

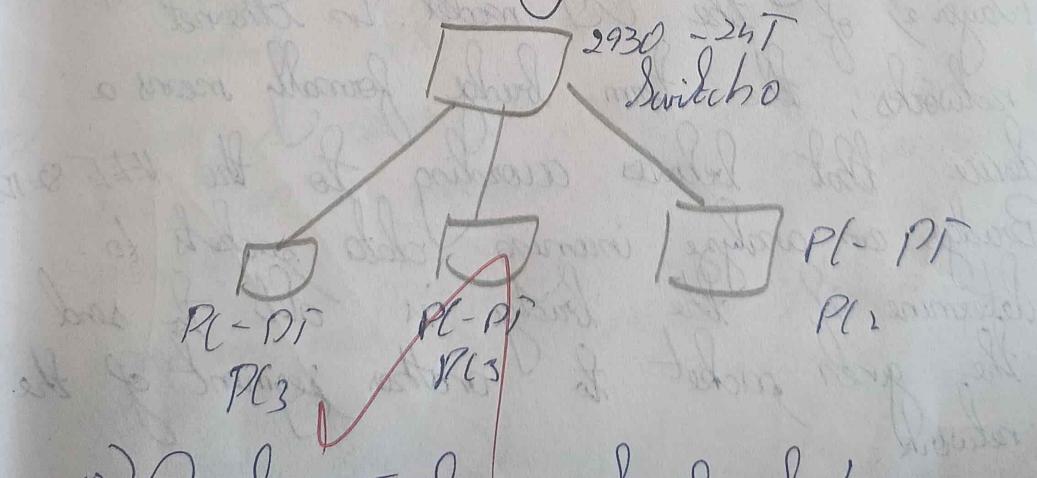
Experiment - 01 Prabhu Tudda P  
Configuration of Network Components 192521161

Obj: To study the following Network devices in detail.

- \* PC
- \* Server
- \* Repeater
- \* Hub
- \* Switch
- \* Bridge
- \* Router
- \* Gate Way
- \* Transmission medium.

Apparatus (Software): Cisco Packet tracer.

1) Node: In a communications network node is a connection point that can receive, create, store or send data along distributed network routes.



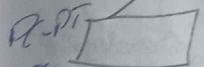
level, so that the signal can cover longer distances.

3) Hub: Ethernet hub, active hub, network hub, repeater hub.

Hub or concentrator is a device for connecting multiple twisted pair of fibre optic. Hubs work at the physical layer (Layer 1) of the OSI model.

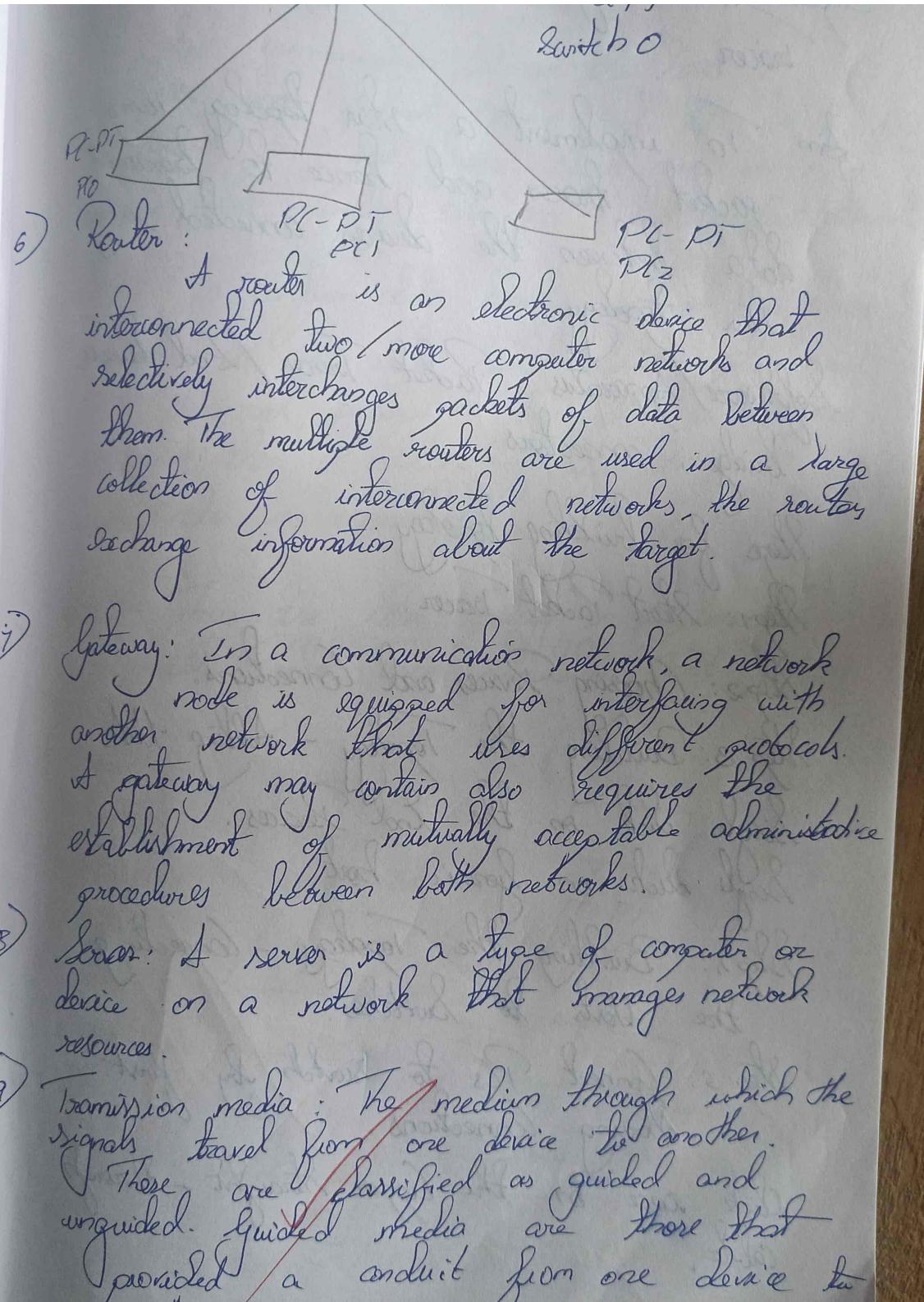
4) Switch: A network switch or switching hub is a computer device that connects network segments. The term commonly refers to a network bridge that processes and routes data. Often referred to as Layer 3 switches or multilayer switches.

5) Bridge: A network bridge connects multiple network segments at the data link layer (Layer 2) of the OSI model. In Ethernet networks, the term bridge formally means a device that behaves according to the IEEE 802.1 Bridges can analyze incoming data packets to determine if the bridge is able to send the given packet to another segment of the network.



6) Router: A interconnection selectively them. The collector exchange gateway:   
 another, a gateway establishing procedures.

7) Router: A device on resources.   
 Transmission signals. These unguided.



## Implementation of Star Topology using Packet tracer

Sim: To implement a star topology using packet tracer and hence to transmit data between the devices connected using star topology.

Software/Apparatus: Packet Tracer / End devices, bridge, connectors.

Steps for building topology:

Step 1: Start Packet Tracer.

Step 2: Choosing Devices and Connections.

Step 3: Building the Topology - Adding Hosts

Single click on the End Devices.

Single click on generic host.

Step 4: Building the Topology - Connecting the Hosts to Switches.

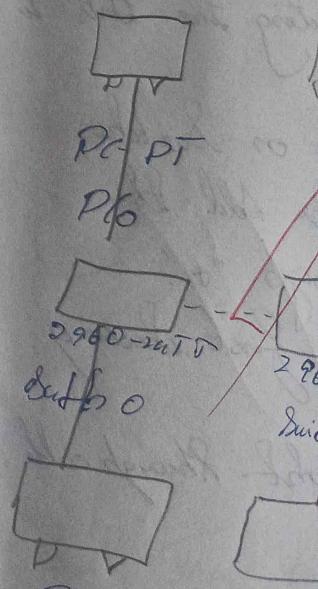
Step 5: Connect P3 to switch by first choosing connections.

Click once on the copper straight-through cable.

