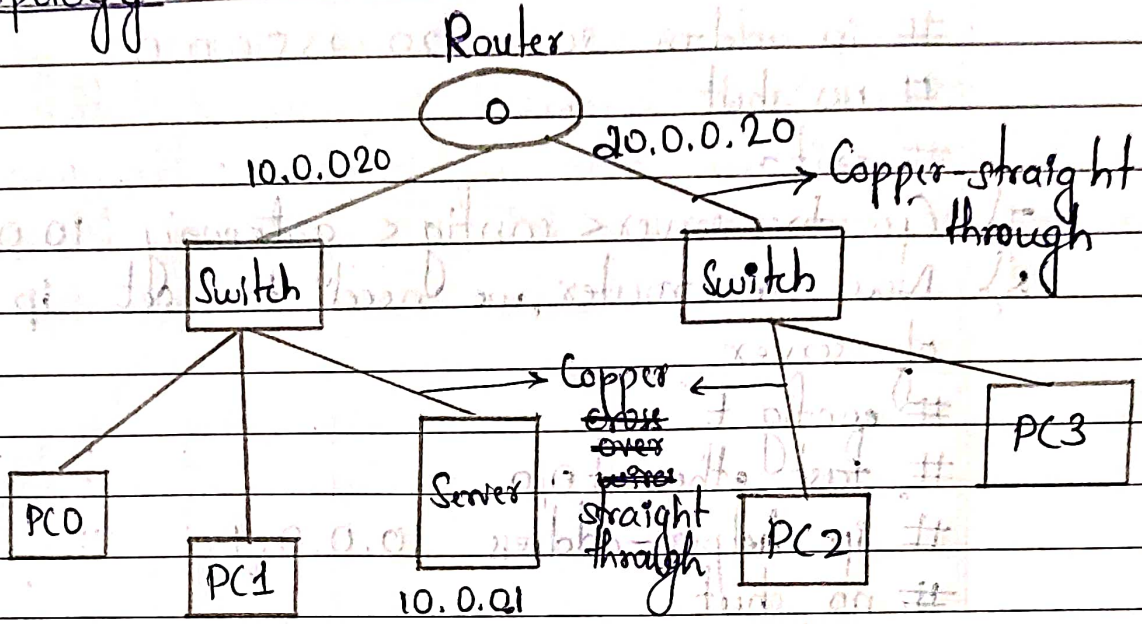
14/7/23

Aim - Connection of server LAN within and outside the network using switches and routers.

Topology -



Procedure -

1) Select two or more PC and a server connecting to switch and another network with only end devices and switch.
2) Connect both switches to router.
3) Set IP address of server as 10.0.0.1
4) Now, go to services < select DHCP < save the current IP address 20.0.0.2
5) Now, check the IP addresses of others devices in the network in the IP configuration in desktop.
6) Now in the CLI of router enable follow steps -

```
>enable
# config t
# interface fastethernet 4/0
```

ip address 10.0.0.10 255.0.0.0
no shut
exit
interface fastethernet 0/0
ip address 20.0.0.20 255.0.0.0
no shut
exit

7) Go to server < config < gateway 10.0.0.20

8) Now in router, we need to set ip address of server

config t
fast ethernet 0/0
ip helper-address 10.0.0.1
no shut
exit

9) Now go to server < services < DHCP < add new IP address - 20.0.0.2

10) To check the connection, go to the IP configuration of PC outside the network and click on DHCP and IP, gateway will be visible.

