

XEN

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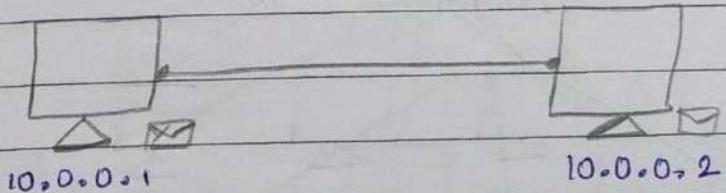
Standard Section E Roll No.

Subject

SL No.	Date	Title	Page No.	Teacher Sign / Remarks
01	27/9/24	Topology & Simulation		✓ 27/9/24
02	8/10/24	Star Topology		✓ 8/10/24
03	18/10/24	2 network using 2 routers		✓ 18/10/24
04	25/10/24	Static & Default route		✓ 25/10/24
05	8/11/24	DHCP & DNS		✓ 8/11/24
06	15/11/24	CRC & Leaky Bucket Algo.		✓ 15/11/24
07	22/11/24	RIP		✓ 22/11/24
08	29/11/24	OSPF		✓ 29/11/24
09	20/12/24	ARP		✓ 20/12/24
10	-11-	TELNET		✓ 11/12/24
11	-11-	WLAN		✓ 11/12/24
12	-11-	Socket Program [TCP]		✓ 11/12/24
13	-11-	Socket Program [UDP]		✓ 11/12/24
14	-11-	VLAN		✓ 11/12/24

Topology and Simulation

Aim : connecting the two End Devices [PC]



Procedure :-

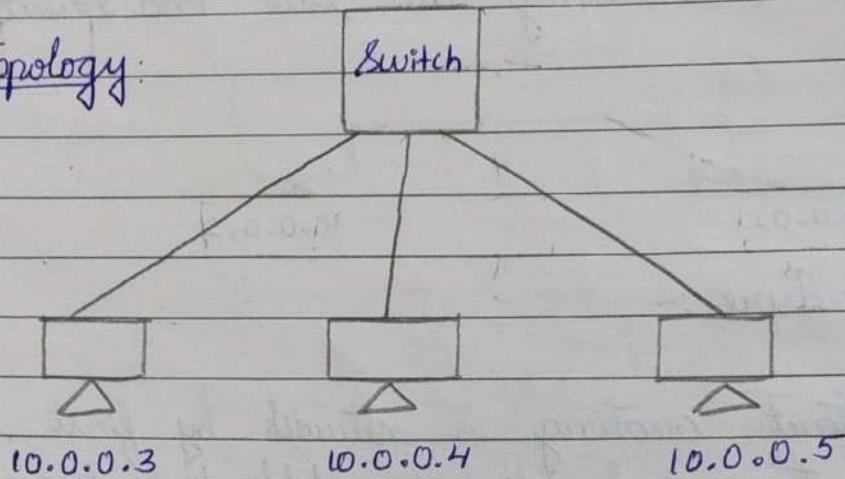
- 1] Start creating a network by first selecting the two end devices. Add two generic PC to the workspace
- 2] Under connections select the default cable connect the device with it. The light should be turn green at this point
- 3] Click on the PC. Open the PC configuration window & change the setting using the config tab
- 4] Under Interface, click FastEthernet and set IP address as 10.0.0.1 and then Packet Tracer automatically calculates other parameters such as Subnet mask, MAC address etc.
- 5] Same procedure followed for PC2 also.
- 6] So send the messages to end devices in simulation mode

~~Conclusion :~~

- * You will capturing the events and viewing Animations in simulation mode
- * You can check the whether messages are successfully reached or not. b/w the source to destination

Aim : connecting the 3 end devices by using Switch

Topology:



Procedure :

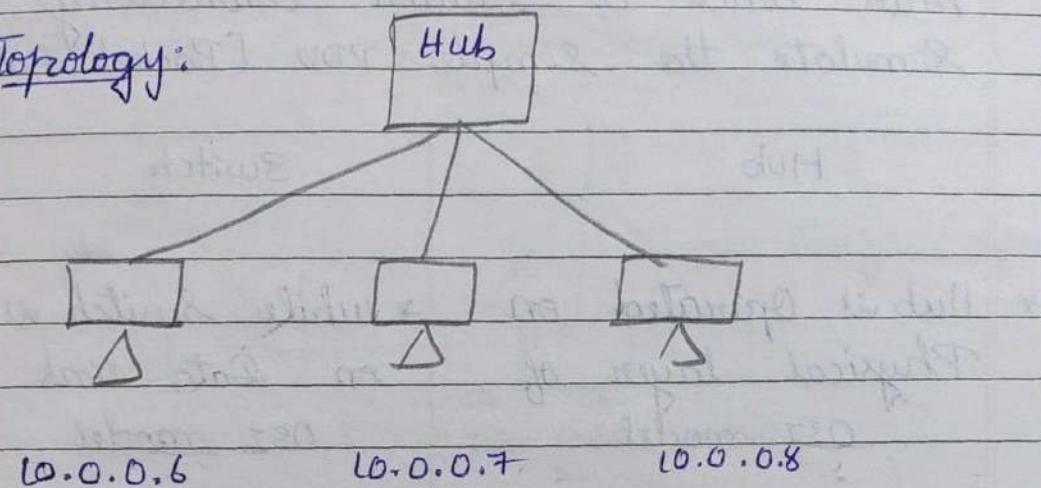
- 1) Start creating a network by first selecting 3 end devices. drag 3 pc and drag switch also
- 2) Give IP address for every end devices
- 3) Connect the 3 PC to switch by using default wire.
- 4) Put the message to source and destination devices in simulation mode
- 5) You Then capturing the events and viewing the Animation in simulation mode

Observation:-

- * We can observe the progress and status of the transmission.
- * We can check whether the messages are successfully reached or not between the source to destination.

Aim :- connecting the 3 PC by using hub

Topology:



Procedure:

- 1) Start creating a network by first selecting end devices . drag 3 PC and drag 1 Hub
- 2) Give IP address for each 3 PC
- 3) Connect the 3 PC to 1 Hub by using default wire
- 4) Put the message to source & destination
- 5) Then capturing the events & viewing the animation

Observation:

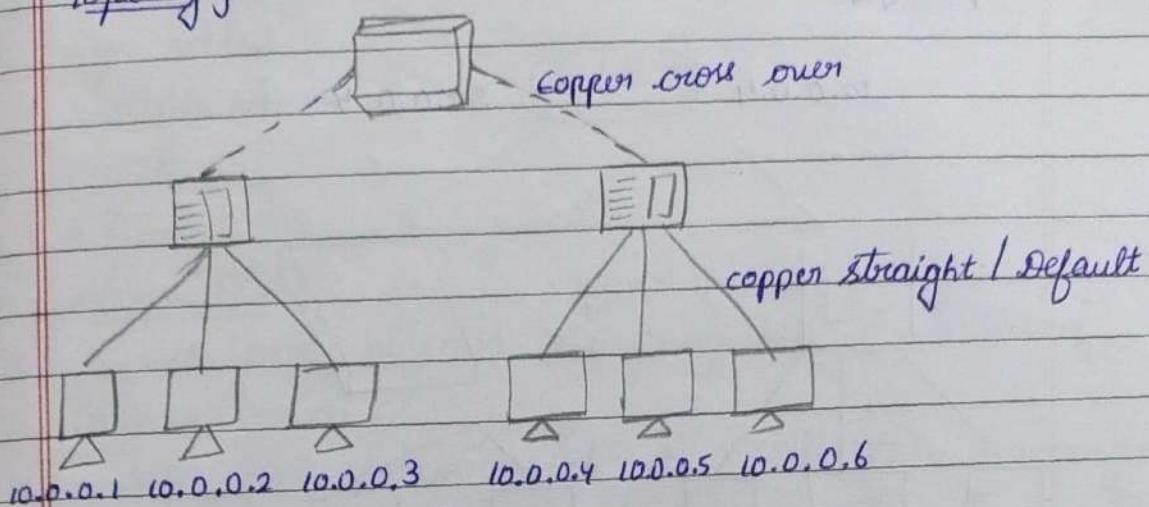
- * we can observe the progress & status of the transmission
- * we can check whether the messages are sent successfully reached or not b/w the source to destination.