Step 6: Config on the to start addresses and configured on choose the

Step 7: To click on then command up, ping the which node is

Result: Thus with



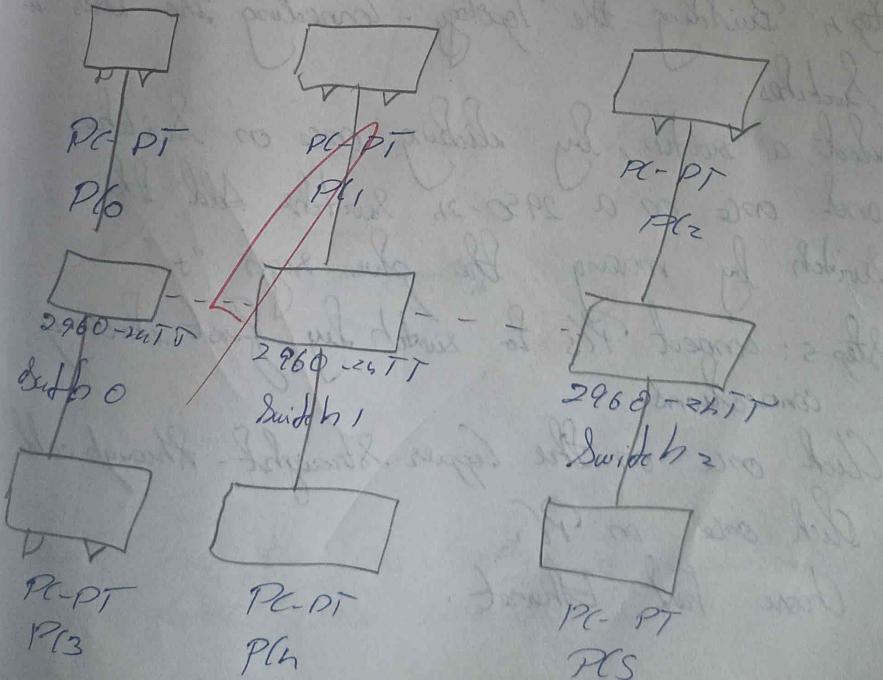
Configuring IP Addresses and Subnet Masks on the Ports.

To start communication between the ports IP addresses and Subnet Masks had to be configured on the devices. Click once on PC. Choose the Config tab and click on FastEthernet.

Step 1: To confirm data transfer between the devices.

Click on the node. Select desktop option and then command prompt. Once the window pops up, ping the IP address of the device to which node is connected.

Result: Thus the Star Topology is implemented with Packet Tracer Simulation Tool.



## Experiment 3 Implementation of bus topology using packet tracer

Sim: To implement a bus topology using packet tracer and hence to transmit data between the devices connected using Bus topology.

Software/Apparatus required: Packet tracer / End devices, hubs, connectors.

Steps for building topology:

Step 1: Start Packet tracer.

Step 2: Choosing Devices and Connections.

Step 3: Building the Topology - Adding hosts

Single click on the End devices.

Single click on Generic host.

Step 4: Building the Topology - Connecting the hosts to switches.

Select a switch, by clicking once on switches and once on a 2950-24 switch. Add the switch by moving the plus sign "+".

Step 5: Connect PCs to switch by first choosing connections.

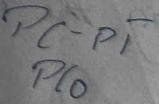
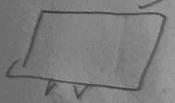
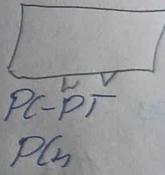
Click once on the Copper straight-through cable.

Click once on PC.

Choose Fast Ethernet.

Step 6: Configuring the hosts  
To start addresses and on the devices config tab and

Step 7: To confirm  
Click on the

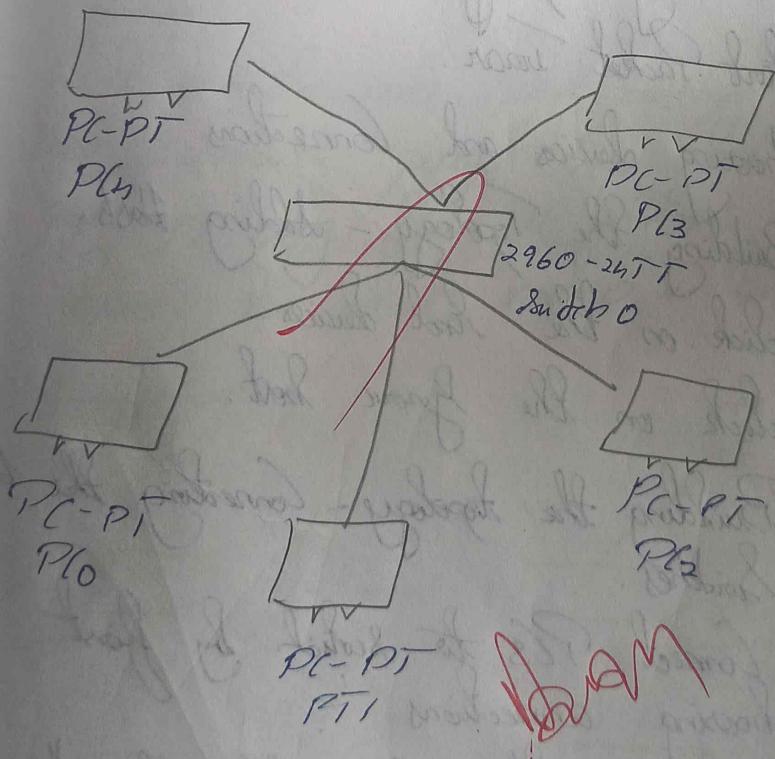


Result: Thus the

Step 6: Configuring IP Addresses and Subnet Masks on the host.

To start communication between the host IP addresses and subnet masks had to be configured on the devices. Click once on P10. Choose the config tab and click on Fast Ethernet (0).

Step 7: To confirm Data transfer between the devns. Click on the node. Select desktop option.



## Experiment 6

### Implementation of Ring Topology using packet tracer

Sim: To implement a Ring Topology using packet tracer and hence to transmit data between the devices connected using Ring topology.

Software / Apparatus required: Packet Tracer / End devices, connectors.

Steps for building topology.

Step 1: Start Packet tracer.

Step 2: Choosing devices and connections

Step 3: Building the Topology - Adding Hosts.

Single click on the End devices.

Single click on the Generic host.

Step 4: Building the topology - connecting the Host to Switches.

Step 5: Connect PCs to switch by first choosing connections.

Click once on the Copper Straight-Through cable.

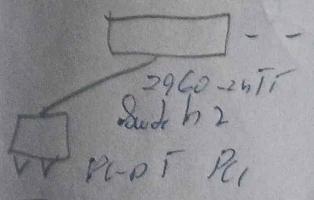
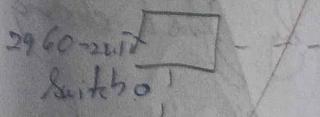
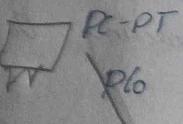
Click once on P1.

Press and hold the Shift key.

Step 6: Configuration on the hosts  
To start the IP addresses configured on  
Choose the Ethernet(1).

Step 7: To configure devices.

Click on the then command goes up, ping device to

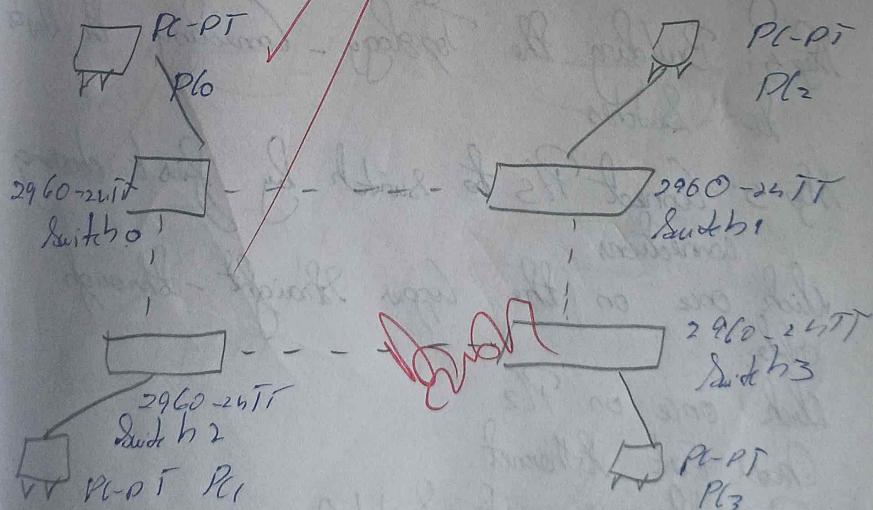


Step 6: Configuring IP addresses and subnet masks on the hosts.

To start the communication between the host IP addresses and subnet masks had to be configured on the devices. Click once on IFC. Choose the Config tab and click on Fast Ethernet().

