

Assignment - B3

Title:- To study about dynamic routing protocols.

Problem Statement:- Configure RIP/OSPF/BGP using packet tracer

Objective:- To learn about dynamic routing protocol.

Outcome:- To implement RIP/OSPF/BGP.

S/W & H/W:-

Pedora OS, Cisco packet tracer

Theory:-

Dynamic Routing:-

Dynamic routing is a network-configuration technique that provides optimal data routing unlike static routing. Dynamic routing enables routers to select paths according to real-time logical network layout changes.

Dynamic routing uses multiple algorithms & protocols. The most popular are routing information protocol & open source path first.

Dynamic routing protocols allow to share information about the n/w to allow them to select best path to reach a destination

A RIP protocol:

Routing Information Protocol is an intra-domain routing protocol used with an autonomous system. Here, intra-domain routing packets in a defined domain

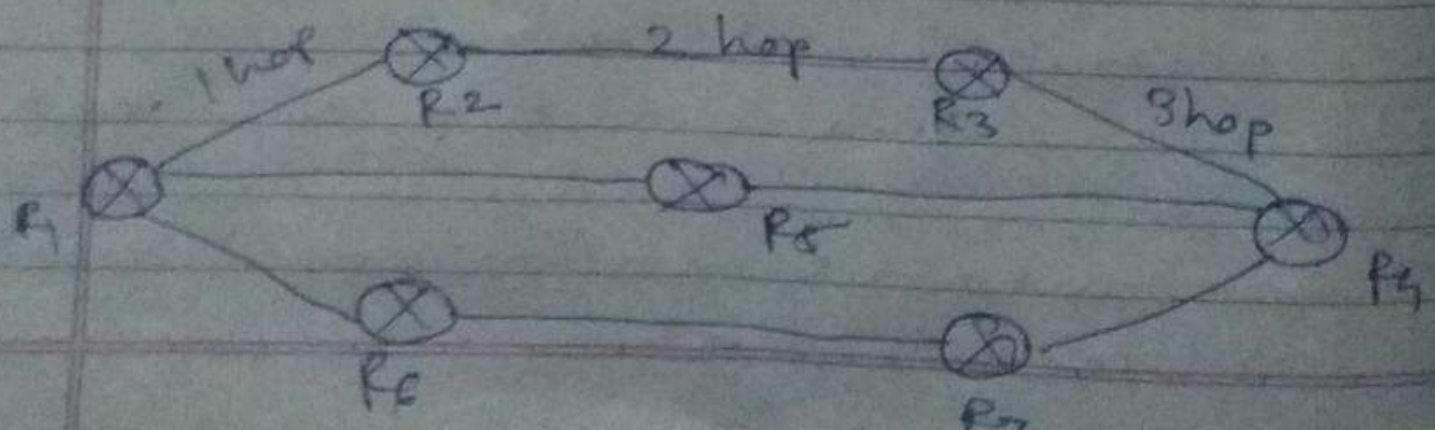
i) RIP is based on the distance vector based state so we can consider graph where nodes are route & links are networks.

ii) In a routing table, first column is destination.

iii) The cost metric is no. of hops to reach the destination.

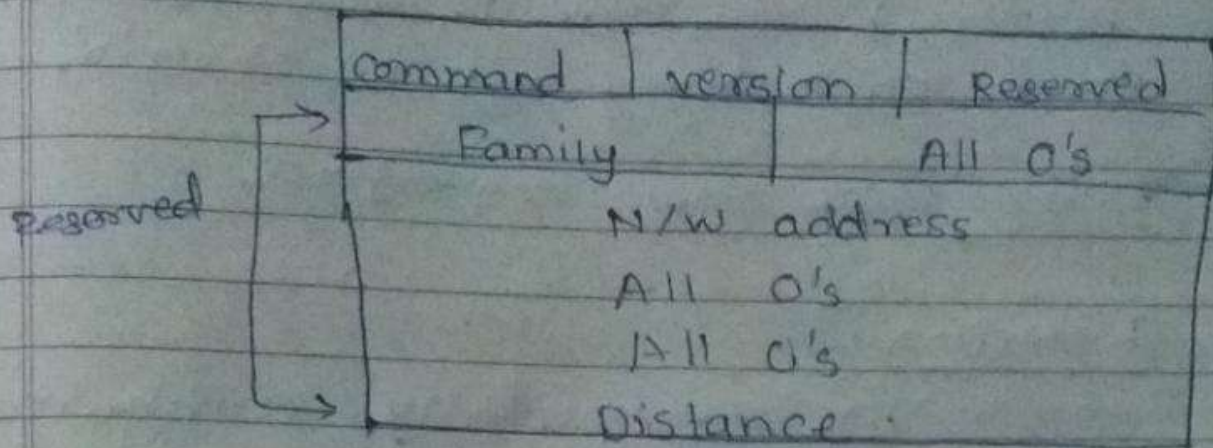
iv) In RIP, infinity is 16 which means RIP is useful for small networks
 $< \text{max no. of hops is } (15)$

v) The next column contains addresses of routes to which packet is to be sent to reach destination.

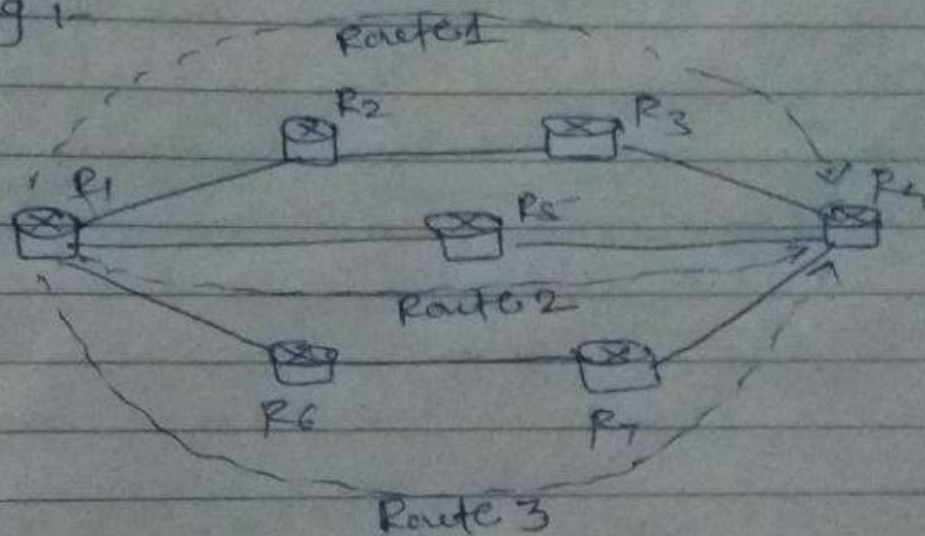


when route sends packet to n/w segment then it is counted as 1 hop.

* RIP msg format :



* Routing :



Suppose R_1 wants to send data R_4 , If NW is configured with RIP, it will choose route which has least no. of hops i.e. route 2.

Advantages of RIP :-

- 1) It is easy to configure.
- 2) It has less complexity.
- 3) The CPU utilization is less.

Disadvantages of RIP 1-

- 1) In RIP, route is chosen based on hop count metric, so if another route of better bandwidth is available, then that route may not be chosen.
- 2) It takes slow convergence.

Conclusion 1-

We successfully configured RIP in cisco packet tracer.