27/11/2023

Lab-02

Create a Topology involving multiple hubs and a switch connecting them to Simulate the simple PDV [Packet Data Unit]

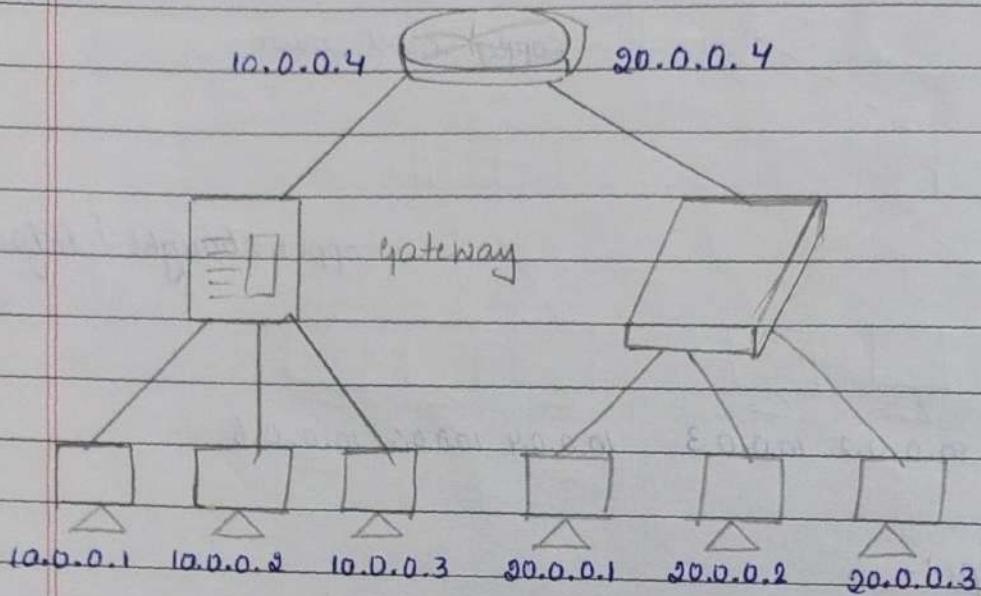
Hub	Switch
* Hub is Operated on Physical layer of OSI model	* While Switch is operated on Data link layer of OSI model
* Hub is a broadcast type transmission	* While Switch is a unicast, multicast & broadcast type transmission
* Hub have 4/12 port	* While Switch can have 24 to 48 port
* In hub, There is only one collision	* Diff ports have own collision domain.
* Hub is half duplex transmission mode	* Switch is a full duplex transmission mode
* Hub ,Packet filtering is not provided	* Packet filtering is provided
* Hub cannot be used as repeater	* Switch can be used as a repeater
* Hub is inexpensive ∴ It is not intelligent device that sends message to all ports	* Switch is expensive ; Switch is an intelligent devices that sends messages to selected destination

Topology:-Steps :-

- * Start creating a network by selecting the end devices PC, Hub, Switch
- * To connect the PC to hub by using default or copper straight wire
- * connect the two hubs to single switch by using copper cross over wire
- * Set the IP address for all PC as shown in above diagram [~~config > fastEthernet > IP~~]
- * Put the messages to source and destination devices in simulation mode for configuration
- * After this configuration Ping the any end devices (PC) so select your PC and Desktop > command prompt > type ping and destination ip address of destination device it shows the whether all end devices are working or not

8/10/20

Topology



Steps:

- * Start creating a network by selecting the end devices PC, Hub, Switch, router.
- * Connect the 3 PC to Switch by default using default wire
- * connect another 3 PC to Hub by using default wire
- * Set the IP address of each pc as shown in above diagram.
- * Connect switch and ~~route~~ hub to routers by using default wire.
- * Go to Router, select CLI option and followed below steps or commands
 - config t
 - interface fastethernet 0/0
 - exit
 - interface fastethernet 0/0
 - ip address 10.0.0.4 255.0.0.0
 - no shutdown

-Interface fastethernet 1/0

-ip address 10.0.0.4 255.0.0.0

no shutdown

-exit

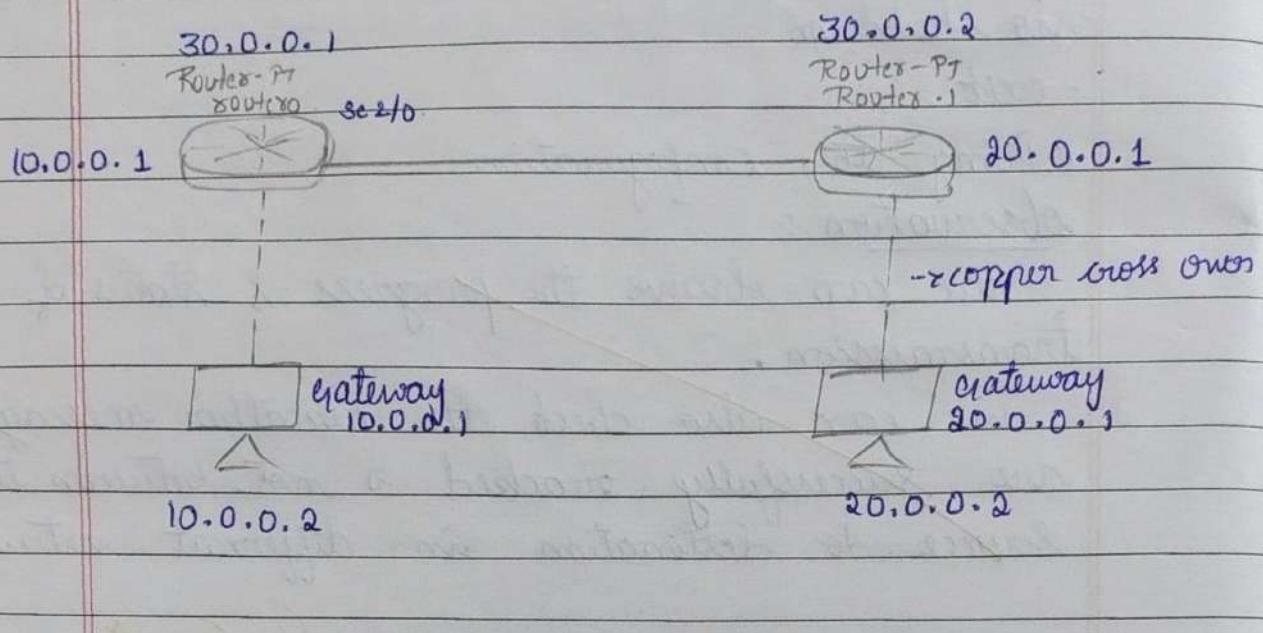
* Ping the configuration observation :

we can observe the progress & status of transmission.

we can also check the whether message are successfully reached or not between the source to destination in different network

8/8/174
28/10/174

Aim: To connect two network using two routers



Configure IP Address to routers in packet tracer explore the following message.
ping responses, destination unreachable, request timedout, reply.