Step 7: To confirm Data transfer between the devices.

Click on the node. Select desktop option and then command prompt. Once the window pops up, ping the IP address of the device to which node 0 is connected.



Result: Thus the Ring topology is implemented with Packet trace simulation tool.

### Experiment - 5

#### Implementation of Mesh Topology using Packet Tracer

Sim: To implement a Mesh topology using packet tracer and hence to transmit data between the devices connected using Mesh topology.

Software/Apparatus required: Packet Tracer / End devices, Rules, Connectors.

Steps for building topology:

Step 1: Start Packet Tracer.

Step 2: Choosing devices and connections

Step 3: Building the Topology - Adding hosts.  
Single click on the End devices.

Single click on the Generic Host.

Step 4: Building the Topology - Connecting the hosts to switches.

Step 5: Connect PCs to switch by first choosing connections.

Click once on the copper straight-through cable.

Click once on PC2.

Choose Port Ethernet

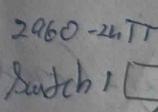
Drag the cursor to Switch 0.

Step 6: Configuring the hosts  
To start assign IP addresses and on the devices the config tab.

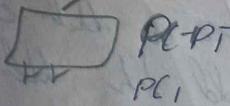
Step 7: To configure  
Click on the command up, ping the which node will be displayed.



2960-24TT  
switch 0



2960-24TT  
switch 1



Result: Thus the

using packet

data between  
2 topology,

tracer / End

data.

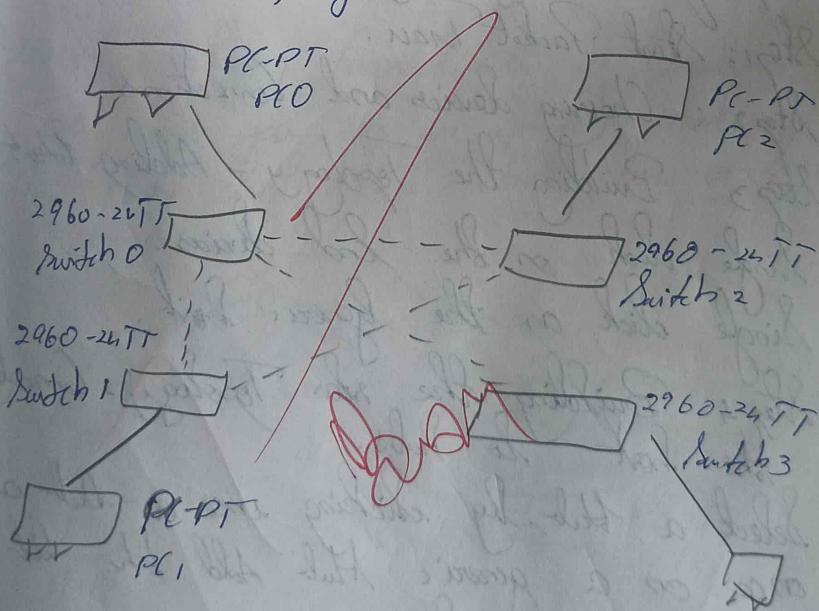
using the hosts

first choosing  
through

Step 6: Configuring IP addresses and subnet masks on the hosts.

To start communication between the hosts IP addresses and subnet masks had to be configured on the devices. Click once on P10. Go to the Config tab and click on Fast Ethernet 0.

Step 7: To confirm Data transfer between the devices. Click on the node. Select Device options and then command prompt. Once the window pops up, ping the IP address the device to which node 0 is connected. Ping statistic will be displayed.



Result: Thus the Mesh topology is implemented with Packet Tracer simulation Tool.

## Experiment - 6

### Implementation of tree topology using packet tracer.

Sim: To implement a tree topology using packet tracer and hence to transmit data between the devices connected using tree topology.

Software / apparatus required: Packet tracer / 2nd devices, hubs, connectors.

#### Procedure:

Step for building topology.

Step 1: Start Packet tracer.

Step 2: Choosing devices and connections

Step 3: Building the Topology - Adding Host single click on the end devices.

single click on the generic hub.

Step 4: Building the star Topology - connecting the host to hubs.

Select a hub by clicking once a hub and once on a generic hub. Add the hub by moving the plus sign +.

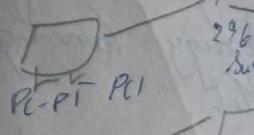
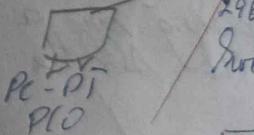
Step 5: Connect the connections. Click reselect.

Step 6: Building the hubs to

Step 7: Configuring on the Network

Step 8: Verifying configuration  
Be sure you are selecting the appropriate devices.

Step 9: Verifying  
Be sure you are selecting the PDO port



Result: Thus three nodes are connected.

Step 5: Connect PCs to Hub by first choosing connections. Click once on the automatic cable selector.

Step 6: Building the tree topology - connecting the Hubs to Active Hub.

Step 7: Configuring IP Addresses and Subnet Masks on the Network.

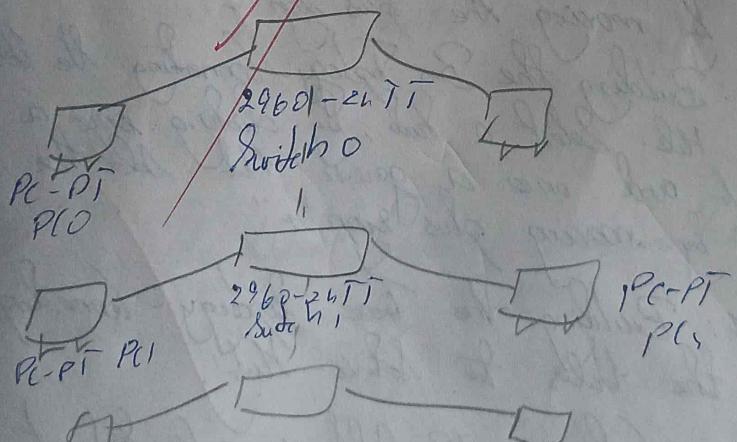
Step 8: Verifying connectivity in Real time Mode.

Be sure you are in Real time mode.

Select the Solid Snake PDV tool used to ping devices.

Step 9: Verifying connectivity in Simulation Mode.

Be sure you are in Simulation mode.  
The PDO Port Status should show as Successful.



Result: Thus three Tree Topology is implemented with packet tracer simulation tool.

## Experiment - 0

### Implementation of Hybrid Topology Using Packet Tracer

Aim: To implement a hybrid topology using packet tracer hence to transmit data between the device connected using tree topology.

Software/Apparatus: Packet Tracer/End devices, Hubs, connectors.

Steps for building topology:

Step 1: Start Packet Tracer

Step 2: Drawing Devices and Connections

Step 3: Building the Topology - Adding hosts

Single click on the End devices.

Single click on the generic host.

Step 4: Building the Bus Topology - Connecting the hosts to hubs. Select a hub, by clicking once a hub and once a generic hub. Add the hub by moving the plus sign "+".

Step 5: Building the Bus Topology - Connecting the host to hub. Select a hub, by clicking once a hub and once a generic hub. Add the hub by moving plus sign "+".

Step 6: Building the tree topology - connecting the hubs to single hub.

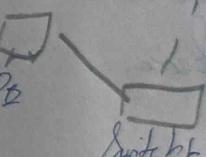
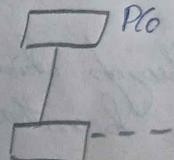
Step 7: Configuring IP Addresses and Subnet Masks on the Subnet host. To start communication between the host IP Address and

Step 8: Verifying connection

Be sure you are using single BD tool

Step 9: Verifying connection

you are in simulation mode once on PC buttons until the connection is established

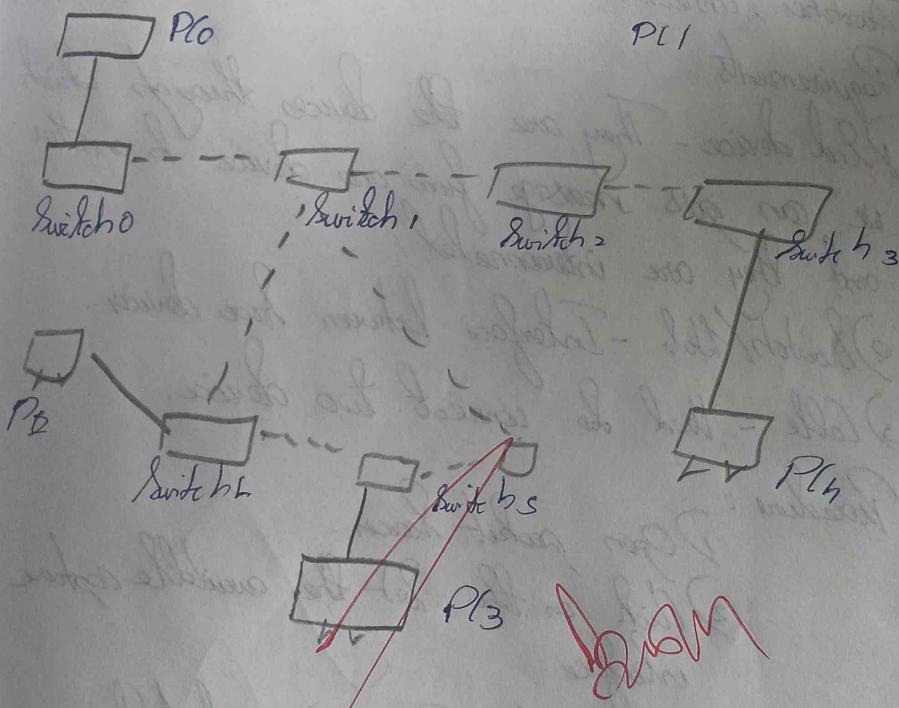


Result: Thus the hybrid topology is implemented using Packet Tracer

Step 8: Verifying connectivity in Realtime Mode.

Be sure you are in Realtime mode. Select the ~~the~~ Single PDU tool used in ping devices.

Step 9: Verifying connectivity in Simulation Mode. Be sure you are in simulation mode. Click once on P10, then once on P13. Continue clicking capture toward buttons until the KMP ping is completed.



Result: Thus the hybrid topology is implemented with Packet Tracer simulation tool.

### Experiment (8)

Data Link Layer Traffic Simulation using packet Tracer Analysis of ARP.

Ans: To implement data link layer traffic simulation using Packet Tracer Analysis of ARP.

Software / Apparatus: Packet Tracer / End devices, Switches, connectors.

Requirements:

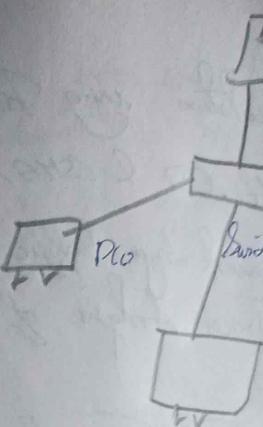
1) End device - They are the devices through which we can pass message from one device to another and they are interconnected.

2) Switch / Hub - Interface between two devices.

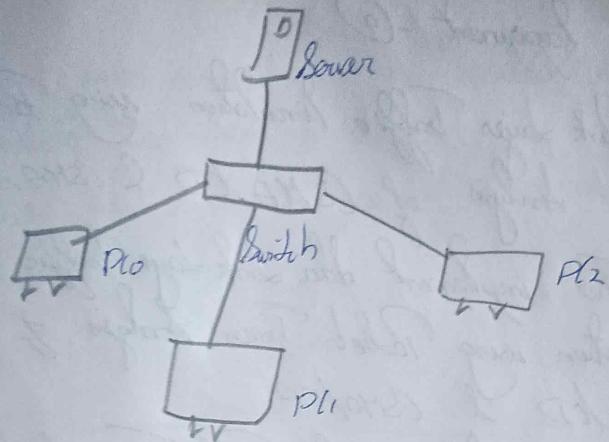
3) Cable - Used to connect two device.

Procedure:

- 1) Open packet tracer.
- 2) Click on the ~~Set the available capture interface.~~
- 3) Choose the PCs, server and hub.
- 4) Later give connection from hub to remaining PCs.
- 5) Give IP addresses to the PCs with configuration.



Result: Thus the PC using Packet Tracer



Result: Thus the Data Link Layer Traffic Simulation using Packet Trace Analysis of ARP is implemented.

Switch

## Experiment - 9

### Data Link Layer Traffic Simulation using Packet Tracer Analysis of CSMA/CD & CSMA/CA.

Obj: To implement Data Link Layer Traffic Simulation using Packet Tracer Analysis of CSMA/CD & CSMA/CA.

Software/Apparatus required: Packet Tracer And devices - Switches, Connectors.

#### Requirements:

- 1) End device - They are the device through which we can pass message from one device to another.
- 2) Switch/Hub: Interface between two devices.
- 3) Cable - Used to connect two devices.

#### Procedure:

Step 1: Click on end device, select general PC's drag and drop it on the window.

Step 2: Select the straight through cable and connect all end devices to switch. Assign the IP address for all end devices.

Step 3: Now set the IP address to host A (192.168.1.1) in static mode. Similarly set IP addresses.

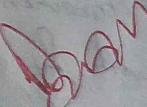
Step 4: To view the IP address, give ip configuration command in command prompt.

Using ping command between two

Step 5: Now do the simulation mode

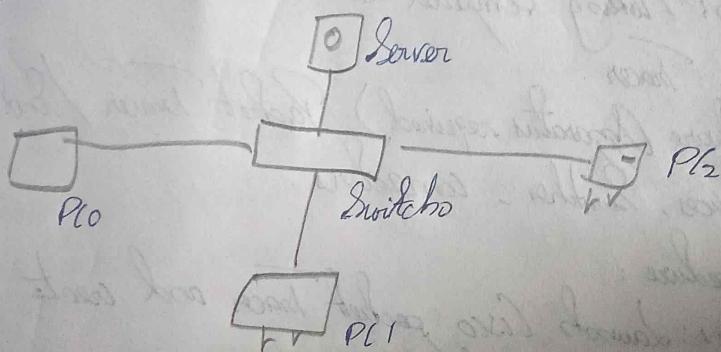


Result: This data packet trace is implemented



Using `ping` command, we can establish communication between two host devices.

Step 5: Now display the packet transmission in simulation mode.



Result: This data link layer traffic simulation using packet trace analysis of STPS/CD & CSMA/CA is implemented successfully.

## Experiment - 10

Making Computer Lab in Cisco Packet Tracer.

Sim: Making Computer Lab in Cisco Packet Tracer.

Software (Apparatus required): Packet Tracer / Any devices, Switches, connectors.

Procedure:

Step 1: Launch Cisco packet Tracer and create a new project.

Step 2: Select the appropriate network devices for your lab.

Step 3: Drag and drop a switch onto the workspace area. Connect the switch to the power source clicking on the "connection" option.

Step 4: Connect computers to switch by dragging and dropping them onto the workspace area.

Step 5: Repeat Step 4 to add more computers on the lab. You can adjust the number of computers as per your requirement.

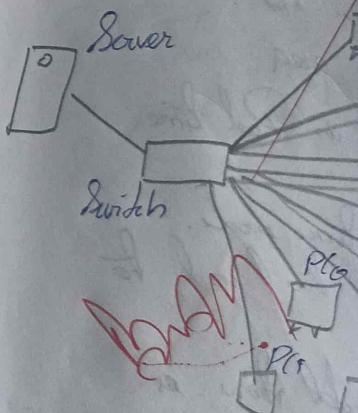
Step 6: Connect the switch to a router. Drag and drop in a router on the workspace. Then select the appropriate serial interface.

Step 7: Configure Select a computer in the device the IP address.

Step 8: Configure Select the router device configuration mode.

Step 9: Test connection on each computer.

Step 10: Customizing You can add, add



Result: Thus the Tracer is not

Packet

Cisco Packet

Tracer / and

and create

new devices

onto the  
link to the  
connection "option".

by dragging  
workspace area.  
more computers  
the number of

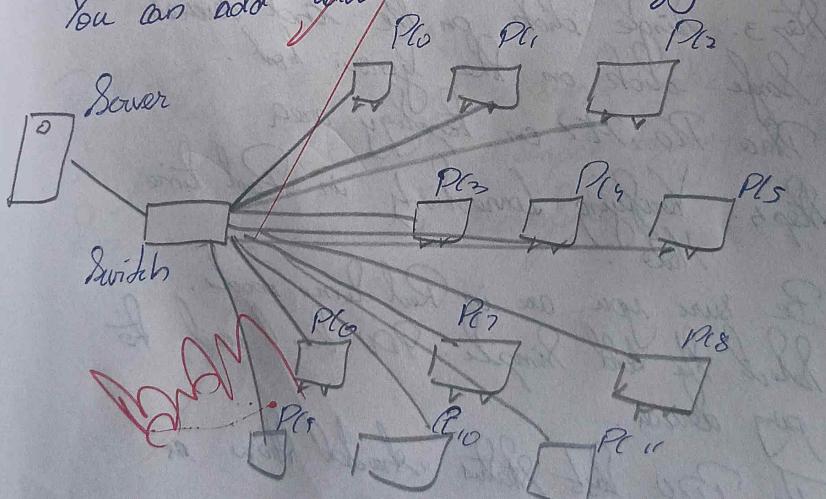
nodes. Drag  
workspace.  
and interface.

