EXPERIMENT NO: 11

Date: 28/9/25 Routing at Network Layer.

AIM: Simulate Static Routing Configuration using CISCO Packet Tracer.

The process of adding static router to the routing table is known as static routing. To understanding how to use static routing to create and add a static route to the routing table.

Network Setup:

* Three routers : Router 0, Router 1, and Router 2.
* Each router has directly connected network and requires static routes for unreachable netwo

Router 0 Configuration:

* Router to 30.0.0.0/8 via Router1 (main) and Router
* Host route 30.0.0.0/100 via Router2 (main) and Router (backu
* Routes to 50.0.0.0/8 via Router2 (main) and Router (backu

Router Configuration:

* Routes to 10.0.0.0/8 via Router 0 (main) and Router2 (ba
* Routes to 400.0.0/8 via Router 0 (main) and Router2 (back

Router Configuration:

* Routes to 10.0.0.0/8 and 30.0.0.0/8 networks

Verification:

* Show ip route static used to verify routing tabl entire
* Ping and tracert used to confirm data path.

Failure Simulation:

* Link between Router 0 and Router 1 removed to that failure
* Route switched to backup route successfully.

Deleting a Static Route:

* use Show IP route Static to view routes.
* Remove route using no IP route command.
* Backup route becomes the new main route if available.

Command Prompt

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Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=2ms TTL=126
Reply from 10.0.0.2: bytes=32 time=21ms TTL=126
Reply from 10.0.0.2: bytes=32 time=18ms TTL=126
Reply from 10.0.0.2: bytes=32 time=17ms TTL=126

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 21ms, Average = 14ms

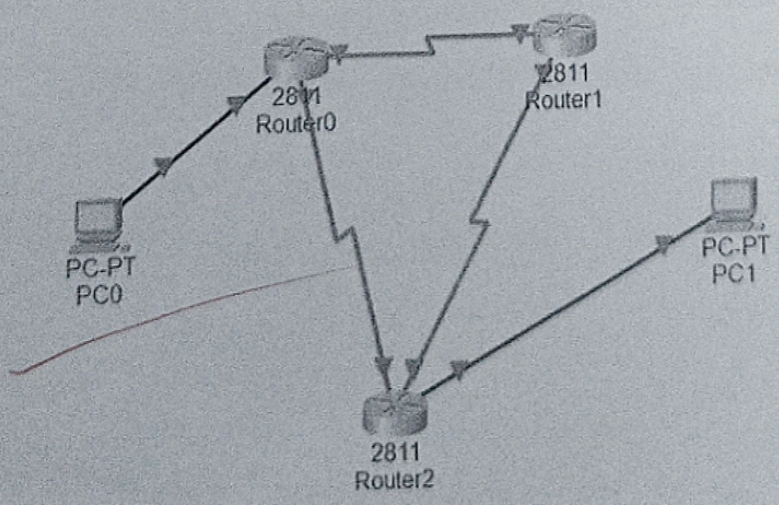
C:\>tracert 10.0.0.2

Tracing route to 10.0.0.2 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      20.0.0.1
  2    1 ms      2 ms      2 ms      192.168.1.254
  3    0 ms      20 ms     0 ms      10.0.0.2

Trace complete.

C:\>
```



b) RIP Simulation:

AIM: To simulate RIP (Routing Information Protoc in Cisco Packet Tracer and verify dynamic routing between router.

Initial IP configuration.

* PCs and routers assigned IP addresses on Fast ethernet and Serial Interface as per topol
* Serial Interface on DCE side configured with Clock rate and band width.

RIP Configuration:

* Enable RIP on each router using router ri command.
* Advertise directly connected networks using network <network-address> command.

Network Connectivity Verification:

* use ping from PC0 to PC1 to verify end-to-end Connectivity.
* Two routes exist between PC0 and PC1; RIP Select the route with least hop count by defaul
* use tracert to verify the path taken by packet.

Dynamic Route Failover.

* Simulated link failover by disconnecting Router 0 Serial 0/0/1 to Router's Serial 0/0/1.
* RIP automatically rerouted traffic via alternate path (through Router1) without manual Intervention.

Result:

Static routing and RIP were successfully configured in Cisco Packet Tracer; connectivity between PCs was verified, and backup/alternate routes worked correctly during link failure.