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**Activity Report**

**Experiment name-** Setup of two LAN networks using Cisco Packet Tracer

*Submitted in partial fulfillment for the award of degree of*

**Bachelor of Engineering  
in**

**COMPUTER SCIENCE AND ENGINEERING**

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## Introduction about Cisco Packet Tracer

Cisco Packet Tracer is a Cisco-developed utility. This program allows you to practice simple and complicated networks using a network simulation. Cisco Packet Tracer's major goal is to help students learn networking principles through hands-on experience while also developing Cisco-specific abilities. This program cannot replace hardware routers or switches because the protocols are implemented solely in software. Surprisingly, this utility includes not only Cisco hardware, but also a wide range of other networking devices.

Packet Tracer is commonly used in the curriculum for courses like as CCNA and CCENT, where faculty use it to demonstrate technical topics and networking systems. Students use this tool to accomplish homework, either alone or in groups. Before implementing any protocol, engineers like to test it on Cisco Packet Tracer. Engineers that want to deploy any modification in the production network prefer to utilize Cisco Packet Tracer to test the changes first and then deploy if and only if everything works as planned. This makes the job easier for Engineers allowing them to add or remove simulated network devices, with a Command line interface and a drag and drop user interface.

## Steps to download the software

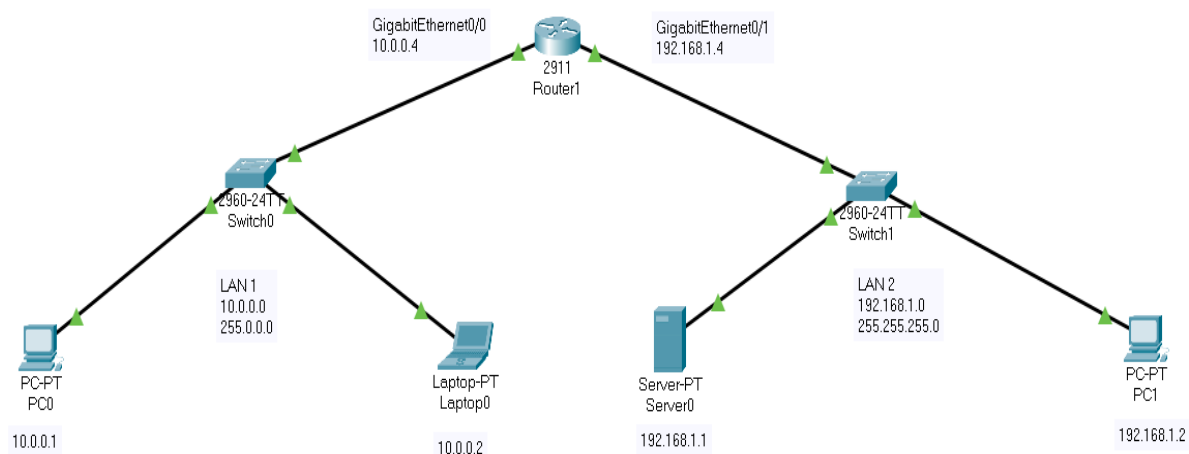
1. Go to your favourite browser and type in search bar <https://www.netacad.com/>
2. Click on Courses then on Packet tracer tab.
3. The above step will redirect you to Introduction to packet tracer page, on that page scroll down and you will get the tab 'sign up today!'.
4. Click on sign up today and choose the language.
5. Now fill the details which it is asking you. (Note: Give your active email id only)
6. After successful completion of your registration, you will get one mail on your registered email id for verification and activation. Check the mail and activate your enrolment by clicking on the link.
7. After clicking on activation link it will redirect you to the page from where you can choose to download according for your OS Window/Linux/Mac (64 or 32 bit).
8. After successfully downloading of software, you can install it.

## Setup of two LAN networks

In this activity, we are going to establish connection of two local area networks. To establish a same local area network between end devices we need a switch. Lastly to connect two different LANs that is two switches we need one router. Using the ideology of router and switches we can establish connection between two end devices of different local area network.

### Component Required:

Name	Type	Total Number
End devices	Two PC, Laptop, Server	4
Switch	2960	2
Router	2911	1
Connecting Wires	-	-



