CO323 - Lab 03
Dynamic Routing - RIP

RIP - Routing Information Protocol

Routing Information Protocol (RIP) is a distance vector protocol that uses hop count as its primary metric. RIP defines how routers should share information when moving traffic among an interconnected group of local area networks (LANs).

In the enterprise, Open Shortest Path First (OSPF) routing has largely replaced RIP as the most widely used Interior Gateway Protocol (IGP). RIP has been supplanted mainly due to its simplicity and its inability to scale to very large and complex networks. Border gateway protocol (BGP) is another distance vector protocol that is now used to transfer routing information across autonomous systems on the Internet.

Routing Information Protocol was originally designed for Xerox PARC Universal Protocol and was called GWINFO in the Xerox Network Systems (XNS) protocol suite in 1981. RIP, which was defined in RFC 1058 in 1988, is known for being easy to configure and easy to use in small networks.

Lab Exercise

1. Specify the differences between RIPv1 and RIPv2

Use RIPv2 to configure the following network accordingly. As previous labs you have to download and install the latest version of Cisco Packet Tracer, in order to complete the following tasks.

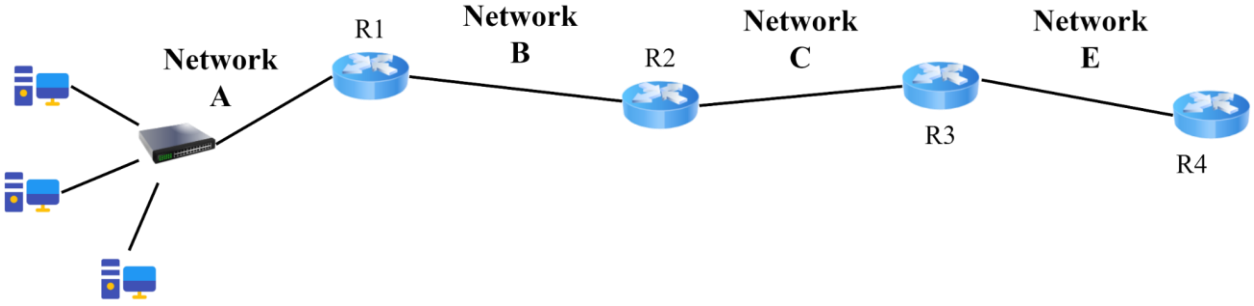

Figure 1: Network diagram

As indicated in Figure 1, the network consists of 4 networks. In this case, network A, B and C are configured by subnetting the 192.168.1.0/24 network and network E has been configured with a completely different network. The ip configurations related to each network are shown in Table 01 (Note: As you can see here, we have used the concept of VLSM to configure networks A, B and C) .

Table 01: Ip Configurations

Network	Network Address
A	192.168.1.0/26
B	192.168.1.64/26
C	192.168.1.128/26
E	20.1.1.0/16

2. Draw similar network topology given in Figure 01, using packet tracer and do the IP configurations for each of the devices (PCs, router ports) considering Table 01.
3. Configure RIP for each of the routers. Include screenshots of your CLI windows into the report (clearly indicate the network configurations).
4. Print the routing table in the router R1. Explain each parameter indicated in the routing table for the routes that it has learnt through RIP.
5. Explain the "Auto Summarization" issue of RIP using the routing table of R4 router. Mention under what kind of situations this occurs and suggest a solution to resolve this issue in RIP. Reconfigure R3 with your suggested solution. Observe the new routing table at R4.
6. Mention two other limitations of RIP (Except Auto Summarization).

Submission

Create a report renamed as **E17XXX_report.pdf** (XXX is your E Number) including the **screenshots for your observations, simulations, CLIs (Show Command Outputs and Necessary Configurations), and answers** related to each of the steps.

- Submit a zip file **E17XXX_Lab03.zip** (XXX is your E Number) which contains the following.
    - **E17XXX_report.pdf**
    - **E17XXX.pkt** (Packet Tracer Activity File)

Note: Make sure that you have copied your running configuration to startup configurations before submitting the .pkt file (i.e. save your configurations correctly before submission).

References

[What is Routing Information Protocol (RIP) and How Does It Work? (techtarget.com)]