COMPUTER NETWORKS

Week 2 9/10/24

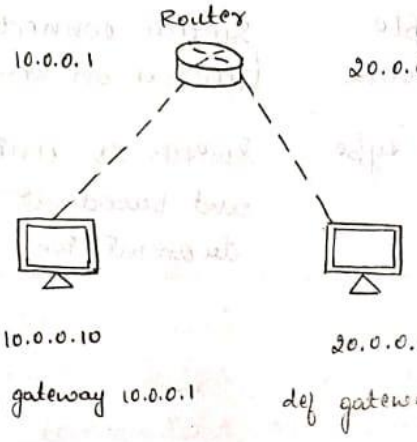
Routers

Configure IP address to routers in packet tracer to understand the working of routers in connecting devices of two different networks

Exp 2a: LAB-2 = Configure IP address to 9/10/24
routers. Explore: ping response, destination unreachable, request timed out, ping

Aim: To connect two PC's in two different network using a router.

Topology:



Procedure:

1. Select two PC from the device type selection and place it on the workbench using Placement cursor.
2. Similarly select router (generic) and place it on the workspace.
3. Connect two devices ie PCs to router using copper cross-over cable.
4. Assigned IP address for the two PCs and the gateway.
5. Setup router configuration. An CLI

CLI:

```
Router > enable
Router # config terminal
Router (config) # interface fastethernet 0/0
Router (config-if) # ip address 10.0.0.1 255.0.0.0
Router (config-if) # no shutdown
exit
```

Router (config) # interface fastethernet 1/0
Router (config-if) # ip address 20.0.0.1 255.0.0.0
Router (config-if) # no shutdown
exit
show ip route

nodes are not Router connected two nodes through proper cable configured.

6. Click on PCs and go to Desktop and choose command line prompt, ping 20.0.0.10 to observe status of the packets.

Observation:

- The buttons on the copper wire over connection turned green indicating correct connection
- Packets were successfully transferred showing results as:

  Packets: Sent = 4, Received = 4, lost = 0

- ping 20.0.0.10

  Pinging 20.0.0.10 with 32 bytes of data:

  Ping statistics for 20.0.0.10:

  Packets: Sent = 4, Received = 4, lost = 0

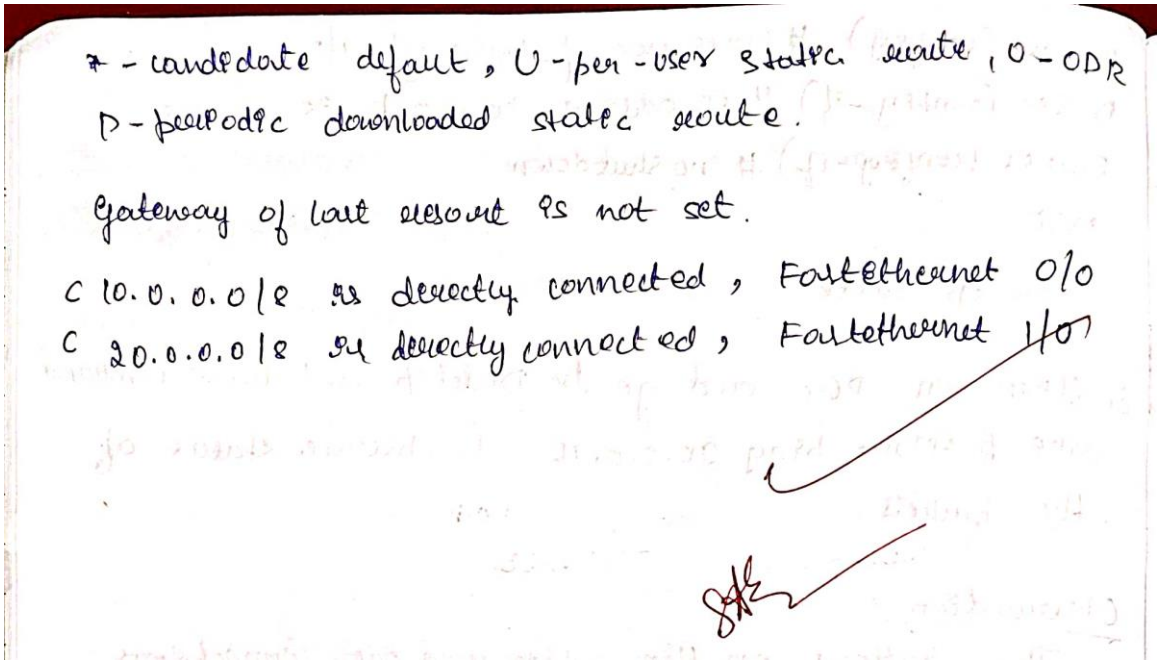
  Approximate round trip times in milli-seconds:

  Minimum = 0ms, Maximum = 0ms, Average = 0ms

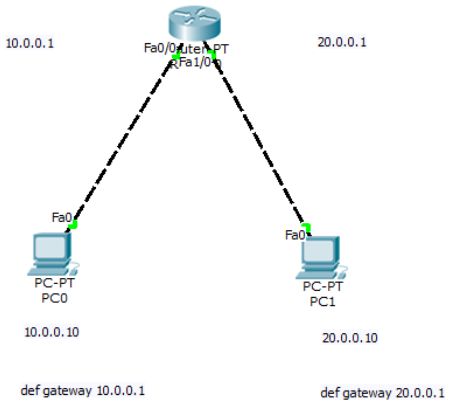
- Routing table results:

Router > 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 external type 2, E - EGP i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area



Topology




```
enable
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastEthernet0/1
Router(config-if)#ip address 20.0.0.2 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
enable
Router#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    10.0.0.0/8 is directly connected, FastEthernet0/0
C    20.0.0.0/8 is directly connected, FastEthernet0/1
```

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=1ms TTL=127
Reply from 10.0.0.1: bytes=32 time=1ms TTL=127
Reply from 10.0.0.1: bytes=32 time=3ms TTL=127
Reply from 10.0.0.1: bytes=32 time=1ms TTL=127

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 1ms
```

```
C:\>ping 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data:

Reply from 20.0.0.1: bytes=32 time=1ms TTL=127
Reply from 20.0.0.1: bytes=32 time<1ms TTL=127
Reply from 20.0.0.1: bytes=32 time<1ms TTL=127
Reply from 20.0.0.1: bytes=32 time<1ms TTL=127

Ping statistics for 20.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```