Step 7: Configure IP addresses on the computers.  
Select a computer, click on the "Edit" tab  
in the device configuration panel, and configure  
the IP address.

Step 8: Configure IP addresses on the router interface.  
Select the router, click on the "(1)" tab in the  
device configuration panel, enter the interface  
configuration mode.

Step 9: Test connectivity. Open the command prompt  
on each computer.

Step 10: Customize and expand the lab as desired.  
You can add additional devices, configure VLANs.



Result: Thus the computers lab in Cisco Packet Tracer is set up successfully.

## Experiment - 01

Configuration of a single static routing in packet tracer using a single topology with two routers.

Aim: To configure a router using packet tracer software and hence to transmit data.

Software Required: Packet Tracer 1st device, 1st Procedure:

Steps for building topology:

Step 1: Start Packet tracer.

Step 2: Choosing devices and connections.

Step 3: Single click on the End devices.

Single click on the generic host.

Place P10, P11 on topology area.

Step 4: Verifying Connectivity in Real time

Mode:

Be sure you are in Real time mode.

Select the Add Simple Routers and the generic device.

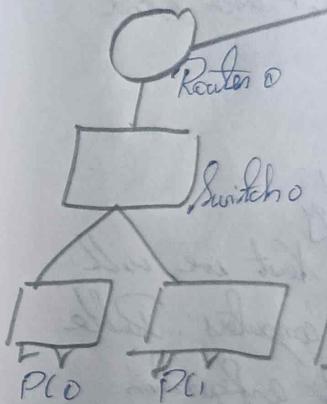
The P10 last status should show as successful.

Step 5: Verifying connectivity in Simulation Mode.

Be sure you are in Simulation mode.

Select the generic devices.

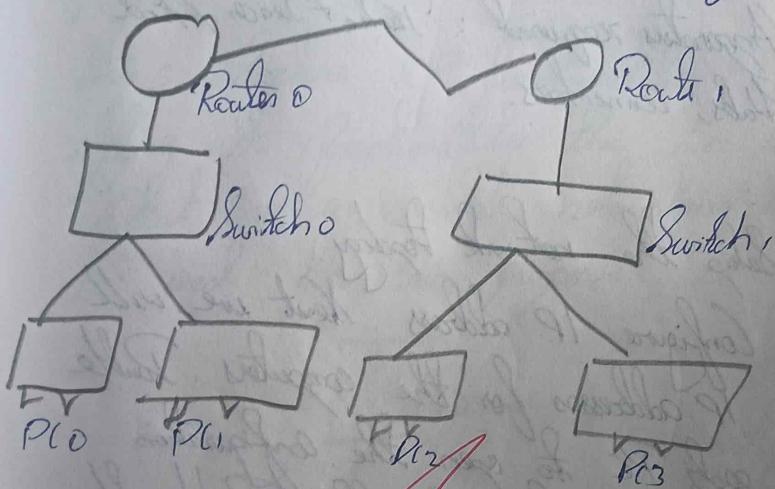
Continue clicking the ICMP and move between last status.



Result: This configuration in packet tracer has two routers with

Select the Add simple PDU tool used to give devices.

Continue clicking Capture / Forward buttons until the ICMP ping is completed. The ICMP message moves between hosts, hub and switches. The PDU Last Status should show as successful.



Result: Thus ~~configuration~~ of a simple static routing in packet tracer using a simple topology with two routers was done successfully.

~~Done~~

## Experiment - 12

Design the functionalities and exploration of TCP using Packet Tracer.

Obj: To design the functionalities and exploration of TCP using Packet Tracer.

Software / Apparatus required: Packet Tracer / And devices, hubs, connectors.

Procedure:

Step 1: Set up the network topology.

Step 2: Configure IP address. Next we will configure IP addresses for the computers. Double click on any PC to open the configuration window and navigate to the Network tab. Click on the IP configuration icon and enter the IP addresses and subnet mask for each computer.

Step 3: Configure the router. Now we will configure the router. Double click on the router to open the configuration.

COMMANDS:

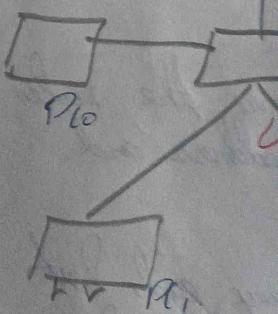
enable  
configure terminal

interface fa1.0

Step 4: Test the network. Now that the network is configured, we can ping between the two hosts. The prompt on the host 1 is:

ping 192.168.1.2

Step 5: Explore the functionality. Netcat is a tool that can be used for



Result: Thus the TCP using

5  
and exploration

and exploration

on End

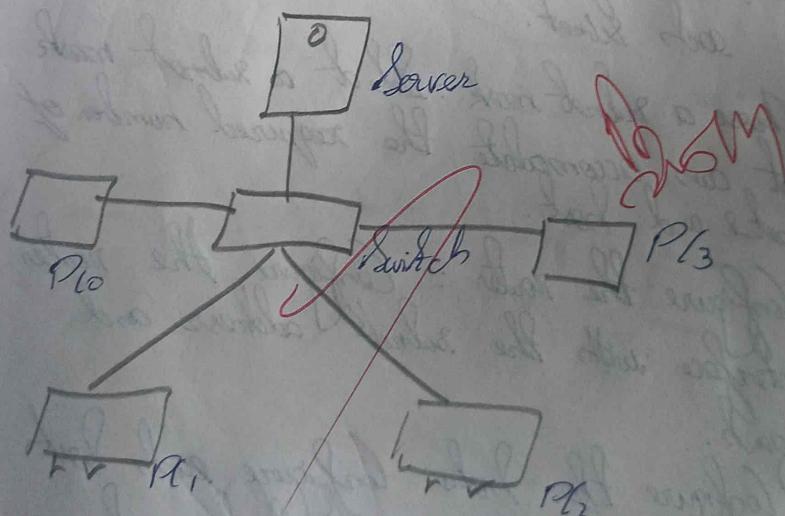
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Step 4: Test the connections

Now that the network is set up and configured, we can test the connections between the two computers. Open a command prompt on  $PC_1$  and ping  $PC_2$  by typing ping 192.168.1.2 in the command prompt.

Step 5: Explore TCP functionalities. Now, let's explore the functionalities of the two computers. Netcat is a versatile networking tool that can be used for various purposes, TCP connections.



Result: Thus the functionalities and explorations of TCP using packet trace is designed successfully.

## Experiment - 13

Design the Network model for subnetting -  
Class C addressing using Packet Tracer.

Aim: To design the network model for  
subnetting class C addressing using packet  
tracer.

Software / Apparatus required: Tracer / Hubs,  
connectors.

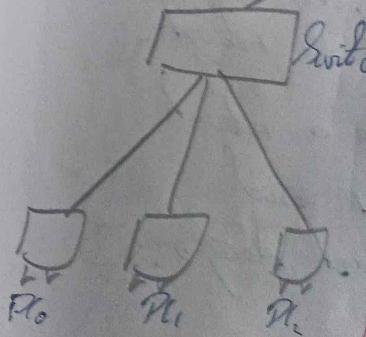
Algo/proc:

- 1) Determine the network requirements: Identify the number of subnets and hosts required for each subnet.
- 2) Choose a subnet mask: Select a subnet mask that can accommodate the required number of subnets and hosts.
- 3) Configure the router: Configure the router interface with the subnet address and mask.
- 4) Configure the hosts: Configure each host with an IP address and subnet mask.
- 5) Test with network: Verify the hosts can communicate with each other and with a device on other subnet.

Procedure:

Step 1: Click on the "New" button.

and drop it.  
Step 2: Select all and device for all and  
Step 3: To view prompt. Using  
Step 4: New drop  
mask.



