EXPERIMENT-21

DESIGN THE FUNCTIONALITIES AND EXPLORATION OF UDP USING PACKET TRACER

Aim:

To design the functionalities and exploration of UDP (User Datagram Protocol) using Packet Tracer.

Software/Apparatus required:

Packet Tracer, End devices (PCs), Router, Switch, Server, Ethernet cables.

Procedure:

Step 1: Setup the network topology

1. Open Packet Tracer and create a network topology as shown in the diagram.
2. Drag the following devices onto the workspace:
    - Router0 (ISR 331)
    - Switch0 (Switch-PT)
    - Server0 (Server-PT) with IP address 192.168.1.10
    - PC0 (PC-PT) with IP address 192.168.1.1
    - PC1 (PC-PT) with IP address 192.168.1.2
3. Connect the devices as follows:
    - Connect PC0 and PC1 to Switch0 using Ethernet cables.
    - Connect Switch0 to Router0.
    - Connect Server0 to Router0.

Step 2: Configure IP addresses

1. Double-click on each PC and the server to open the configuration window.
2. Navigate to the Desktop tab and click on the IP Configuration icon.
3. Assign IP addresses and subnet masks:
    - PC0: IP address = 192.168.1.1, Subnet mask = 255.255.255.0
    - PC1: IP address = 192.168.1.2, Subnet mask = 255.255.255.0
    - Server0: IP address = 192.168.1.10, Subnet mask = 255.255.255.0

Step 3: Configure the router

1. Double-click on Router0 to open the configuration window.
2. Navigate to the CLI tab and enter the following commands:

```
enable
configure terminal
interface FastEthernet0/0
```

ip address 192.168.1.254 255.255.255.0

no shutdown

exit

exit

This configures the router's interface with the IP address 192.168.1.254 and enables it.

Step 4: Test the connection

1. Open the command prompt on PC0 and ping PC1 by typing:

ping 192.168.1.2

2. Open the command prompt on PC1 and ping Server0 by typing:

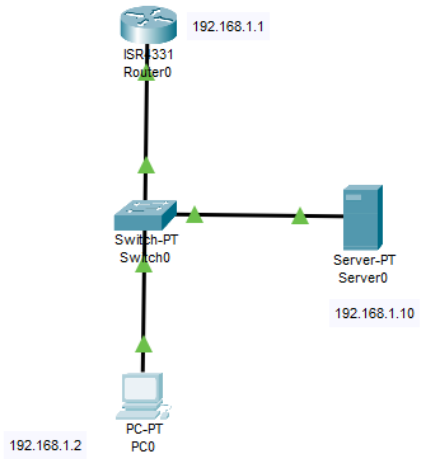
ping 192.168.1.10

3. If the pings are successful, it confirms that the devices are communicating.

Step 5: Explore UDP functionalities

1. Use a UDP-based application or utility (e.g., a simple UDP sender/receiver script or a network tool like Netcat) to simulate UDP communication.
2. On PC0, set up a UDP sender to send data to Server0 on a specific port (e.g., port 5000).
3. On Server0, set up a UDP receiver to listen on the same port (5000).
4. Observe the data transmission. Note that UDP does not guarantee delivery, order, or error-checking, unlike TCP.

Diagram



Output:

Result:

Thus, the functionalities and exploration of UDP using Packet Tracer were designed

successfully.