Steps:

- 1) Drag and drop two routers (generic). & two PCs
- 2) Configuration IP addresses for PCs as 10.0.0.1 and 20.0.0.2.
- 3) connect routers to PC1 & router2 to PC0 using copper cross over wires. ~~to~~
- 4) Click on PCs and give gateway as 10.0.0.1 & 20.0.0.1 respectively.
- 5) Configure IP address for routers using fastethernet 0/0 as 10.0.0.1 & 20.0.0.1 respectively.
- 6) Connect the two routers with serial DTE wire using Serial 2/0 ports.
- 7) configure IP addresses as 30.0.0.1 & 30.0.0.2 for routers.

- 8) The steps to configure in CLI are :-
 - Type y
 - enable
 - config t
 - interface serial 2/0
 - ip address 30.0.0.1 255.0.0.0
 - no shutdown
 - exit
- 9) click on routers to go CLI and type y and exit until you see 'Router#' then type show ip route
- 10) click on router 1 and go to CLI then type -> config t
ip route 20.0.0.0 255.0.0.0 30.0.0.2
follow the same steps for router-2. with
ip route 10.0.0.0 255.0.0.0 30.0.0.1
- 11) Pass the messages from PC1 to PC2 in simulation mode
- 12) Check the status
- 13) click on routers -> go to CLI. type y and exit until you see Router#
then type show ip route.
- 14) click on PC1 and go to command prompt and ping commands as ping 20.0.0.2 and check reply status.
- 15) Do not give IP address for one PC and check destination unreachable
- 16) You can also view requested timeout message

Output:

ping 20.0.0.2

pinging 20.0.0.2 with 32 bytes of data :

Reply from 20.0.0.2 : bytes = 32 time = 2 ms TTL = 126

Reply from 20.0.0.2 : bytes = 32 time = 1 ms TTL = 126

Reply from 20.0.0.2 : bytes = 32 time = 2 ms TTL = 126

Reply from 20.0.0.2 : bytes = 32 time = 1 ms TTL = 126

ping statistics for 20.0.0.2 :

packet : sent = 4, Received = 1 lost = 0 (0% loss),

Approximate round trip times in milli-seconds

Minimum = 1 ms, Maximum = 3 ms, Average = 1 ms

- 17) Remove gateway given in a network & pass messages and ping commands.

O/p :-

ping 20.0.0.2

pinging 20.0.0.2 with 32 bytes of data :

Request timed out

Request timed out

Request timed out

Request timed out

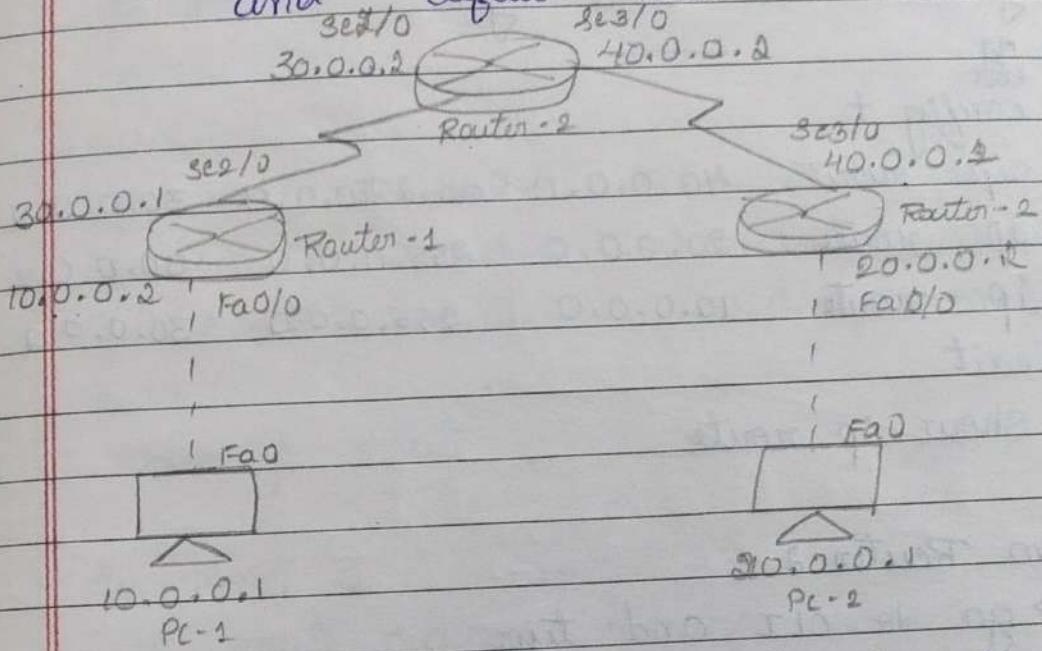
ping statistics for 20.0.0.2 :

Packets : Sent = 4, Received = 0, Lost = 4 (100% loss)

✓
29/10/2023

25/10/24

Configure the static route to the router and default route



- * For start creating a network by first selecting the two end devices and three router (generic)
- * Connect the PC to router by using copper cross over wire and between connect between two router by using serial DTE wire. connect has as shown in above fig.
- * Give the ip address for PC1 & PC2 for PC1 & PC2 as shown in figure.
- * Give gateway as 10.0.0.2 for PC1 and give gateway as 20.0.0.2 for PC2.
- * Go to Router 1 and give ip address 10.0.0.2 in fastethernet0/0 & give ip address as 30.0.0.1 in serial2/0
- * Go to Router 2 and give ip address as 30.0.0.2 in serial2/0 & give 40. Ip address as 40.0.0.2 in serial3/0
- * Go to Router 3 and give ip address as 20.0.0.2 in fastethernet0/0 and give ip address as 40.0.0.1 in serial3/0

For Static Route

In Router 1

- * go to CLI and type
- * ~~exit~~
- config t
- ip route 40.0.0.0 255.0.0.0 30.0.0.2
- ip route 20.0.0.0 255.0.0.0 30.0.0.2
- ip route 10.0.0.0 255.0.0.0 30.0.0.2
- exit
- show ip route

In Router 2

- go to CLI and type
- y
- exit
- ip route 10.0.0.0 255.0.0.0 30.0.0.1
- ip route 20.0.0.0 255.0.0.0 40.0.0.1
- exit

In Router 3

- go to CLI and type
- y
- exit
- ip route 10.0.0.0 255.0.0.0 30.0.0.2
- ip route 30.0.0.0 255.0.0.0 40.0.0.2
- ip route 20.0.0.0 255.0.0.0 40.0.0.2
- exit

and ping the PC.

go to Desktop → command prompt →
ping 20.0.0.1

F21 Default Route

In Router 1

go to CLI & type

- y

- exit

- ip route 0.0.0.0 255.0.0.0 30.0.0.2

- ip route 0.0.0.0 0.0.0.0 30.0.0.2

- ip route 0.0.0.0 0.0.0.0 30.0.0.2

- exit

- show ip route

In Router 2

- ip route 0.0.0.0 0.0.0.0 30.0.0.1

- ip route 0.0.0.0 0.0.0.0 40.0.0.1

In Router 3

- ip route 0.0.0.0 0.0.0.0 40.0.0.2

- ip route 0.0.0.0 0.0.0.0 40.0.0.2

- ip route 0.0.0.0 0.0.0.0 40.0.0.2

In PC1

- ping 20.0.0.1

Output: pinging 20.0.0.1 with 32 bytes of data.

