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Lab - 3.

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→ configure multiple routers and send ping messages.

Procedure :-

(i) Three routers are placed on the same level and connected using serial DCE cable. (Router 0, Router 1, Router 2).

(ii) One generic computer is placed alongside router 0 and other is placed alongside router 2. The connection between routers and computers is established using copper cross-over cables.

(iii) IP address and default gateway address is configured separately for each computer.

(iv) Each router's terminal is accessed and interface for each connection is established with specified gateway addresses.

Observation :-

(i) pinging PC1 from PC0 initially gives destination host unreachable because there is no direct connection from source (PC0) to destination (PC1).

(ii) Routers ip route can be seen using show ip route for each router.

(iii) In order to send ping ping messages from router 0 to router 1 to PC1, via we need to add static routes to routers.

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which can be done using following syntax :-

ip route <dest. network> <subnet mask> <next hop> in configure mode.

- for Router 0 : route through 10.0.0.0 and 20.0.0.0 is directly connected. Therefore we add route (static) through 30.0.0.0 and 40.0.0.0.

→ Router (config) # ip route 30.0.0.0 255.0.0.0 20.0.0.2
→ Router (config) # ip route 40.0.0.0 255.0.0.0 20.0.0.2

- for Router 1 : route through 20.0.0.0 and 30.0.0.0 is directly connected. Therefore we add static route through 10.0.0.0 and 40.0.0.0.

→ Router (config) # ip route 10.0.0.0 255.0.0.0 20.0.0.1
→ Router (config) # ip route 40.0.0.0 255.0.0.0 30.0.0.2

- for router 2 : we add static route through 10.0.0.0 and 20.0.0.0.

→ Router (config) # ip route 10.0.0.0 255.0.0.0 30.0.0.1
→ Router (config) # ip route 20.0.0.0 255.0.0.0 30.0.0.1

(iv) After adding static routes to routers, a connection is established between each interface and pinging PC1 from PC0 works as expected.