

Practical-15

Date: No: 14

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, 8.50.0.0.0/8.

2) Access the CLI of Routers and configure static routers 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.

11-bits

available prefix size 8 bits
and total 12 bits

new available prefix size 8 bits or
subset being used

Router Available networks Network available
with 8 bits on local interfaces on other router interfaces

Router 0 100.0.0.18, 30.0.0.0/8,
210.0.0.02, 210.0.0.03 50.0.0.0/8
210.0.0.01 - 40.0.0.0/8

Router 1 20.0.0.0/8, 10.0.0.0/8,
210.0.0.02 30.0.0.0/8 40.0.0.0/8

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

20.0.0.0/8 of other subnet bba
subnetworks in boxes (20.0.0.0/8) of each of
networks remaining traffic prius
of subnet bba out bba

so update a subnet so from, 210.0.0.0/8

210.0.0.0/8 of other subnet out bba

the so update a subnet so from

available 2 LD after 2000A (2)

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

- 4) Access Router 2 CLI & configure static routes 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 & traceroute commands.

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

- 7) Verify that the backup router 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 routers with lowest administration distance were shown in the routing tables as main routes.

- (69)
- * Backup routes automatically took over when the main routes failed, ensuring network.
 - * Most specific routes were preferred over network routes.
 - * Ping & traceroute tests confirmed data packets followed the expected paths.
 - * Deleting static route removed them from the routing table & promoted backup routes if configured.

host	0.0.0.0	0.0.0.0	host
host	0.0.0.0	0.0.0.0	host
host	0.0.0.0	0.0.0.0	host
host	0.0.0.0	0.0.0.0	host
host	0.0.0.0	0.0.0.0	host

L (69)

Result:

static routers were configured successfully with main & backup paths. Backup routers activations automatically upon main routers failure ensure no connection.