Reply from 20.0.0.1 : bytes = 32 time = 8ms TTL = 128

Reply from 20.0.0.1 : bytes = 32 time = 8ms

Reply from 20.0.0.1 : bytes = 32

Reply from 20.0.0.1 : bytes = 32

8X
21/10/24

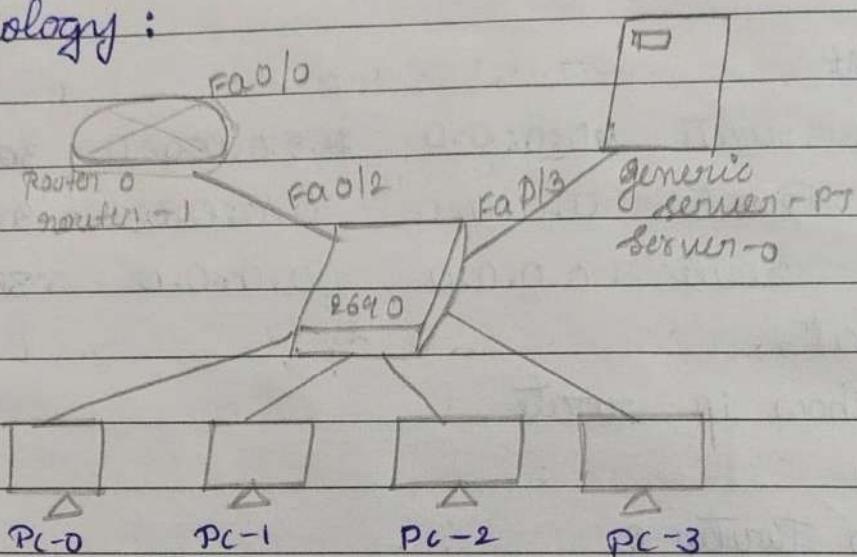
Lab - 05

8/11/24

DHCP - How to configure DHCP within a LAN?

1 Create a LAN like this

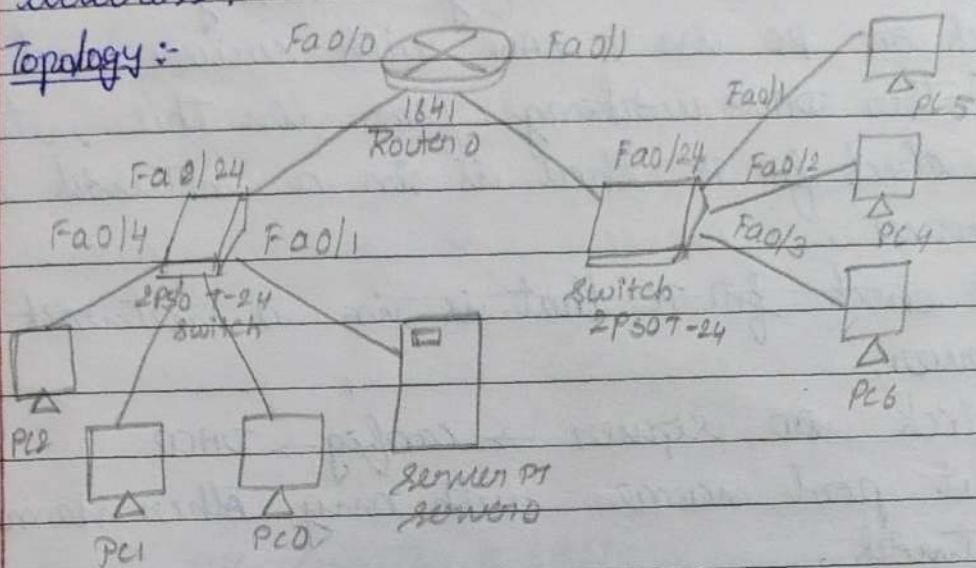
Topology :



- * configuration router interface with ip 10.0.0.1 and subnet mask 255.0.0.0
- * click on server → config, then assign gateway 10.0.0.1
- * Then click on fastethernet & assign ip address 10.0.0.2 and subnet mask 255.0.0.0
- * Click on DHCP, there default pool.
- * Give default gateway : 10.0.0.1
DNS Server : 10.0.0.2
Start ip address : 10.0.0.10
Subnet mask : 255.0.0.0
Max. no. of users : 500
Server ip address: 10.0.0.2
- * Click on save
- * Click on any of pc → Desktop → Ip configuration and choose DHCP [check result]. if your DHCP request failed then try few more times.

How to get IP from DHCP that is present in some other network using IP helper address?

Topology :-



- * Configure the router interface fastethernet 0/0 and fastethernet 0/1 with ip address router> enable

config t

interface fastethernet 0/0

ip address 10.0.0.1 255.0.0.0

no shutdown

exit

interface fastethernet 0/1

ip address 10.0.0.1 255.0.0.0

no shutdown

exit

- * click on Server -> config -> then just give the gateway ip address as 10.0.0.1

- * click on fastethernet give ip address 10.0.0.2 and subnetmask 255.0.0.0 DHCP server automatically assign 10 networks for default pool,

give ip for DNS, gateway & TFTP as given before and save

- * Click on servers → config → then *
- * click on pc in a LAN with servers and check whether DHCP working fine in this network.
- * To check for pc that is in a network without servers.
- * To check for pc that is in a network without servers.

click on servers → config → DHCP

- * Edit pool name with any other name to network.

Default gateway → 20.0.0.1

DNS Server → 10.0.0.2

Start ip address → 20.0.0.10

Subnet Mask → 255.0.0.0

Max. no. of users → 100

TFTP Server → 10.0.0.2

Then, click on add & save

- * Go to router & give ip address under fastethernet 0/1 i.e. server address as 10.0.0.2

* In router, [global configuration mode]

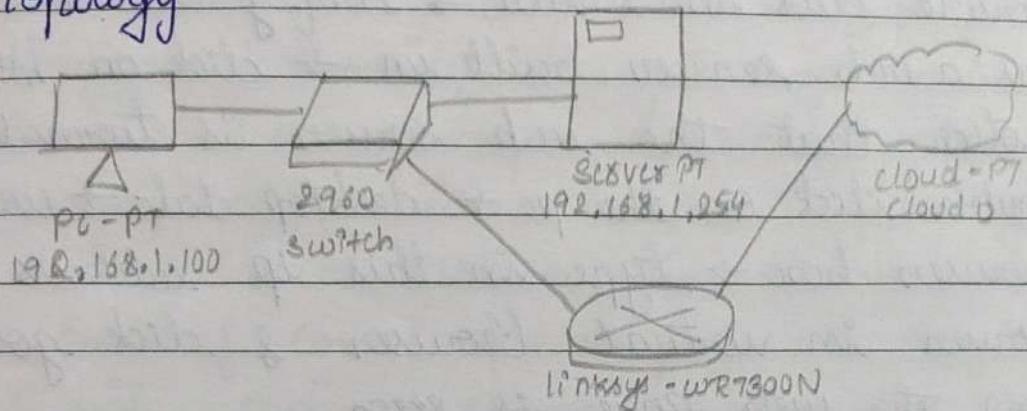
Router (config) # interface fastethernet 0/1
ip helper-address 10.0.0.2
exit

- * click on any pc → Desktop → Ip configuration → choose DHCP ip address from dhcp server is displayed

DNS :

How to demonstrate WEB server and DNS

Topology



- * First we create a LAN
- * Click on end devices and then click on a generic pc, & click on switches & then click a 2960 switch.
- * click on end devices & then click on a generic server & place these in logical workspace
- * connect these devices together & run a test b/w the client & the server using a straight through cable.
- * click on server label & type in ip address as 192.168.1.254 & 192.168.1.200 for pc label.
- * click on server & config \rightarrow interface \rightarrow fast ethernet \rightarrow port status on \rightarrow in static ip address type 192.168.1.254 \rightarrow place cursor in subnet mask. Box \rightarrow close the window.
- * To set up pc click on it \rightarrow config tab \rightarrow fast ethernet \rightarrow port status on \rightarrow enter static ip address as 192.168.1.100 \rightarrow click cursor on into subnet mask \rightarrow close this screen
- * Ping from pc to server to make sure that we have a connection.

