

Simulate Static Routing Configuration using CISCO Packet Tracer.

Aim;

To simulate static Routing configuration using cisco packet tracer.

Procedure;

1) Set up the network topology with three routers (Router 0, Router 1, Router 2) connected to their respective networks.

Router 0 connected to 10.0.0.0/8, 20.0.0.0/8,
40.0.0.0/8

Router 1 connected to 20.0.0.0/8, 30.0.0.0/8,
50.0.0.0/8

Router 2 connected to 40.0.0.0/8, 50.0.0.0/8.

2) Access the CLI of Routers and configure static routes for networks not directly connected.

Add two static routes for 30.0.0.0/8, with the first via Router 1 (main) & second via Router (backup) using different administration distances.

Add two static host routes for 30.0.0.100/32, main via Router 2 & backup via Router 1.

Add two static routes for 50.0.0.0/8, main via Router 2 & backup via Router 1.

3) Access Router CLI & configure:

Two static routes for 10.0.0.0/8, main via Router 0, backup via Router 2.

Router	Available networks on local interfaces	Network available on other router interfaces
--------	---	---

Router 0	100.0.0.0/8, 20.0.0.0/8, 40.0.0.0/8	30.0.0.0/8, 50.0.0.0/8
----------	---	---------------------------

Router 1	20.0.0.0/8, 30.0.0.0/8	10.0.0.0/8, 40.0.0.0/8
----------	---------------------------	---------------------------

Router 2	40.0.0.0/8, 50.0.0.0/8	10.0.0.0/8, 20.0.0.0/8, 30.0.0.0/8
----------	---------------------------	--

Two static routes for 40.0.0.0/8, main via (67) Router 0, backup via Router 1.

4) Access Router 2 CLI & configure static route for

* 10.0.0.0/8

* 30.0.0.0/8

5) Verify the routing table on each router using the command.

Show ip route static

Ensure only main route appears in the routing table initially.

6) Test connectivity from a PC in the 10.0.0.0/8 network to hosts in the 30.0.0.0/8 & 50.0.0.0/8 networks using ping & tracer commands.

7) Simulate failure of main route by disabling the interface or deleting the static route to Router 0 on Router 1.

8) Verify that the backup route is now active in the routing table & test connectivity again.

a) Optionally, delete static route using
no ip route [destination-network]
[subnet-mask] [next-hop-address]

Observation:

* Static routes for unreachable networks were successfully added to each router.
* Only routes with lowest administrative distance were shown in the routing tables as main routes.

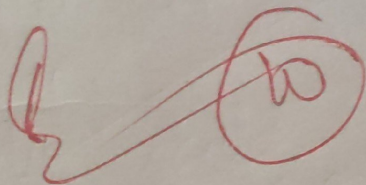
* Backup route automatically took over when the main route failed, ensuring network.

(69)

* Most specific route was preferred over network route.

* Ping & trace tests confirmed data packets followed the expected paths.

* Deleting static route removed them from the routing table & promoted backup route if configured.



Result:

Static routers were configured successfully with main & backup paths. Backup routers activate automatically upon main route failure ensure net connected.