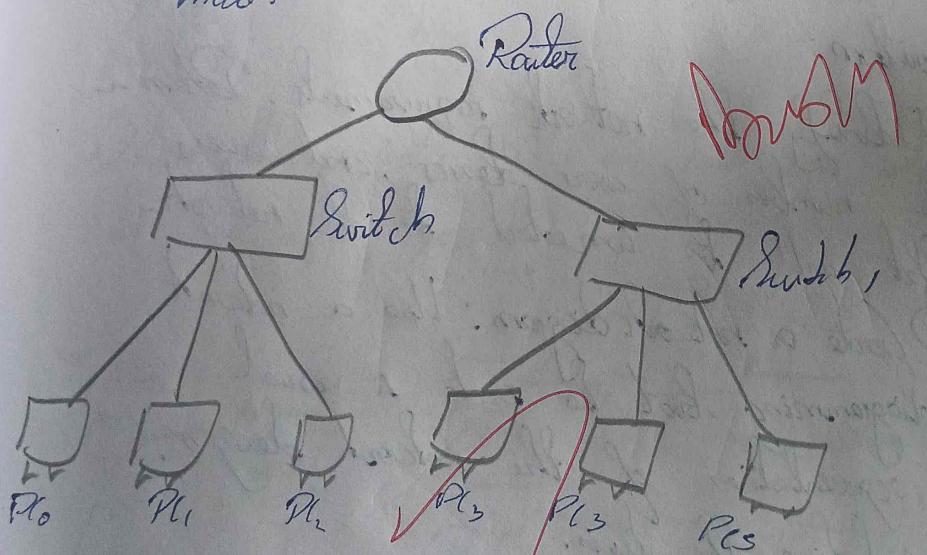
Result: Therefore  
the class has successfully  
been created.

and drop it on the window.

Step 2: Select the straight through cable and connect all end device to switch. Assign the IP address for all end devices.

Step 3: To view the IP address, give ipconfig command prompt. Using ping command, we can establish.

Step 4: Now display the packet transmission in switch mode.



Result: Therefore configuring for network model subnetting has been successfully implemented using packet tracer.

## Experiment - Q

Simulating X, Y, Z company network design and  
simulate using Packet tracer

Aim: To simulate X, Y, Z company network  
design and simulate using packet tracer.

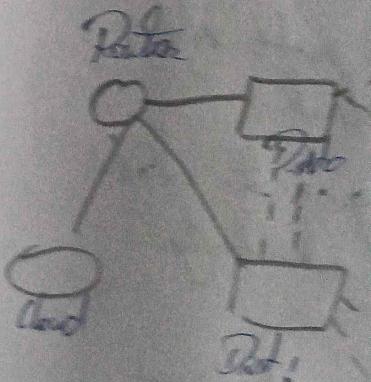
Design Apparatus: Router, Switch/End devices,  
Hub, Concentrator.

### Method:

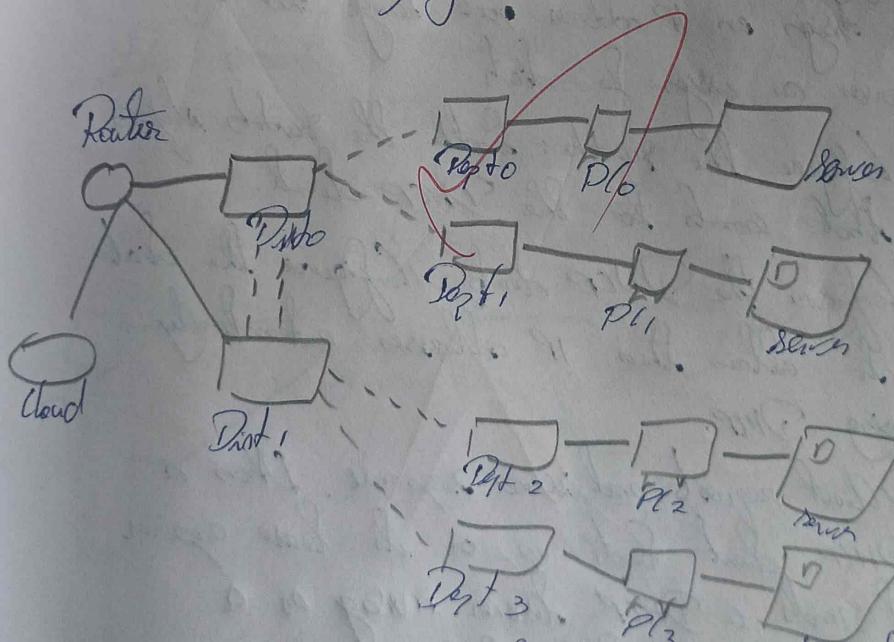
- 1) Identify the network requirements. Determine the number of user devices and servers that will be connected to the network.
- 2) Create a network design: Use a network diagramming tool to create a visual representation of the network design, including the links.
- 3) Configure the switches: Configure the switches and routers, and assign ports to each VLAN.
- 4) Configure the servers: Configure the servers with IP addresses and mask values.

### Procedure:

- 1) Start Packet tracer.
- 2) Create a network. Select New network.
- 3) Configure the network. Open the settings.
- 4) Save the project to see the output.



- 1) Start Packet Tracer : Launch Packet Tracer on your computer.
- 2) Create a new project : Click on "File" and select "New". Then select "Network" from the options.
- 3) Configure devices : Double-click on each device to open its configuration menu, configure its settings.
- 4) Save the project : Click on File and select Save to save the project.



Result : Therefore simulating of any network designing has been successfully done using packet tracer.

## Experiment - 15

### Configuration of DHCP in Packet Tracer

Sim: To configure DHCP dynamic host configuration protocol in packet tracer.

Software Apparatus: Packet tracer/Emulation, Hubs, connectors.

Algorithm:

1) Start:

& Set up network topology in Packet Tracer with a DHCP server and DHCP client connected to a switch.

& Configure the DHCP server.

& Assign an IP address pool range to the server as assign to client.

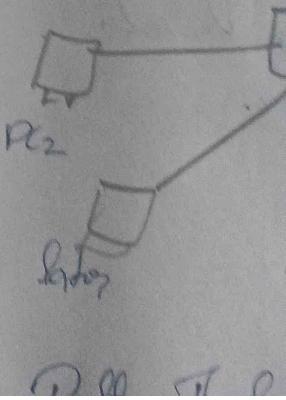
2) Configure the switch: Enable the switch interface that connects to the DHCP client.

3) Configure the DHCP client: Configure the client to obtain their IP addresses automatically using DHCP.

4) Client request and server response: When a DHCP client boots up or its lease expires, it sends a DHCP discover message as a broadcast message.

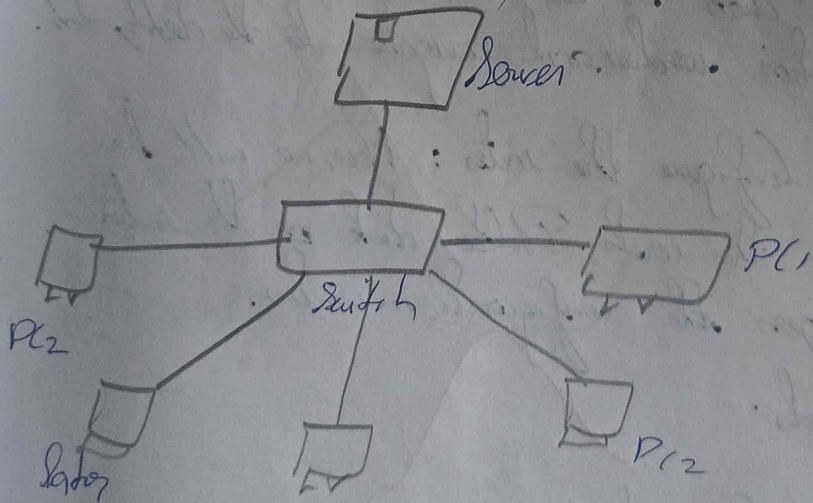
Procedure:

- 1) Launch Cisco topology & add the network including a switch.
- 2) Configure the switch & select the configuration & Assign an IP address to the switch.
- 3) Verify the configuration.



Procedure :

- 1) Launch Wireshark and create a new network topology or open an existing one.
- 2) Add the necessary network devices to your topology, including a DHCP server, switch, DHCP client.
- 3) Configure DHCP server:
  - \* Select the DHCP server device and open its configuration panel.
  - \* Assign an IP addresses to the server interface connected to the switch.
- 4) Verify DHCP operation: Verify that the clients have the correct IP address.



Result: Therefore the configuration for DHCP has been

## Experiment - (16)

### Configuration of Firewall in Packet Tracer

Sim: To configure firewall in packet tracer.

Software/Apparatus: Packet tracer / 1st device, 2nd, 3rd devices, cables, connectors.

#### Procedure:

Step 1: Set up the network topology.  
To begin, we will create a single network topology consisting of three computers, a router and a firewall.