Double click on the pc \rightarrow desktop tab \rightarrow command prompt box \rightarrow type in the command - ping
192.168.1.254

- * Double click on server \rightarrow config tab \rightarrow server has a web server built in \rightarrow click on http notice that the web server is turned on
- * Double click on the pc \rightarrow desktop tab \rightarrow web browser box \rightarrow type in this ip address of server in virtual browser & click go now, the web page is seen close that screen
- * We are now connected to the http server, enter username as student and password as student, enable all option, add & save
- * click on wireless devices. and then click on linksys wireless router
- * Label this wireless router with its ip address as 192.168.1.1
- * By adding a cloud the cloud will symbolise the internet.
- * Connect switch to a router via straight through cable using fastethernet 0/3 of switch & ethernet of router
- * Use automatic choose connection type option between router & cloud attached to the router internet port)
- * Click on the router
- * Router has four ethernet ports (LAN) & one WAN port
- * Click on config tab, display name, address is correct

click on LAN option, Ip address is incorrect
change to 192.168.1.1

- * Ping from pc to router. click on PC → desktop tab → command prompt box → type ping 192.168.1.1
- * Configure the default gateway double click on PC → click on desktop → Ip configuration → add address of router as default gateway.
- * Click on pc → desktop → web browser → type address of server → web page is displayed.
- * Double click on server → fill router address in default gateway
- * Click on web server by pressing http → change the word cisco packet tracer to super yahoo.
- * Click on DNS → make sure it is turned on → under name type : supervahoo.com address type : 192.168.1.254
- * Double click on pc → Ip configuration → under DNS server type the address of server.
- * Open web browser & type in supervahoo.com webpage is displayed now.

✓ Super

Write a program for error Detection
using CRC - CCITT (16 bits)

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int crc(chan *ip, chan *op, chan *poly,  
        int mode);
```

2

```
strcpy(op, ip);
```

```
if (mode) {
```

```
    for (int i = 1; i < strlen(poly); i++)  
        strcat(op, "0");
```

3

```
for (int i = 0; i < strlen(ip); i++) {
```

```
    if (op[i] == '1') {
```

```
        for (int j = 0; j < strlen(poly); j++) {
```

```
            if (op[i+j] == poly[j])
```

```
                op[i+j] = '0';
```

else

```
    op[i+j] = '1';
```

3

3

```
for (int i = 0; i < strlen(op); i++) {
```

```
    if (op[i] == '1')
```

```
        return 0;
```

return 1;

3

```

int main()
{
    char ip[50], op[50], recv[50];
    char poly[] = "1011100000100001";
    printf("Enter the input message in binary : \n");
    scanf("%s", ip);
    conc(ip, op, poly, 1);
    printf("The transmitted message is : %s\n", ip, op + strlen(ip));
    printf("Enter the received message in binary : \n");
    printf("Scarf (%s", &recv);
    if (conc(recv, op, poly, 0))
        printf("No error in data\n");
    else
        printf("Error in data transmission has occurred\n");
    return 0;
}

