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Date Page

Experiment-2

Configuring IP address to Routers in Packet Tracer, Explore the following messages: Ping Response, Destination Unreachable, Request timed out, Reply

→ Hubs & Switches are used to exchange data within a local area network.
Not used to exchange data outside their own n/w.

→ To exchange data outside their own network, a device needs to be able to read IP addresses Hubs & Switches do not read IP addresses

Router is a network device that routes data from one network to another network based on their IP addresses

→ When the data packet is recieved from the router, the router inspects the data's IP address and determines if the packet was meant for its own network or if it's meant for another n/w if it is meant for its own network, it recieves else it sends it off to another n/w.

→ Routers are essentially gateway of networks.

Ping

Ping is a command-line utility, that acts as a test to see if a networked device is reachable.

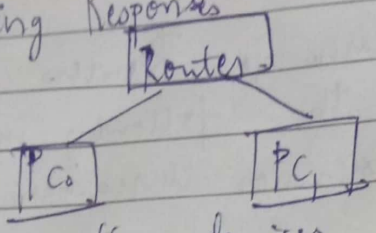
→ Ping utility uses the echo request and echo reply messages within the ICMP, an integral part of IP network.

→ When a ping command is issued, an echo request packet is sent to the address specified.

→ When the remote host recieves the echo request, it responds with echo reply packet.

OBSERVATION:

Ping Response



Step 1: Place the devices & make connection.

Step 2: Set IP addresses & gateway address as 10.0.0.0, 10.0.0.10 & 20.0.0.0, 20.0.0.10 for PC0,PC1

Step 3: Configure the Router's IP address same as respective gateway address of the desktop.

Step 4: Open the command line and ping the destination IP address

Ping Response

ping 10.0.0.10

Pinging 10.0.0.10 with 32 bytes of data:
Reply from 10.0.0.10: bytes=32 time=6ms TTL=128
Reply from 10.0.0.10: bytes=32 time=4ms TTL=128
Reply from 10.0.0.10: bytes=32 time<1ms TTL=128
Reply from 10.0.0.10: bytes=32 time<1ms TTL=128
Ping statistics for 10.0.0.10:
Packets: Sent=4, Received=4, Lost=0
Approximate round trip times in milli seconds
Minimum = 0ms, Maximum=6ms, Average=2ms

OBSERVATION:

- Host sends 32 bytes of packet to destination and waits for 32 bytes response packet
- time = 6ms, time means round-trip time. Time taken by packet from host to destination and Back to Host. The smaller the result is better.
- TTL = 128 Time to live

- TTL refers to amount of time that a packet is set to exist inside a network
- TTL makes sure that the packet does not keep looping forever and has an end value
- The bigger the result, the better

Ping errors: Request timed out.

- Firewall, specific traffic, network congestion, Lost Internet Connectivity.

Destination unreachable.
The end server is set to reject all or specific traffic