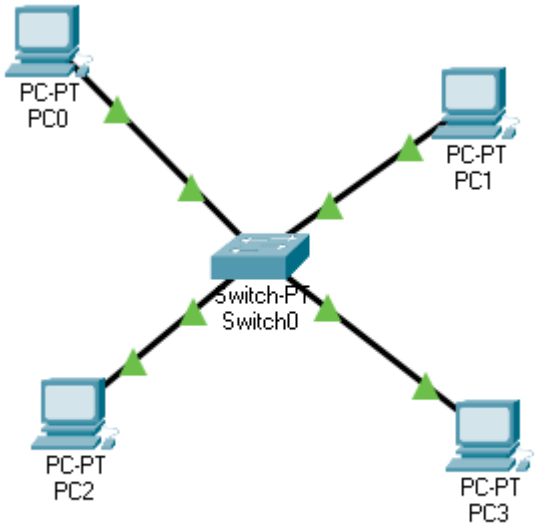
PC1 then sends the message back to HUB:



Once again the HUB sends the message to all other devices but only PC3 accepts it:



2. Make LAN using SWITCH in Cisco Packet Tracer.



3. What are the pros and cons of HUB?

PROS:

- Offers shared Internet Scalability(uplink)
- Allows Network Monitoring
- Provide backward compatibility
- Helps you to extend the total distance of the network

CONS:

- It's mostly half-Duplex
- Does not offer dedicated bandwidth
- It cannot select Network's Best Path.
- There is no mechanism of any kind to reduce network traffic.
- Possibility of the device differentiation
- Network size

4. What are the pros and cons of SWITCH?

PROS:

- It helps you to reduce the number of broadcast domains.
- Supports VLAN's that can help in Logical segmentation of ports
- Switches can make use of CAM table for Port to MAC mapping

CONS:

- Not as good as a router for limiting Broadcasts
- Communication between VLAN's requires inter VLAN routing, but these days, there are many Multilayer switches available in the market.

- Handling Multicast packets that requires quite a bit of configuration & proper designing.
- Reduces the number of Broadcast domains

5. Which Ethernet cable did you use for the connection between HUB and PC?
   Answer: I used the Copper Straight-Through cable for the connection between HUB and PC.
6. What does a switch store in its memory?
   Answer:
   Switch has a learning attribute that let it build a table contains of MAC address and IP address for each end device that connect to it, so after the first message between two devices, it doesn't send the message to all devices, but to the destination device directly.