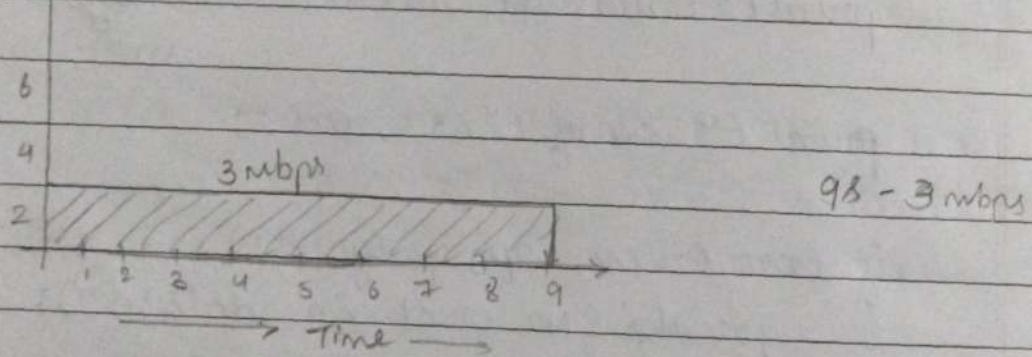
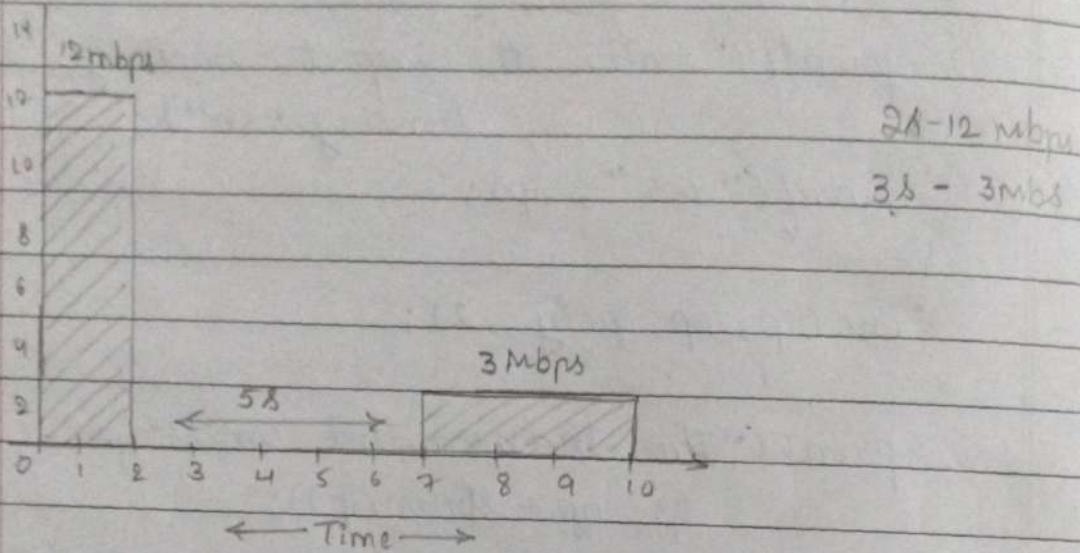
```

O/P

Enter the input message in binary : 101001111
 The transmitted message is : 101001111011000000000000
 Enter received message in binary : 1010011110101
 No error in data

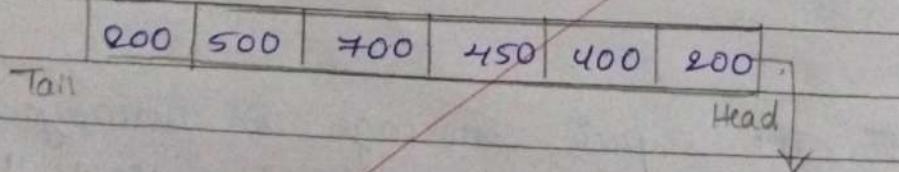
Leaky Bucket Algorithm

Tail-Burst flow hole - fixed rate flow

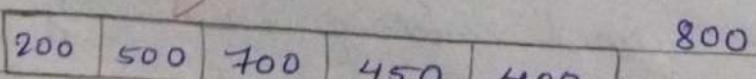


Bucket Size counter $n = 1000$

Queue

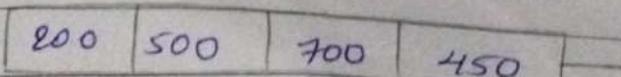


1000 - 200



800 - 400

400



400 < 450

80 reset into 1000

1000 - 450
550 NO:

200 | 500 | 400 → 400 > 550 reset into 1000

1000 - 700

300 //

200 | 500 → 500 > 300 reset into 1000

1000 - 500 = 500 //

| 200 | → 500 - 200 = 300 //]

#include

Storage = 0

no. of queries = 4

bucket size = 10

input pkt size = 4

output pkt size = 1

for i in range (0, no. of queries) :

- size_left = bucket size - storage

if input_pkt_size <= size_left :

storage += input_pkt_size

else :

print ("Packet loss = ", input_pkt_size)

print ("Buffer size = ", storage, "out of bucket size
= < bucket size >")

storage -= output_pkt_size

O/P Buffer size=4 out of bucket size = 10

Buffer size=7 out of bucket size = 10

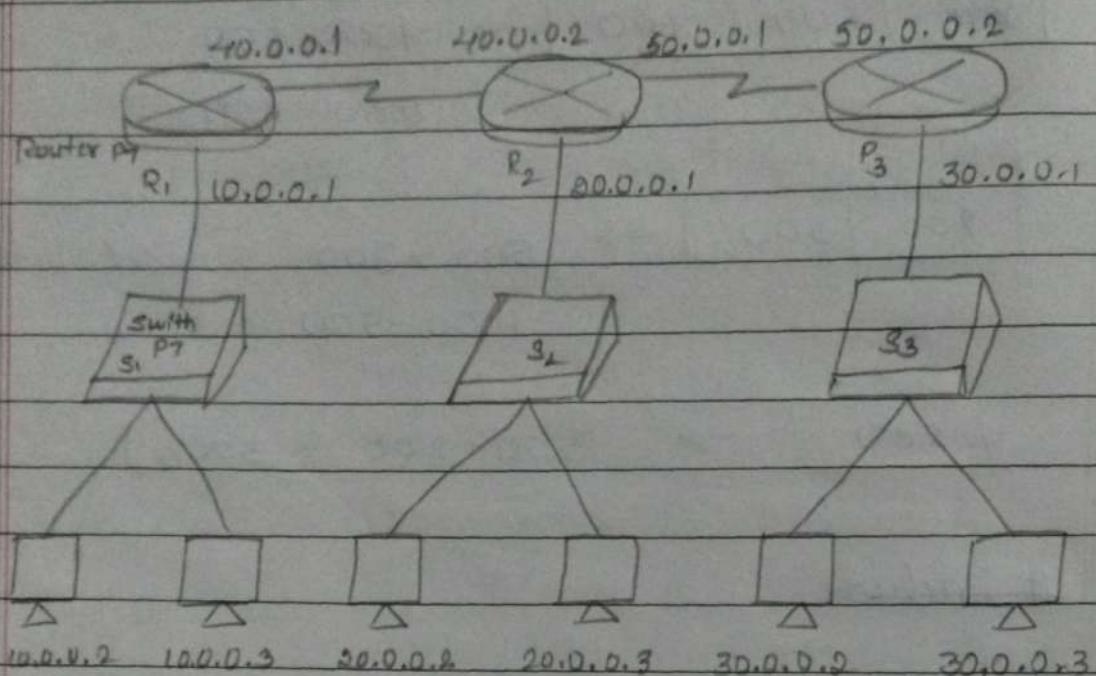
Buffer size=10 out of bucket size = 10

Packet loss = 4

Buffer size = 9 out of bucket size = 10

8/8/2023

Routing Information Protocol (RIP)



give gateway for PC0 & PC1 as 10.0.0.1

give gateway for PC2 & PC3 as 20.0.0.1

give gateway for PC4 & PC5 as 30.0.0.1

Log on

Router 0

Go to CLI

Type enable

config t

router rip

network 10.0.0.0

network 40.0.0.0

exit

show ip route

Router 1

Go to CLI

Type enable

config t

router rip

network 20.0.0.0

network 50.0.0.0

network 40.0.0.0

Router 2

Go to CLI

Type enable

config +

router rip

network 30.0.0.0

network 50.0.0.0

Ping the different network

Check TTL (Time to live):

* Simulate the network & select router in last device and at device

* Then, click on Inbound PDV details

* Observe TTL is 254

* Then, click on outerbound PDV details

* Observe TTL is 253

* TTL is decreasing compared with
Inbound (TTL) & outbound (TTL)

Lab - 8

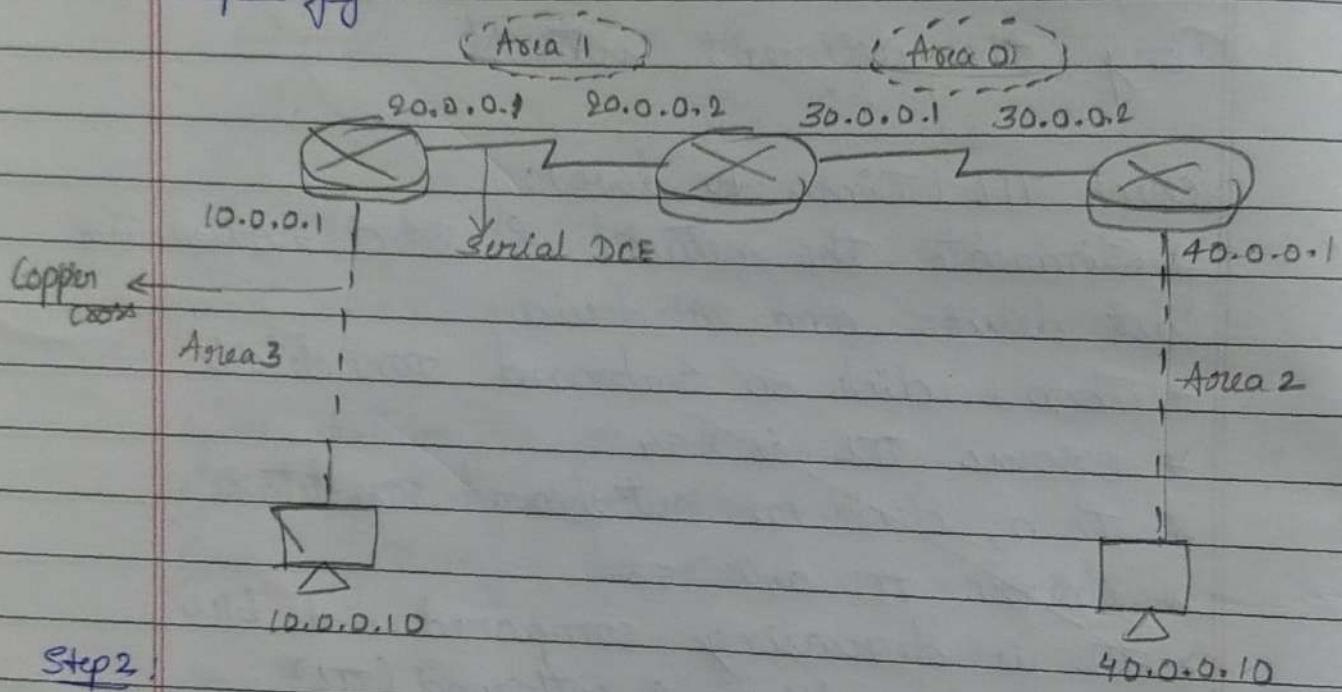
2nd lab

Open Shortest Path First (OSPF) dynamic Protocol

- * Intra domain as are RIP & OSPF
- * Area 0 → Backbone of network
- * ex:- for link state routing

Step 1.

Topology:-



Step 2.

In Router R1,

```

# interface fastethernet 0/0
# ip address 10.0.0.1 255.0.0.0
# no shutdown
# exit

```

```

# interface serial 0/0
# ip address 20.0.0.1 255.0.0.0
# encapsulation ppp [point to point]
# clock rate 64000
# no shutdown
# exit

```

In Router R2

```
# interface serial 2/0
# ip address 20.0.0.2 255.0.0.0
# encapsulation ppp
# no shutdown
# exit
```