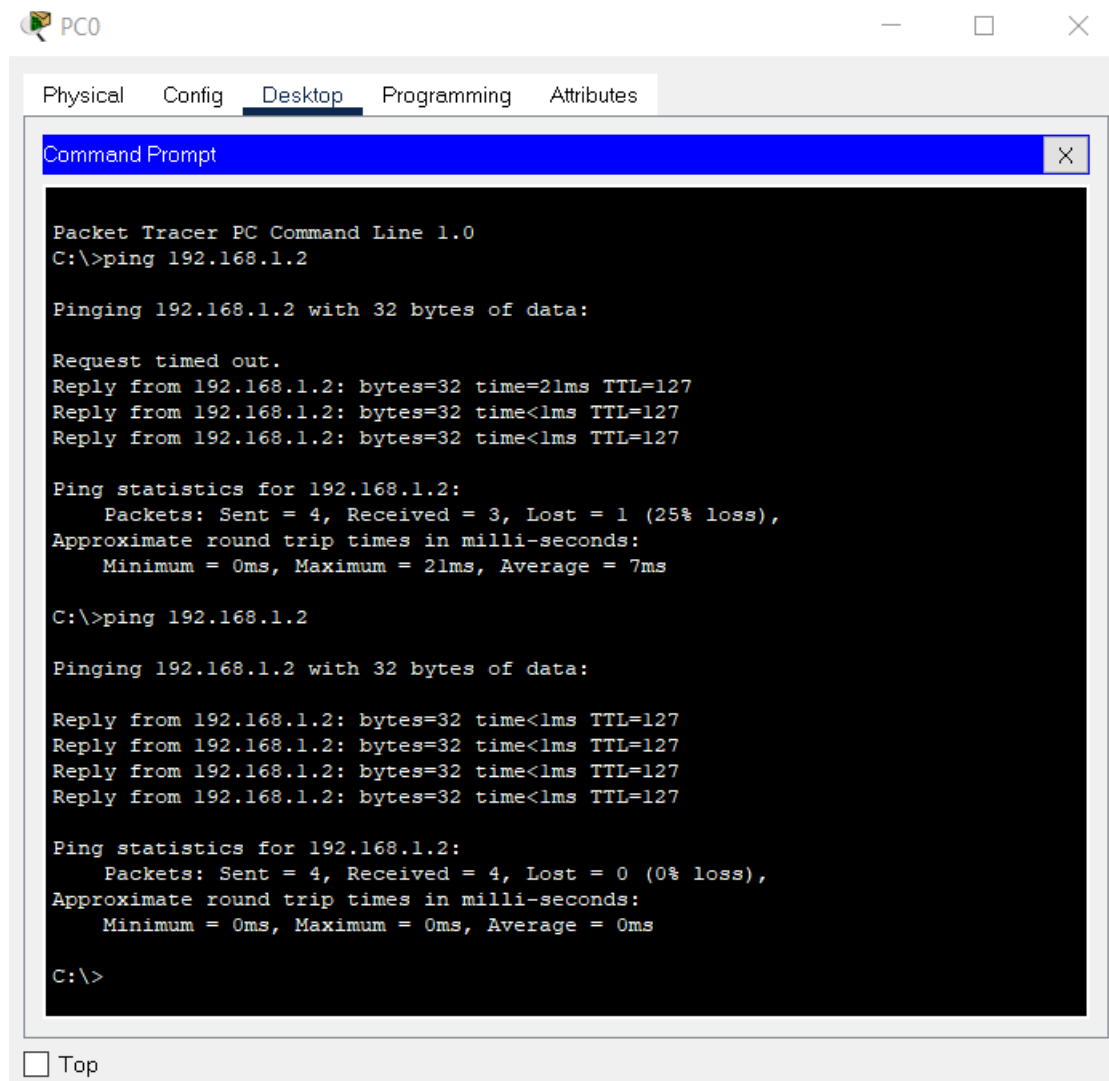
## Step by step Explanation of the experiment

First, using FastEthernet connection connect PC0 and Laptop0 with Switch0. Similarly, connect Server0 and PC1 with Switch1.

Finally, using GigabitEthernet connection, connect Switch0 and Switch1 with help of Router1. and assign IP address to each one of them. For instance, lets assign PC0=10.0.0.1, Laptop0=10.0.0.2, Server=192.168.1.1 and PC1=192.168.1.2.

Now, set default gateway for first LAN devices to 10.0.0.0 and second LAN to be 192.168.1.0 lastly, assign 10.0.0.0 and 192.168.1.4 for Switch0 and Switch1 connection to Router1 respectively.