Result -

From server - from PC2 to PC0 whose ip address is 10.0.0.2:

PC > ping 10.0.0.2

pinging 10.0.0.2 with 32 bytes of data:

Request timed out

Bafna Gold
Date: Page:

Reply from 10.0.0.2 : bytes = 32 time = 6 ms TTL = 125
Reply from 10.0.0.2 : bytes = 32 time = 2 ms TTL = 125
Reply from 10.0.0.2 : bytes = 32 time = 12 ms TTL = 125

ping statistics for 10.0.0.2 :
Packets : Sent = 4, Received = 3, Lost = 1
Approximate round trip time in milliseconds :
Minimum = 2 ms, Maximum = 12 ms, Average = 6 m

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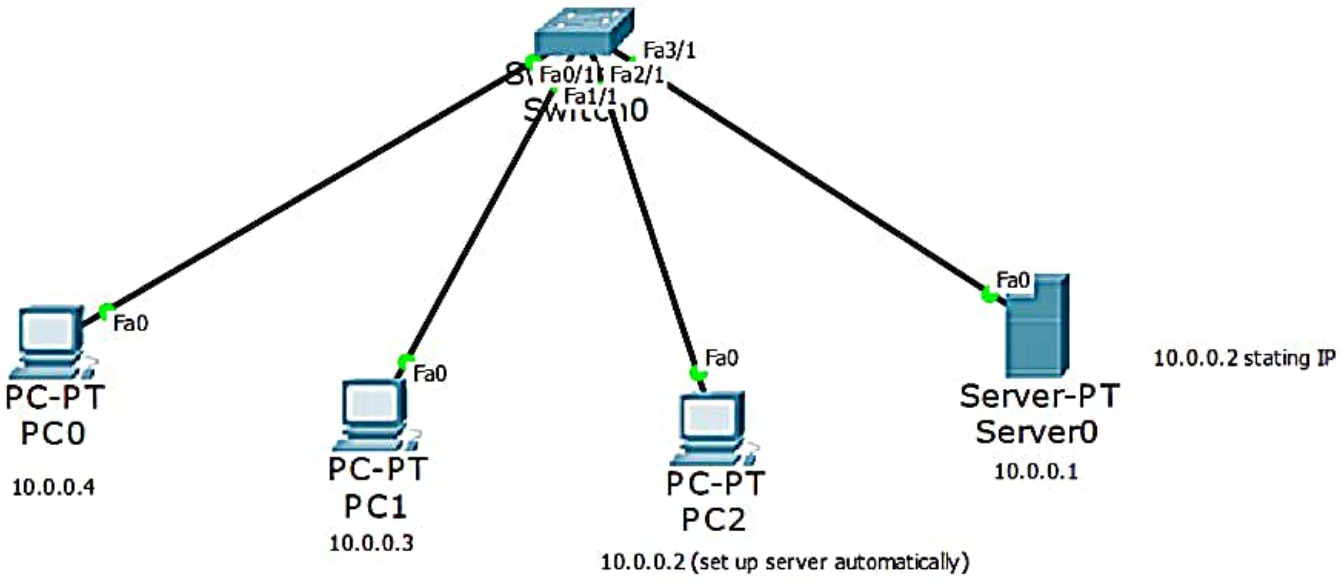
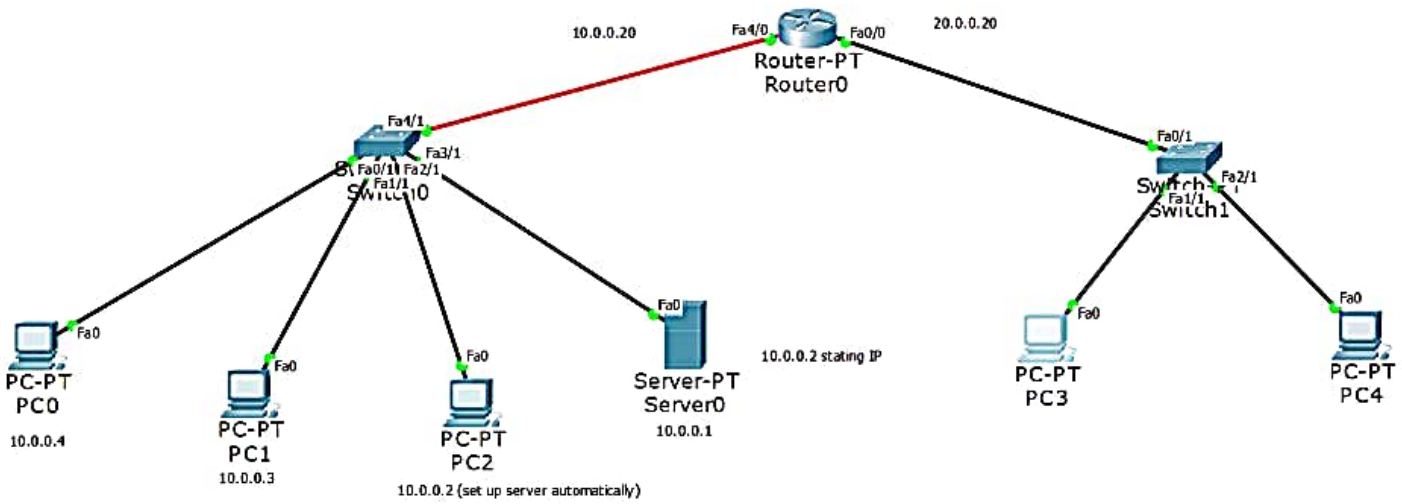
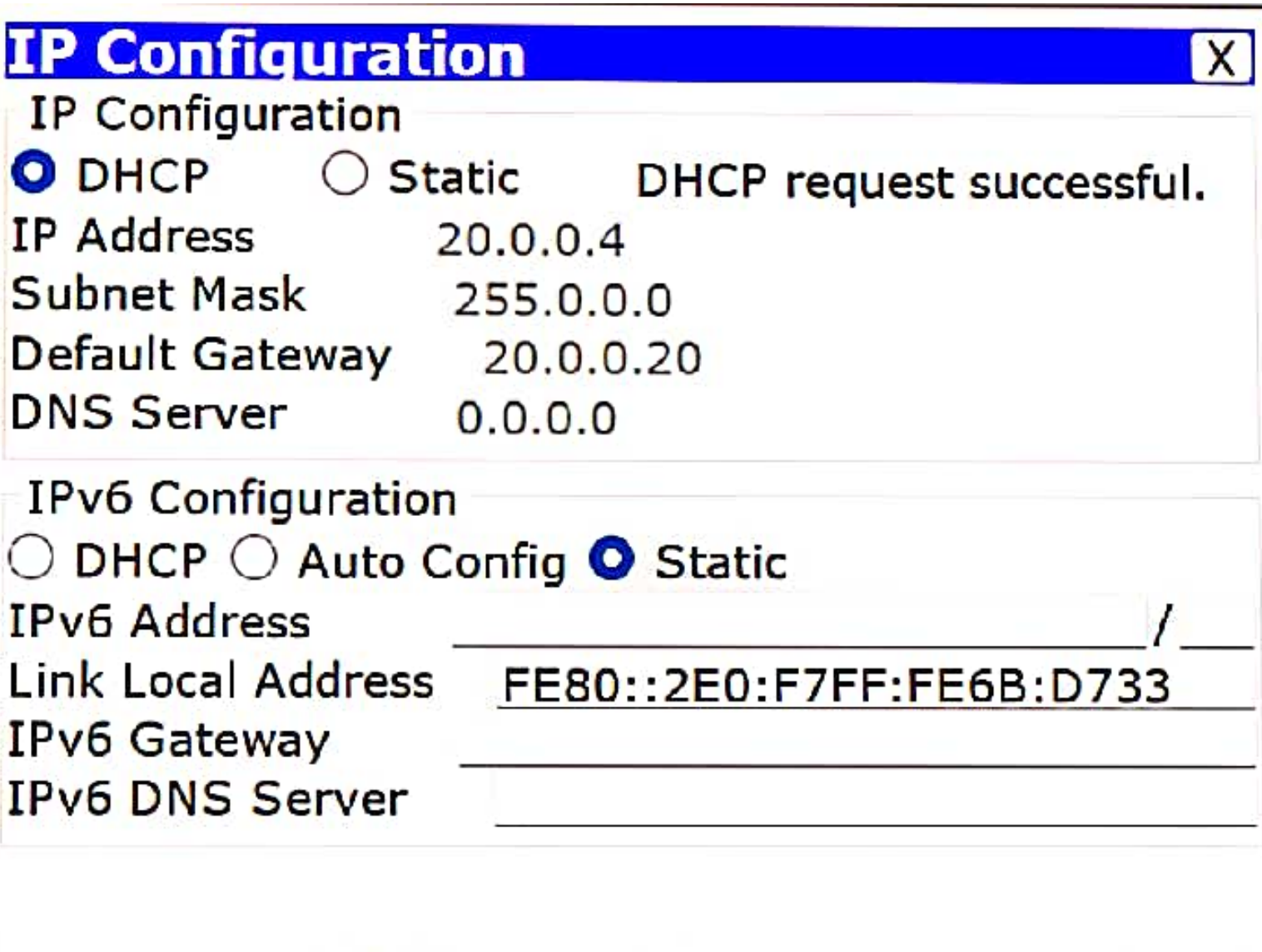