```
# interface Serial 3/0
```

```
# ip address 30.0.0.1 255.0.0.0
# encapsulation ppp
# clock rate 64000
# no shutdown
# exit
```

In Router R3

```
# interface serial 2/0
# ip address 30.0.0.2 255.0.0.0
# encapsulation ppp
# no shutdown
# exit
```

Step 3: Now, enable ip routing by configuring ospf routing protocol in all routers

In Router R1,

```
# router ospf 1
# router-id 1.1.1.1
# network 10.0.0.0 0.255.255.255 area 3
# network 20.0.0.0 0.255.255.255 area 1
# exit
```

In Router R2

```
#router ospf 1  
#address 20.0.0.2 255.0.0.0  
#encapsulation ppp  
#no shutdown  
#exit
```

```
#interface serial 2/0
```

```
#ip-address 30.0.0.1 255.0.0.0  
#encapsulation ppp  
#clock rate 64000  
#no shutdown  
#exit
```

In Router R3

```
#interface serial 2/0
```

In Router R2

```
#router ospf 1  
#router-id 2.2.2.2  
#network 20.0.0.0 0.255.255.255 area 1  
#network 30.0.0.0 0.255.255.255 area 0  
#exit
```

In Router R3

```
#router ospf 0  
#router-id 3.3.3.3  
#network 30.0.0.0 0.255.255.255 area 0  
#network 40.0.0.0 0.255.255.255 area 0  
#exit
```

You have to configure router id when we.

Date: _____ Page: _____

configure ospf. It is used to identify the router

Step 4: Now check routing table of R1

exit

Show ip route

o/p

Gateway of last resort is not set

c 10.0.0.0/8 is directly connected, FastEthernet0/0

c 20.0.0.0/8 is ——— " , Serial3/0

O IA 40.0.0.0/8 [110/129] via 20.0.0.2, 00:04:23, Serial2/0

O IA 30.0.0.0/8 [110/128] via 20.0.0.2, 00:07:29, ——

Here, R2 knows area 0 network 20.0.0.0

connected to R2 from R1, so R1 learns network through this network

R3(config)# router ospf 1, Here 1 is Process ID, it can be 1-65535. It initializes ospf process

There must be one ospf interface up to keep ospf process up. So its better to config loopback address to routers. It is virtual interface never goes down once we configured

R1(config-if)# interface loopback 0

ip address 172.16.1.252 255.255.0.0

no shutdown

R2(config-if)# interface loopback 0

ip address 172.16.1.253 255.255.0.0

no shutdown

R3(config)# interface loopback 0
ip add 172.161.254 255.255.0.0
no shutdown

Step 5 : check routing table of R3
show ip route

Step 6: Create virtual link b/w R1, R2 by this we
create virtual link to connect area 3 to
area 0

In R1

router ospf
area 1 virtual-link 2.2.2.2
#

In R2

router 1 virtual-link 1.1.1.1
exit

Step 7 In R3

show ip route

Step 8 :

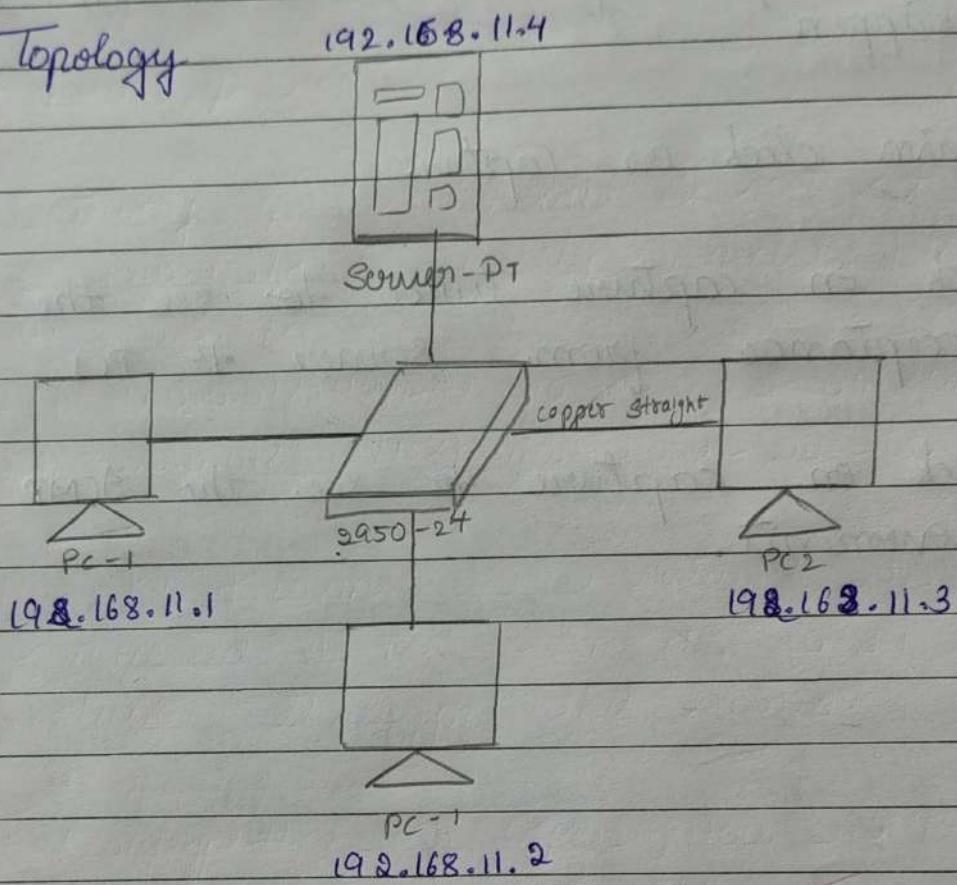
check connectivity b/w host 10.0.0.10 to
40.0.0.10

8/12*

20/12/24

To construct Simple LAN and understand the concept & operation of Address Resolution Protocol ARP

Topology

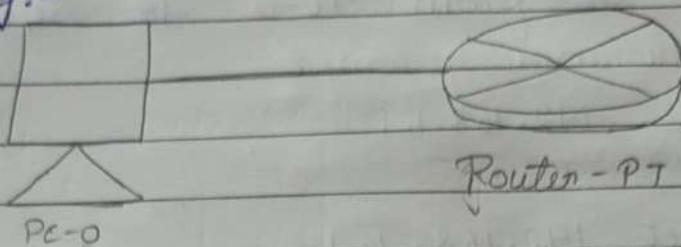


- * Assign IP address to all PCs & Server
- * Go to simulation panel, click on inspect & right click on PC0
- * Notice that there are no entries in ARP Table
Repeat the same for server
- * Click on PC0 & go to command prompt
Type arp -a (Initially there are no ARP entries)
- * Try pinging from PC-1 to Server
- * Two packets are created ICMP & ARP
- * Hover over the packets to check type of packet
- * Click on ARP packet

- * click on capture button to start the simulation.
- * Ping request from PC1 to switch will happen.
- * Again click on capture
- * click on capture twice to see the ping acceptance from server to PC1
- * Click on capture to see the ICMP packet movements.

TELNET PROTOCOL

Topology:-



- * Create the topology
- * Configure the Ip address & gateway for PC-0
- * In PC-0: go to Desktop
 - Select Ip configuration
 - Select Static
 - Give Ip address as 192.168.1.2
 - Give default gateway as 192.168.1.1
- * In Router : go to CLI

• Type -

Router > en

Router # conf t

Router(config) # hostname R1

R1(config) # enable secret r1p

R1(config) # intf. interface fastethernet0/0

R1(config-if) # ip add 192.168.1.1 255.255.255.0

R1(config-if) # no shut

R1(config-if) # line vty 0 5

R1(config-if) # login

R1(config-line) # password r1p

R1(config-line) # exit

R1(config) # exit

R1# exit

R1 # w8

* Ping the from PC-0 to Server
In command prompt

c:\>ping 192.168.1.1

c:\>telnet 192.168.1.1

password :

R1>

R1>en

password :

R1#

RI # W8

* Ping the from PC-0 to Server
In command prompt
c:\ping 192.168.1.1

c:\>telnet 192.168.1.1

password :

RI>

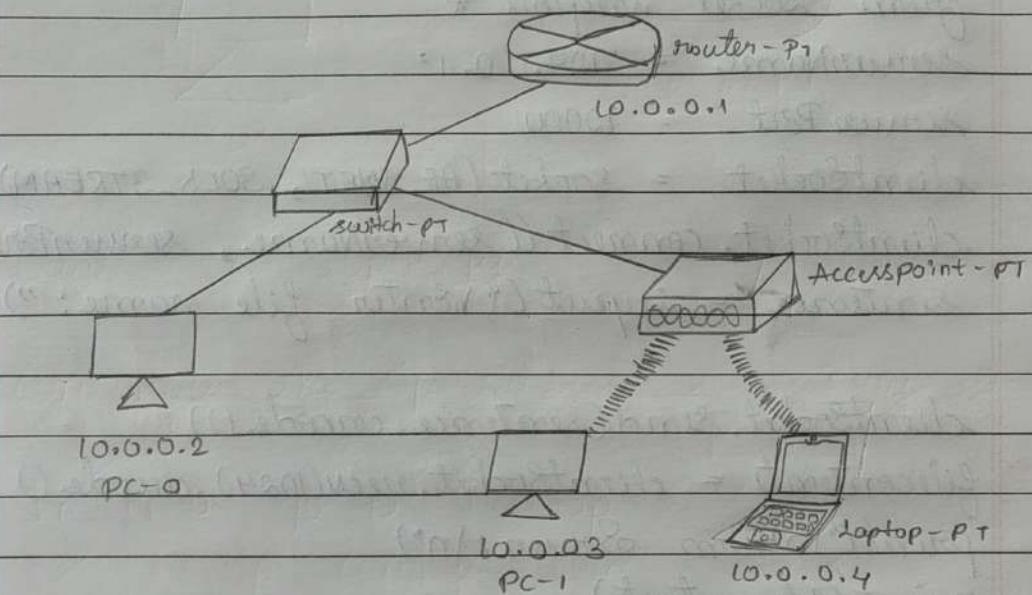
RI>en

password:

RI#

To construct a WLAN & make the nodes communicate wirelessly

Topology:-



- * Create Topology
- * Configure PC-0 & router as is normally done
- * In Access point
 - * Config → port 1 → SSID Name - WLAN (give any name)
 - * Select WEP and give 10 digit hex key - 1234567890
- * In PC-1 and Laptop with wireless standards
 - Switch off the device.
 - Drag existing PT-HAST - NM - IAM to component listed in the LHS
 - Drag WMP300N wireless interface to the empty port. Switch On devices
- * In config tab a new wireless interface would have been added. Now config SSID, WEP, WEPkey, IP add, gateway to the device
- * Ping from every devices to every other devices

Socket Programming [TCP]

ClientTCP.py