To check if connection establish between end devices of LAN1 and end device of LAN2, we will ping from PC0 to PC1. So, below is the screenshot for the same:



The screenshot shows the Packet Tracer interface with PC0 selected. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The window title is 'Command Prompt'. The text inside the window is as follows:

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.2: bytes=32 time=21ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 21ms, Average = 7ms

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

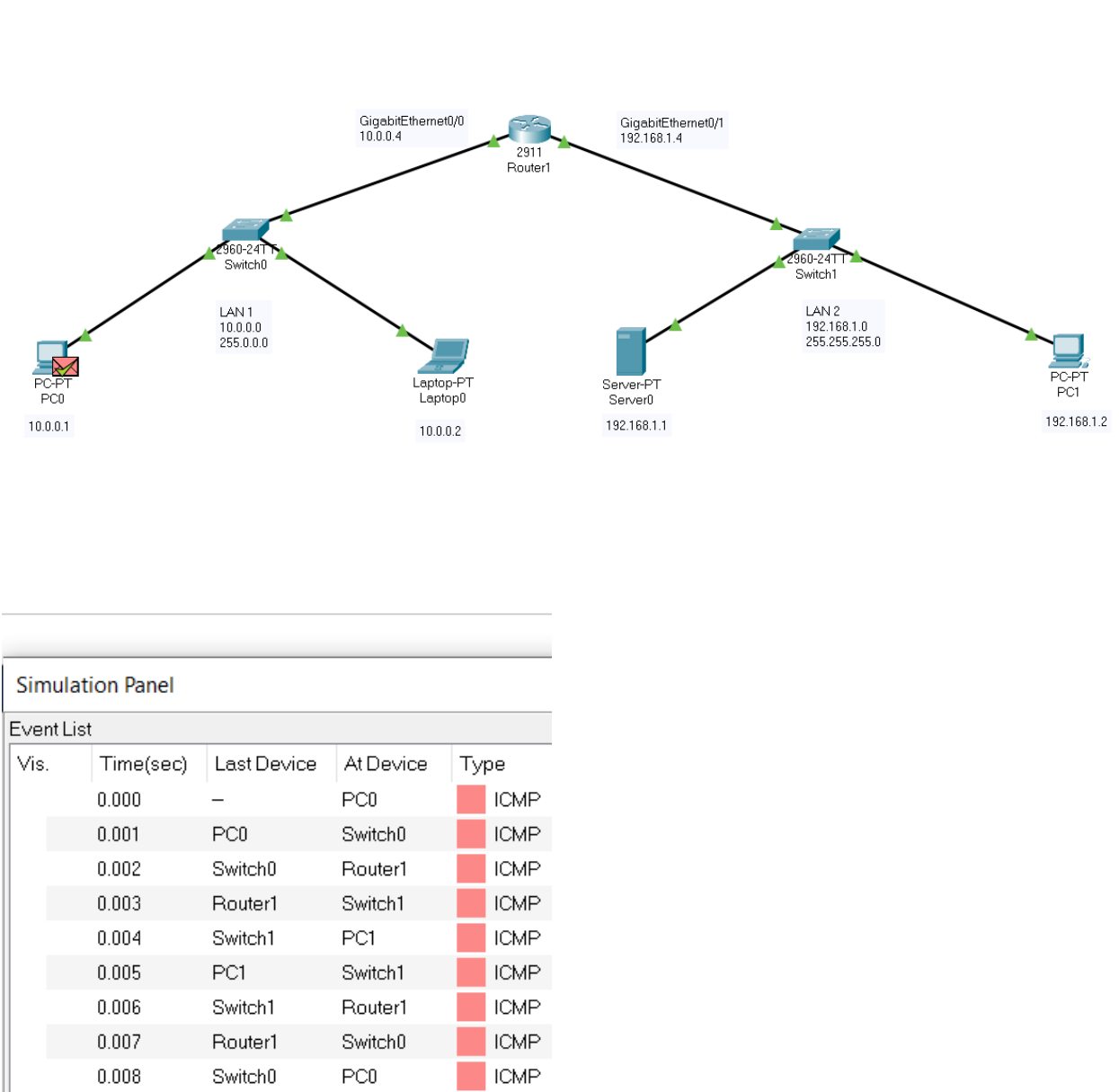
Below the Command Prompt window, there is a 'Top' button with a small square icon to its left.

So, we can see when we ping from PC0 to PC1(IP=192.168.1.2) first time it will only receive 3 packets out of 4. But for the second ping we are getting successful transaction that is sent and received are same.

So, when we ping from PC0 to PC1 following steps of execution happens in simulation:

1. Assign data packet to PC0, it will traverse through path PC0 and Switch0. Then it will check with switch0 and forward Data packet to router.
2. From Router1 the data packet will traverse to Switch1 and Later it will move to destination that is PC1.
3. After successful reaching the destination, PC1 will send acknowledgement to PC0.
4. First acknowledgement will be sent to Switch1 then Switch1 to Router. From Router1 to Switch0 and Lastly to PC0. After the source get acknowledgement it will show green tick mark this marks successful transaction of data packet from PC0 to PC1.

# Screen shot of the Results



## Conclusion

In this activity we can observe that, for checking the connection established between end device PC0 and PC1 of LAN1 and LAN2 respectively, we must have at least one router. Because router only make the connection between two devices of different network possible. Cisco Packet Tracer, allows us to analyze the simulation of networks before implementing it on ground.