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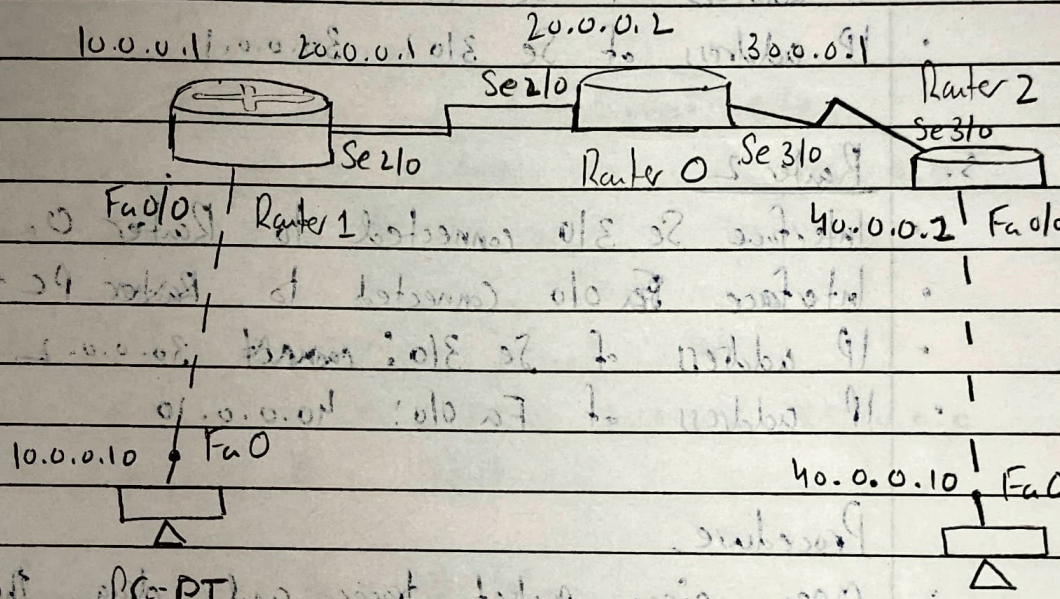
Configure

Experiment 3 - Static and Default routing

Aim - Demonstrate static and default routing using 3 routers.

Topology



1. PC0 - Connected to Router 1's interface Fa0/0 using a cross over cable.
   IP address: 10.0.0.10
   Default Gateway: 10.0.0.1

2. PC1 - Connected to Router 2's interface Fa0/0 using cross over cable.
   IP address: 40.0.0.10
   Default Gateway: 40.0.0.1

3. Router 1
   - Interface: Fa0/0 connected to PC-0
   - Interface Se2/0 connected to Router 0.
   - IP address of Fa0/0: 10.0.0.1

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- IP address of Se 2/0 : 20.0.0.1

4. Router 0
   - Interface Se 2/0 connected to Router 1.
   - Interface Se 3/0 connected to Router 2.
   - IP address of Se 2/0 : 20.0.0.2
   - IP address of Se 3/0 : 30.0.0.1

5. Router 2
   - Interface Se 3/0 connected to Router 0.
   - Interface Fa 0/0 connected to Router PC 1.
   - IP address of Se 3/0 : 30.0.0.2
   - IP address of Fa 0/0 : 40.0.0.10

Procedure

- Open cisco packet tracer and drag the following components:

Router : Place 3 routers in the middle.
PC : Place 2 PC's on either side of the routers.

Use crossover cables to join the following
PC0 → Router 1 Fa 0/0 interface
PC1 → Router 2 Fa 0/0 interface

- Configure Router 0 by clicking on the router and enter CLI
  Assign IP addresses to the router interfaces:

```
Router > enable
Router # configure terminal
Router (config) # interface Serial 2/0
Router (config-if) # ip address 20.0.0.2 255.0.0.0
Router (config-if) # no shut
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Router (config) # interface serial 3/0
Router (config-if) # ip address 30.0.0.1 255.0.0.0
Router (config-if) # no shut

- Configure Router 1 in the following way -
Router > enable
Router # configure terminal
Router (config) # interface fastethernet 0/0
Router (config-if) # ip address 10.0.0.1 255.0.0.0
Router (config-if) # no shut

Router (config) # interface serial 2/0
Router (config-if) # ip address 20.0.0.1 255.0.0.0
Router (config-if) # no shut

- Configure the two PC's -
PC1:
Click on PC1 and set IP address to 10.0.0.10 and subnet mask to 255.0.0.0 and default gateway 10.0.0.1.

PC1:
Click on PC1 and set up IP address to 40.0.0.10 and subnet mask to 255.0.0.0 and default gateway 40.0.0.1

Router 1 - Default Routing -
Router (config) # ip route 0.0.0.0 0.0.0.0 20.0.0.2

Router 2 - Default Routing -
Router (config) # ip route 0.0.0.0 0.0.0.0 30.0.0.1

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Router 1 - Static Routing:
Router (config) # ip route 40.0.0.0 255.0.0.0 20.0.0.2

Router 2 - Static Routing:
Router (config) # ip route 40.0.0.0 255.0.0.0 30.0.0.2

Observation:
- If configuration and cabling are correct, you will recieve successful ping replies b/w the two PC's.
- Router > show ip route
Gateway of last resort is 20.0.0.2 to network 0.0.0.0

C 10.0.0.0/8 is directly connected, FastEthernet 0/0
C 20.0.0.0/8 is directly connected, Serial 2/0
S* 0.0.0.0/0 [1/0] via 20.0.0.2

- The ping results are as follows:
PC > ping 40.0.0.10
Pinging 40.0.0.10 with 32 bytes of data:

Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=10ms TTL=125
Reply from 40.0.0.10: bytes=32 time=9ms TTL=125

Ping statistics for 40.0.0.10:
Packets: Sent=4, Recieved=4, Lost=0 (0% Loss)
Approximate round trip times in milli-seconds:
Minimum=6ms, Maximum=10ms, Average=7ms

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Static Routing of Router 1

Router # show ip route

S 10.0.0.0/8 [1/0] via 20.0.0.1

C 20.0.0.0/8 is directly connected, Serial 2/0

C 30.0.0/8 is directly connected, Serial 3/0

S 40.0.0.0/8 [1/0] via 30.0.0.2

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