Step 2: Configure IP addresses. Next we will configure the IP addresses for the computers. Double-click on each PC to open the configuration window and navigate to the desktop tab.

Step 3: Configure the router: Now, we will be configuring the router. Double click on the router to open the configuration window.

#### Commands:

enable

configure terminal

interface FastEthernet0/0

ip address 192.168.1.256.255.255

Step 4: Configure the firewall to open the port.

Step 5: Test the network. Now that we can test the network.

Step 6: Test the port. To test the port from the interface that is not connected to the router.

Result: Hence packet

tracer.  
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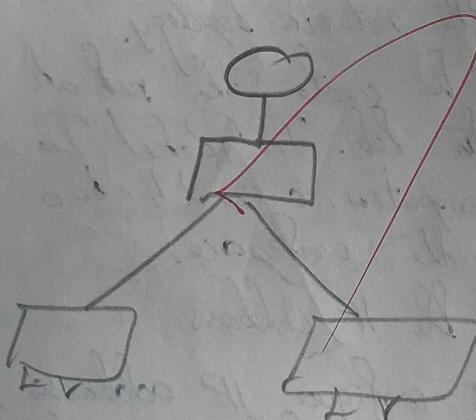
Step 4: Configure the firewall. Now, we will configure the firewall. Double click on the firewall to open the configuration window.

Step 5: Test the connection:

Now that the firewall is configured, we can test the connection between the computers.

Step 6: Test the firewall:

To test the firewall, try to connect to P1 from the internet using a protocol or port that is not allowed by the access rule.



Result: Hence the configuration of firewall in packet tracer is successful.

## Experiment - 01

Make a computer lab to transfer a message from one node to another to design and simulate using Cisco Packet Tracer.

Sims: To make a computer lab to transfer a message from one node to another to design and simulate using Cisco Packet Tracer.

Software/Apparatus: Packet Tracer / And devices, Hubs, Connectors.

Procedure:

Step 1: Create the network topology.

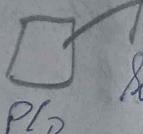
First we need to create the network topology for the computer lab. In Packet Tracer, drag two computers, a switch, two routers onto the workspace.

Step 2: Configure the IP Address.

Next we will configure IP addresses for the computer. Double click on each PC to open the configuration window and navigate to the.

Step 3: Configure the routers.

COMMANDS  
enable  
configure  
interface  
ip add  
no shut  
interface  
ip add  
no shut  
exit.  
Step 5:  
PC1  
PC2  
R1



COMMANDS:

enable

configure terminal

interface Fast Ethernet 0/0

ip address 192.168.1.254 255.255.255.0

no shutdown

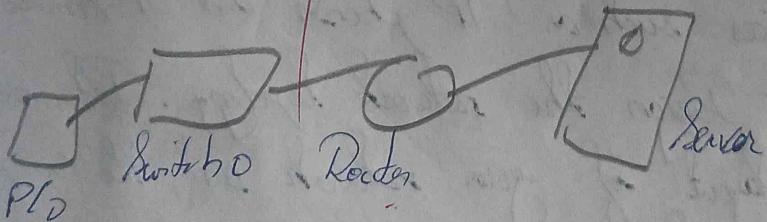
interface Serial 0/0/0

ip address 10.0.0.1 255.255.255.0

no shutdown

exit

Step 5: Send a message To send a message from  
PC1 to PC2, open the command prompt on  
PC1 and type: 192.168.1.2



21.01.08 [www.enchanted.com](http://www.enchanted.com)

## Experiment - ⑧

Simulate a Multimedia network in Cisco Packet Tracer.

Sims: To simulate a Multimedia Network in Cisco Packet Tracer.

Software: Packet Tracer, Router, Switch, IP Camera.

Algorithms:

Procedure:

Step 1: Launch Cisco Packet Tracer and create a new project.

Step 2: Select the appropriate network device for your multimedia network. You will need computers, switches, routers and multimedia devices such as IP phones and IP cameras.

Step 3: Design the network topology. Determine the layout of your network and the connections between devices.

Step 4: Drag and drop the devices onto the workspace area. Connect the devices using appropriate cables.

Step 5: Configure the IP address on the devices.

addresses given  
DHCP server

Step 7: Test connection  
Verify that all the connections are correct.

Step 8: Monitor the network traffic for any issues or problems or any errors.



Server



Switch



PC

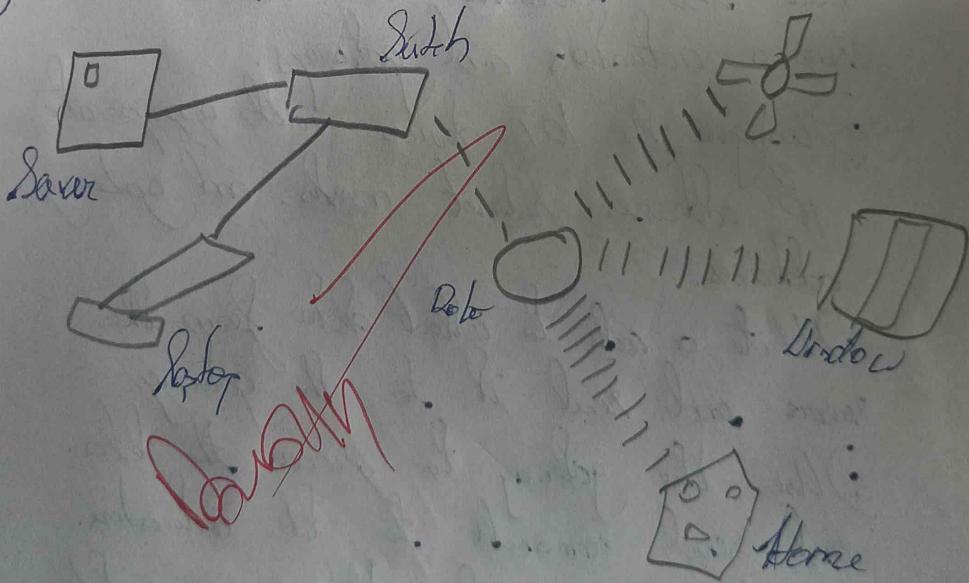
Result: This is a

addresses provided by your ISP or use a DHCP server if available.

Step 7: Test connectivity and multihoming service.

Verify that devices can communicate with each other and multimedia services are functioning correctly.

Step 8: Monitor and troubleshoot. Use the network monitoring tools in Cisco Packet Tracer to observe network traffic and performance. Troubleshoot any issues that arise, such as connectivity problems or audio/video quality.



Result: Thus a Multisensoric Network in Coco  
Robot successfully

## Experiment - 9

### IoT Based Smart Home Applications

Obj: To implement IoT based smart home applications in Cisco Router

Software Apparatus: Packet tracer and device, Cisco routers.

Procedure:

Steps:

1) Create a network topology in Cisco Packet Tracer that includes IoT devices such as sensors, actuators and gateways.

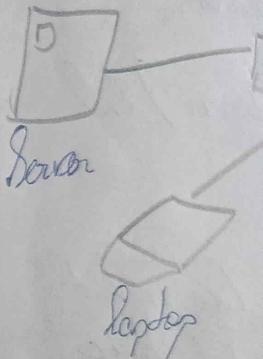
2) Configure the IoT devices with appropriate IP addresses, subnet masks, and gateway addresses.

3) Write a code to collect data from the sensors and send it to the gateway.

4) Use the gateway to process the data and send commands to the actuators.

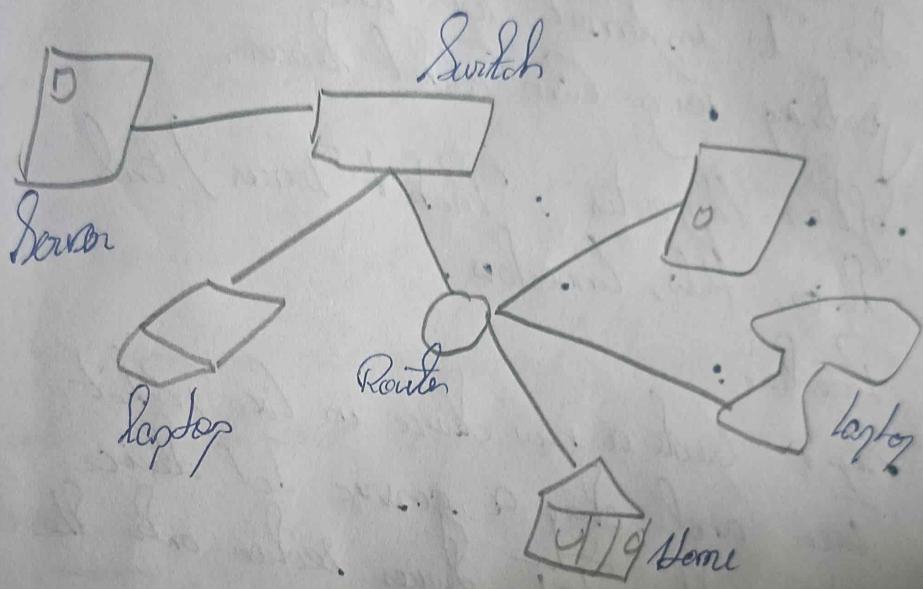
5) Finally, use a web interface or mobile application to monitor and control the IoT devices. By following the steps

IoT can be various applications in smart cities.