```
from socket import *
serverName = '127.0.0.1'
serverPort = 12000
clientSocket = socket(AF_INET, SOCK_STREAM)
clientSocket.connect((serverName, serverPort))
sentence = input("Enter file name: ")

clientSocket.send(sentence.encode())
filecontents = clientSocket.recv(1024).decode()
print("\nFrom Server:\n")
print(filecontents)
clientSocket.close()
```

ServerTCP.py

```
from socket import *
serverName = "127.0.0.1"
serverPort = 12000
serverSocket = socket(AF_INET, SOCK_STREAM)
serverSocket.bind((serverName, serverPort))
serverSocket.listen(1)
while 1:
    print("The server is ready to receive")
    connectionSocket, addr = serverSocket.accept()
    sentence = connectionSocket.recv(1024).decode()
    file = open(sentence, "r")
```

`l = file.read(1024)`

```
connectionSocket.send(l.encode())
print('Sent contents of' + sentence)
file.close()
connectionSocket.close()
```

- * first run the ~~the server~~ file and then run the client's file
- * Enter the ~~&~~ name of server file no

```
file = open(sentence, "r")  
con = file.read(2048)
```

```
serverSocket.sendto(bytes(con, "utf-8"),  
clientAddress)
```

```
print("In Sent content of ", end = ",")
```

```
print(sentence)
```

```
# for i in sentence:
```

```
# print(str(i), end = ",")
```

```
file.close()
```

* first run the server file and then client file

* Enter the name of server file

Socket Programming [UDP]

ClientUDP.py

```
from socket import *
serverName = "127.0.0.1"
serverPort = 12000
clientSocket = socket(AF_INET, SOCK_DGRAM)
```

```
sentence = input("Enter file name:")
```

```
clientSocket.sendto(sentence.encode("utf=8"), (serverName, serverPort))
```

```
filecontents, serverAddress = clientSocket.recvfrom(2048)
print('Reply from Server :')
print(filecontents.decode("utf-8"))
# for i in filecontents:
#     print(str(i), end = '')
clientSocket.close()
clientSocket.close()
```

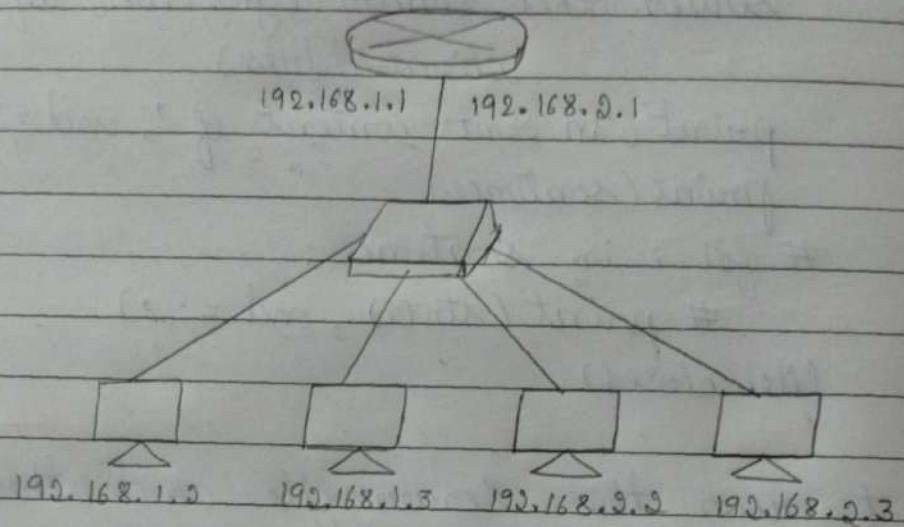
ServerUDP.py

```
from socket import *
serverPort = 12000
serverSocket = socket(AF_INET, SOCK_DGRAM)
serverSocket.bind(("127.0.0.1", serverPort))
print("The server is ready to receive")
while 1:
```

```
sentence, clientAddress = serverSocket.recvfrom(2048)
sentence = sentence.decode("utf-8")
```

Virtual LAN

Topology :-



- * Create a topology as seen above
- * choose the 1841 router
- * In the switch, go to config tab & select VLAN database
- * Give VLAN number as 9
- * VLAN name as NEWVLAN
- * click on add button
- * Select the interface i.e ethernet6/1 and make it trunk & select VLAN
- * In Router → Go to CLI

Router# config t

Router(config) # interface fastethernet0/0.1

Router(subconfig-subif) # encapsulation dot1q 2

Router(config-subif) # ip add 192.168.2.1 255.255.255.

Router(config-subif) # no shut

Router(config-subif) # exit

10/6/2023

Ping the from any device to every other device