Fa3/1
Fa0/1
Fa2/1
Fa1/1
Fa0
PC-PT
PC0
10.0.0.4
Fa0
PC-PT
PC1
10.0.0.3
Fa0
PC-PT
PC2
10.0.0.2 (set up server automatically)
Fa0
Server-PT
Server0
10.0.0.1
10.0.0.2 stating IP

4B)


10.0.0.20
Fa4/0
Fa0/0
20.0.0.20
Router-PT
Router0
Fa1/1
Fa3/1
Fa0/1
Fa2/1
Fa1/1
Switch1
Fa0
PC-PT
PC0
10.0.0.4
Fa0
PC-PT
PC1
10.0.0.3
Fa0
PC-PT
PC2
10.0.0.2 (set up server automatically)
Fa0
Server-PT
Server0
10.0.0.1
10.0.0.2 stating IP
Fa0
PC-PT
PC3
Fa0
PC-PT
PC4

```
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!



Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial 2/0
Router(config-if)#ip address 20.0.0.20 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#interface serial 3/0
Router(config-if)#ip address 30.0.0.10 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    20.0.0.0/8 is directly connected, Serial2/0
Router#
```

```
outer>enable
outer#config t
nter configuration commands, one per line.  End with CNTL/Z.
outer(config)#interface serial2/0
outer(config-if)#ip address 30.0.0.20 255.0.0.0
outer(config-if)#no shut

outer(config-if)#
LINK-5-CHANGED: Interface Serial2/0, changed state to up

LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
xit
outer(config)#interface fastethernet0/0
outer(config-if)#ip address 40.0.0.10 255.0.0.0
outer(config-if)#no shut

outer(config-if)#
LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
xit
outer(config)#show ip route
               ^
 Invalid input detected at '^' marker.

outer(config)#exit
outer#
SYS-5-CONFIG_I: Configured from console by console
show ip route
odes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
      i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
      * - candidate default, U - per-user static route, o - ODR
      P - periodic downloaded static route

ateway of last resort is not set

    30.0.0.0/8 is directly connected, Serial2/0
    40.0.0.0/8 is directly connected, FastEthernet0/0
outer#
```


IP Configuration
X
IP Configuration
DHCP
Static
DHCP request successful.
IP Address 20.0.0.4
Subnet Mask 255.0.0.0
Default Gateway 20.0.0.20
DNS Server 0.0.0.0
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
/
Link Local Address FE80::2E0:F7FF:FE6B:D733
IPv6 Gateway
IPv6 DNS Server

```
Pinging 20.0.0.2 with 32 bytes of data:

Reply from 20.0.0.2: bytes=32 time=1ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```