Result: Thus IoT in Cisco Router

tree, can be created. This can be used for various applications such as home automation, smart cities, industrial automation.



Result: Thus IoT based smart home application in Cisco Packet Tracer is implemented successfully.

SNAM

## Experiment - (20)

### Implementation of IoT based Smart Gardening:

Sim: To implement IoT based smart gardening using Cisco Packet tracer.

Software Apparatus : Packet tracer 11.0 End devices, Hubs, Connectors.

#### Procedure :

Step 1: Create a new device in Cisco Packet tracer and drag a generic IoT device from the IoT devices section onto the workspace.

Step 2: Right click on the IoT device and select Config/Attributes.

Step 3: In the configuration tab, select the device IoT sensor from the dropdown list. You can choose Cisco IoT.

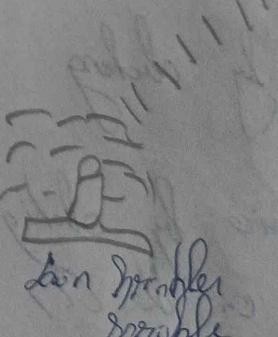
Step 4: In the Attributes tab, the following attributes:

\* Temperature  
\* H. O

Step 7: Config  
on them  
the sensor

Step 10: Config  
on them  
the actual

Step 13: Water pump  
sensor.



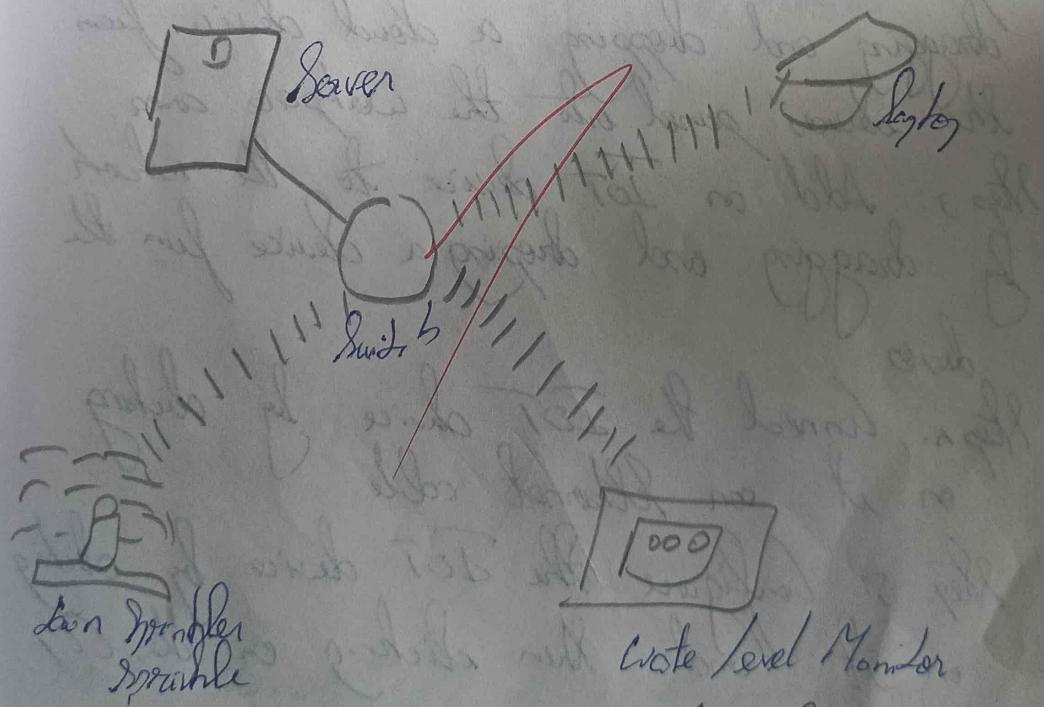
an sprinkler  
sprinkle

Result: Imp

Configure the sensors by right-clicking on them and selecting Config / Attributes. Set the sensor type, and the measurement.

Step 10: Configure the actuators, by right-clicking on them and selecting Config / Attributes. Set the actuator type.

Step 11: Use the dashboard to control the water pump and light bulb based on the sensor.



Result: Implementation of smart gardening is carried out very successfully.

## Experiment: 21

### Implementation of IoT devices in networking

Obj: To implement an IoT device in network, using Cisco packet tracer.

Apparatus required: Router, Trace, Host devices, USB connectors.

#### Procedure:

Step 1: Open Cisco packet tracer and create a new project.

Step 2: Connect the router to the internet by dragging and dropping a cloud device from the sources panel onto the workspace area.

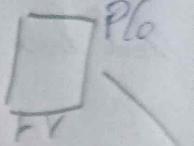
Step 3: Add an IoT device to the network by dragging and dropping a device from the devices panel.

Step 4: Connect the IoT device by clicking on it and Ethernet cable.

Step 5: Configure the IoT device by clicking on it and then clicking on the CC tab.

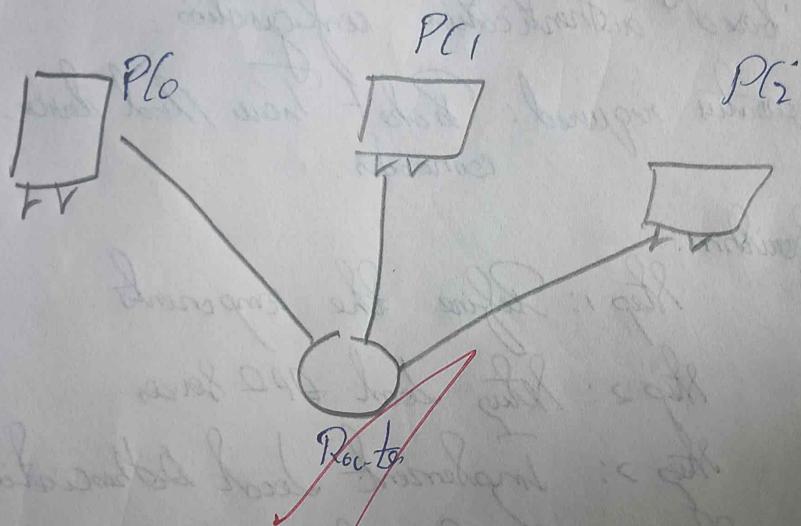
Step 6: Test the connectivity of IoT device by ping it from the router or host and

Step 7: Then a  
of the  
the specia  
you do



Result: Thus an  
implemented

Step 7: There are just general steps and specifics of the implementation will depend on the specific and network configuration you want to create.



Result: Thus an IoT device in networking is implemented by Cisco packet tracer.

## Experiment : 22

IOT based AAA local and server based authentication configuration.

Aim: Designing an IOT based AAA local and server based authentication configuration.

Apparatus required: Router, Switch and device hub connectors.

Algorithm:

- Step 1: Define the components
- Step 2: Set up Local AAA servers
- Step 3: Implement Local Authentication
- Step 4: Implement Local Authorization
- Step 5: Configure central AAA servers
- Step 6: Implement server Authentication
- Step 7: Implement server Authorization
- Step 8: Logging and accounting
- Step 9: Revocation and Updates

Result:

## Experiment - 23

Transport Layer protocol Header Analysis Chrg  
Line Number - TCP and UDP.

network analysis

Ques: To analyse capturing of Transport Layer protocol Header analysis using wire shark TCP and UDP.

Software: wire shark network analysis

Algorithm: Step 1: Open wire shark

Step 2: Click on list the available.

Step 3: Choose the LAN interface

Step 4: Click on start button.

Step 5: Active packets & select IP

Step 6: Capture the packets

Step 7: Click on the expression and select IPVS

Step 8: Select the double equal ( $= =$ )

Step 9: Click on ~~apply~~ button

which makes my original job sound even  
better