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Practical 11

AIM:

a)Simulate Static Routing Configuration using CISCO Packet Tracer

**1. Adding Static Routes**

* Each router knows only the networks directly connected to it. If you need to reach a network not directly connected, you add a static route.
* For example, on **Router0**, networks **10.0.0.0/8**, **20.0.0.0/8**, and **40.0.0.0/8** are directly connected, but **30.0.0.0/8** and **50.0.0.0/8** are not. So, you add routes for **30.0.0.0/8** and **50.0.0.0/8**.

**2. Creating Main and Backup Routes**

* **Administrative Distance (AD)** decides the preference of routes: the lower the AD, the higher the preference.
* Example: To configure two routes to the same destination, **Router0** could use:

ip route 30.0.0.0 255.0.0.0 20.0.0.2 10 (main route with AD 10)

ip route 30.0.0.0 255.0.0.0 40.0.0.2 20 (backup route with AD 20)

* This setup makes the route via **20.0.0.2** the main route, and the router will switch to **40.0.0.2** if **20.0.0.2** becomes unavailable.

**3. Router Configurations**

* Configure static routes on each router for networks not directly connected.
* Example configurations:
  + **Router0:** Adds routes for **30.0.0.0/8** and **50.0.0.0/8**.
  + **Router1:** Sets up routes for **10.0.0.0/8** and **40.0.0.0/8**, using **Router0** as the main path and **Router2** as backup.
  + **Router2:** Adds static routes to reach **10.0.0.0/8** and **30.0.0.0/8**.

**4. Verifying Routes**

* **Verify** routes by using commands:

show ip route static

* This command shows the static routes currently in use by the router. Only the main routes with the lowest AD values should appear unless they’re unavailable, in which case the backup route will show.

**5. Testing Route Failover**

* To see if the router switches to a backup route if the main route fails:
  1. Test connectivity using **tracert** or **ping** from a device on a connected network.
  2. Disconnect or “break” the link on the main route.
  3. Re-run the tests to confirm that the router now uses the backup route.

**6. Deleting a Static Route**

* To remove a static route:
  1. View the existing routes with:

show ip route static

* 1. Use the no ip route command with the specific route details to delete it. If a backup route exists, it will automatically replace the main route.

Example of deleting a route:

no ip route 30.0.0.100 255.255.255.255 40.0.0.2

Following these steps, you can add, prioritize, verify, test, and delete static routes in a straightforward manner on each router.

OUTPUT:

