|  |  |  |
| --- | --- | --- |
| **Sheridan College** | | |
| **Course** | **TELE33324: Data Network Design and Configuration – Routers and Switches** | |
| **Professor** | **Ida Leung** | |
| **Student Name(s)** | **Kunjan Patel** | |
| **Table number** |  | |
| **Lab 5 : OSPF** | | |
| **Performed Date** | **05/07/2019** | |
| **Instructor's Sign** |  | **(marks)** |

**Follow the procedure to configure your topology:**

1. Reuse everything you have in lab4 except remove any static route in any router. Turn back up all the interfaces if you have shutdown them in previous lab4.

Make sure the following is good:

* RIP neighbor relationship established between routers
* Ping from R3 to each PC to ensure the connectivity is fine.

1. Remove RIP from R1 and R4. Instead running OSPF with area 0 from R1 to R4 and R1 to R2. OSPF has to establish via MD% authentication. R2 runs RIP with R3 and R4 runs RIP with R5 and R5 runs RIP with R3. Capture the routing table in each router. Save your first pkt file.

1. Go to R1 and check the route to 8.0.0.2 PC#1 and see if any route? Why?

There is no route for pc connection. The reason behind connectivity is router R2 and R4 other half runs RIP version 2 protocol and router R1 runs OSPF protocol. And both protocol runs based on different concept. Which prevent them sharing their routing table.

1. If R1 has no route to any PC, how can you fix the problem?

Fill in the following table for R1 (add more lines if needed)

|  |  |  |
| --- | --- | --- |
| Type of route (connected/static) | Destination subnet | Next-hop interfaces |
| Connected | 255.255.255.255 | Loopback0 |
| Connected | 255.255.255.252 | GigabitEthernet0 |
| Local | 255.255.255.255 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet1 |
| Local | 255.255.255.255 | GigabitEthernet1 |

Fill in the following table for R2 (add more lines if needed)

|  |  |  |
| --- | --- | --- |
| Type of route (connected/static) | Destination subnet | Next-hop interfaces |
| Connected | 255.255.255.255 | Loopback0 |
| RIP | 255.0.0.0 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet0 |
| Local | 255.255.255.255 | Loopback0 |
| RIP | 255.255.255.252 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet1 |

Fill in the following table for R3 (add more lines if needed)

|  |  |  |
| --- | --- | --- |
| Type of route (connected/static) | Destination subnet | Next-hop interfaces |
| Connected | 255.255.255.255 | Loopback0 |
| Connected | 255.255.255.0 | GigabitEthernet2 |
| Local | 255.255.255.255 | GigabitEthernet2 |
| RIP | 255.255.255.252 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet1 |
| Local | 255.255.255.255 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet0 |
| Local | 255.255.255.255 | GigabitEthernet0 |

Fill in the following table for R4 (add more lines if needed)

|  |  |  |
| --- | --- | --- |
| Type of route (connected/static) | Destination subnet | Next-hop interfaces |
| Connected | 255.255.255.255 | Loopback0 |
| RIP | 255.0.0.0 | GigabitEthernet0 |
| RIP | 255.255.255.252 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet1 |
| Local | 255.255.255.255 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet0 |
| Local | 255.255.255.255 | GigabitEthernet0 |

Fill in the following table for R5 (add more lines if needed)

|  |  |  |
| --- | --- | --- |
| Type of route (connected/static) | Destination subnet | Next-hop interfaces |
| Connected | 255.255.255.255 | Loopback0 |
| RIP | 255.0.0.0 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet1 |
| RIP | 255.255.255.252 | GigabitEthernet0 |
| RIP | 255.255.255.252 | GigabitEthernet1 |
| Connected | 255.255.255.252 | GigabitEthernet0 |
| Local | 255.255.255.255 | GigabitEthernet0 |
| Connected | 255.255.255.252 | GigabitEthernet1 |
| Local | 255.255.255.255 | GigabitEthernet1 |

1. Now go to shutdown the R3 interfaces facing R2. Then go back to R1 to verify the route to PC1. Do you able to see the route to PC1? Anyway to fix the problem if you don’t see the route to PC1?

Apply your solution and save the second pkt file.

Yes, by sharing RIP routing protocol with OSPF routing protocol in router R4.

6. Now convert every router to run OSPF in all area 0 instead of RIP. Do you see the PC1 route on R1? Which path is taken and why? Now save the final topology as the third pkt file.

Yes, router R1 can access PC1 and it takes path through router R2.



Figure 1 Network Topology