Recursive Routing

Configure Recursive Routing on given network in figure 10, after completing the configuration, every user can send data packets to every other user.

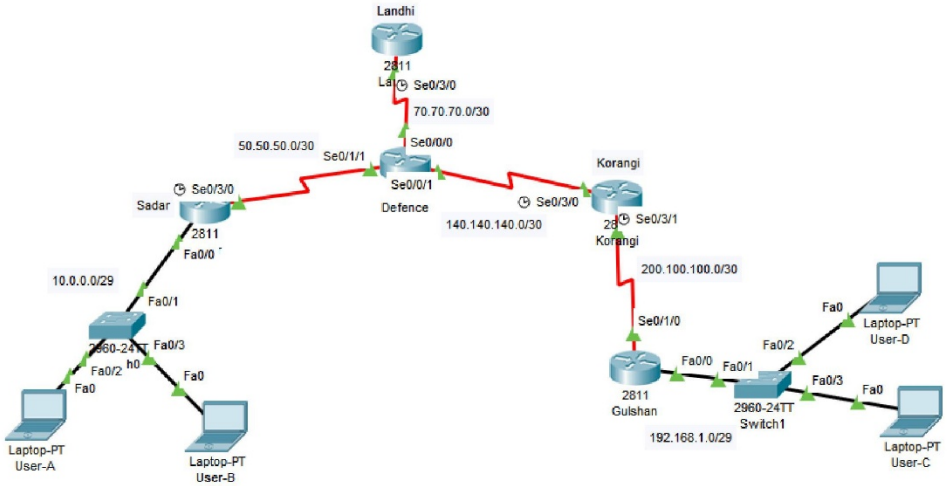

Figure 10

Recursive Routing:

The main router job is to making routing decisions to be able to route packets toward their destination. Sometimes that includes recursive lookup of routing table if the next-hop value is not available via connected interface.

Routing recursion is a recursive search process of routers routing table where the next-hop IP address is wanted to route packed towards its destination but when found it is not part of any directly connected network.

Usually, Router checks the destination address inside packets IP header and makes the decision based of few steps described in the routing example above.

When router finds longest match route for wanted destination, the next-hop value for this prefix is read and checked. If that longest match next-hop IP address value is a connected route then outgoing interface is known and layer 2 addresses is found which enables the frame to be built and transition of the packet can be done towards the destination.

If the next-hop that IP does not exist on any of the ends of connected interfaces, additional routing lookups must be done for an outgoing interface to be found. This additional routing table lookups are known as recursive lookups.

Task 1, Assign the IP address on each Router

Router Sadar:

Sadar>enable

Sadar#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Sadar(config)#interfacefastEthernet 0/0

Sadar(config-if)#ip address 10.0.0.1 255.255.255.248

Sadar(config-if)#no shutdown

Sadar(config-if)#exit

Sadar(config)#interface serial 0/3/0

Sadar(config-if)#ip address 50.50.50.1 255.255.255.252

Sadar(config-if)#clock rate 64000

Sadar(config-if)#no shutdown

Sadar(config-if)#exit

Router Defence:

Defence >enable

Defence #configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Defence (config)#interface serial 0/1/1

Defence (config-if)#ip address 50.50.50.2 255.255.255.252

Defence (config-if)#no shutdown

Defence (config-if)#exit

Defence (config)#interface serial 0/0/0

Defence (config-if)#ip address 70.70.70.2 255.255.255.252

Defence (config-if)#no shutdown

Defence (config-if)#exit

Defence (config)#interface serial 0/0/1

Defence (config-if)#ip address 140.140.140.1 255.255.255.252

Defence (config-if)#no shutdown

Defence (config-if)#exit

Router Landhi:

Landhi >enable

Landhi #configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Landhi (config)#interface serial 0/3/0

Landhi (config-if)#ip address 70.70.70.1 255.255.255.252

Landhi (config)#clock rate 64000

Landhi (config-if)#no shutdown

Landhi (config-if)#exit

Router Korangi:

Korangi >enable

Korangi#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Korangi(config)#interface serial 0/3/0

Korangi(config-if)#ip address 140.140.140.2 255.255.255.252

Korangi(config)#clock rate 64000

Korangi(config-if)#no shutdown

Korangi(config-if)#exit

Korangi(config)#interface serial 0/3/1

Korangi(config-if)#ip address 200.100.100.1 255.255.255.252

Korangi(config)#clock rate 64000

Korangi(config-if)#no shutdown

Korangi(config-if)#exit

Router Gulshan:

Gulshan >enable

Gulshan#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Gulshan(config)#interface serial 0/1/0

Gulshan(config-if)#ip address 200.100.100.2 255.255.255.252

Gulshan(config)#clock rate 64000

Gulshan(config-if)#no shutdown

Gulshan(config-if)#exit

Gulshan(config)#interface fa0/0

Gulshan(config-if)#ip address 192.168.1.1 255.255.255.248

Gulshan(config-if)#no shutdown

Gulshan(config-if)#exit

Task 2, Configure Recursive Routing on each Router

Router Sadar:

Sadar(config)#ip route 70.70.70.0 255.255.255.252 50.50.50.2

Sadar(config)#ip route 140.140.140.0 255.255.255.252 50.50.50.2

Sadar(config)#ip route 200.100.100.0 255.255.255.252 140.140.140.2

Sadar(config)#ip route 192.168.1.0 255.255.255.248 200.100.100.2

Sadar(config)#exit

Router Defence:

Defence(config)#ip route 10.0.0.0 255.255.255.248 50.50.50.1

Defence(config)#ip route 200.100.100.0 255.255.255.252 140.140.140.2

Defence(config)#ip route 192.168.1.0 255.255.255.248 200.100.100.2

Defence(config)#exit

Router Landhi:

Landhi(config)#ip route 10.0.0.0 255.255.255.248 50.50.50.1

Landhi(config)#ip route 50.50.50.0 255.255.255.252 70.70.70.2

Landhi(config)#ip route 140.140.140.0 255.255.255.252 70.70.70.2

Landhi(config)#ip route 200.100.100.0 255.255.255.252 140.140.140.2

Landhi(config)#ip route 192.168.1.0 255.255.255.248 200.100.100.2

Landhi(config)#exit

Router Korangi:

Korangi(config)#ip route 10.0.0.0 255.255.255.248 50.50.50.1

Korangi(config)#ip route 50.50.50.0 255.255.255.252 140.140.140.1

Korangi(config)#ip route 70.70.70.0 255.255.255.252 140.140.140.1

Korangi(config)#ip route 192.168.1.0 255.255.255.248 200.100.100.2

Korangi(config)#exit

Router Gulshan:

Gulshan(config)#ip route 10.0.0.0 255.255.255.248 50.50.50.1

Gulshan(config)#ip route 50.50.50.0 255.255.255.252 140.140.140.1

Gulshan(config)#ip route 70.70.70.0 255.255.255.252 140.140.140.1

Gulshan(config)#ip route 140.140.140.0 255.255.255.252200.100.100.1

Gulshan(config)#exit

Lab-3 Exercise:

Design a bus network which consists of 6 routers. Attach 3 PC's with router 1 and router 6. Configure Static Routing on router 1 to router 3 while Recursive routing on router 4 to router 6 so that all the devices can send data packets to each other. What do you understand when you use the command "Show IP route" on each router?