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Class/Section:	9312/S24
Ex No:	8b
Date of Submission	
Name of the Experiment	Distance Vector Routing
Google Drive link of the packet tracer file (give view permission):	https://drive.google.com/drive/folders/1nHr6SDeuP8VZEojMj6SBn92NcRBgBVDX?usp=drive_link

Objective(s):

To design and implement Distance Vector routing using packet tracer

Introduction:

Distance-Vector routing protocols select the best path for data packets. Here distance is reference of hop in network. Distance-Vector protocols calculate the distance between source and destination on the basis of hop count. Suppose there are two path available for data packet from source and destination. Distance-Vector protocol select the path in which the number of hopes are less. RIP and IGRP are example of Distance-Vector routing protocol.

Distance vector routing protocols manage the selection of best path for data packets by routers. Routing table of all routers update by sharing the information on the network. The destination network path defines by hop count up to destination network. Distance vector routing protocols generally known as DVRP. Distance vector routing protocols is mostly used protocol in present scenario. DVRP sent the data packets over the internet protocol.

There are two terms in DVRP. The first term is distance and second is vector. Distance is number of hop or step to send the data packets up to destination network. Path selection for a data packet is depends on the hop count. **Minimum hope count path selected by the Distance vector routing protocols.** The term vector refers to the propagating of the packet on a given set of network nodes. Routers broadcast the information of remote network to next router. **Every router does the same thing so the routing table of all routers updated automatically.** All router informs about the connected networks to next router then router update its own routing table.

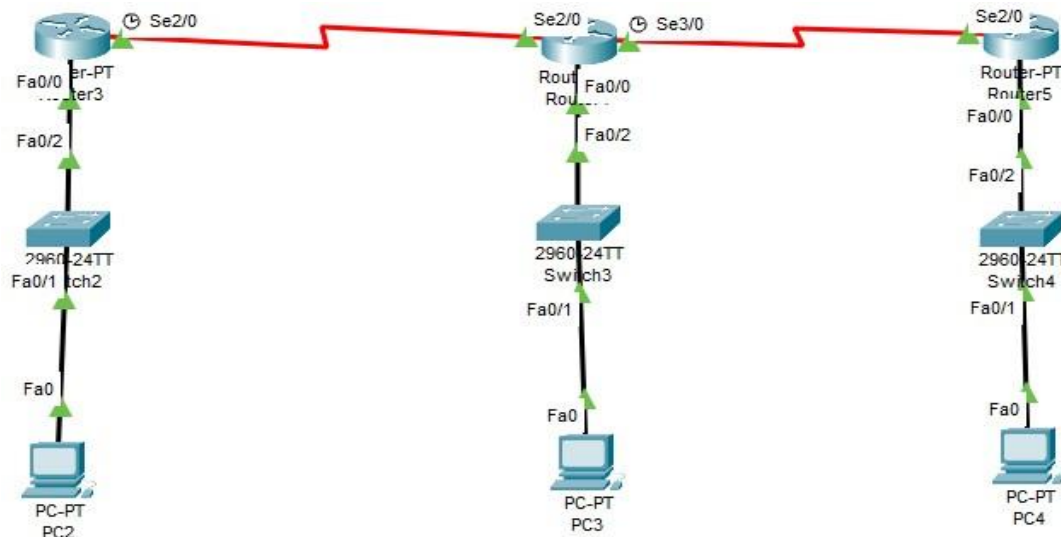
Network topology changes time to time. Adding or removing a router in a network is very common phenomena. **Any change in network should be updated in all router's routing table.** Doing this manually is very critical work. Distance vector routing protocols do this job automatically. The process of broadcasting any update in routing table and updation in all routing tables is known as convergence. The algorithm distance vector routing protocol find the routes on a internetwork. The other algorithm used to select the best path for data packets is Link State routing protocols. DVRP algorithm allow routers to exchange the routing tables with each other. Each router received the routing table from neighbour router, update own routing table and share the updated table to next neighbour router. This process repeat after a

fix predefined time interval. By repeating this process all devices connected in the network maintain the routing table which allow the flow of data packets efficiently.

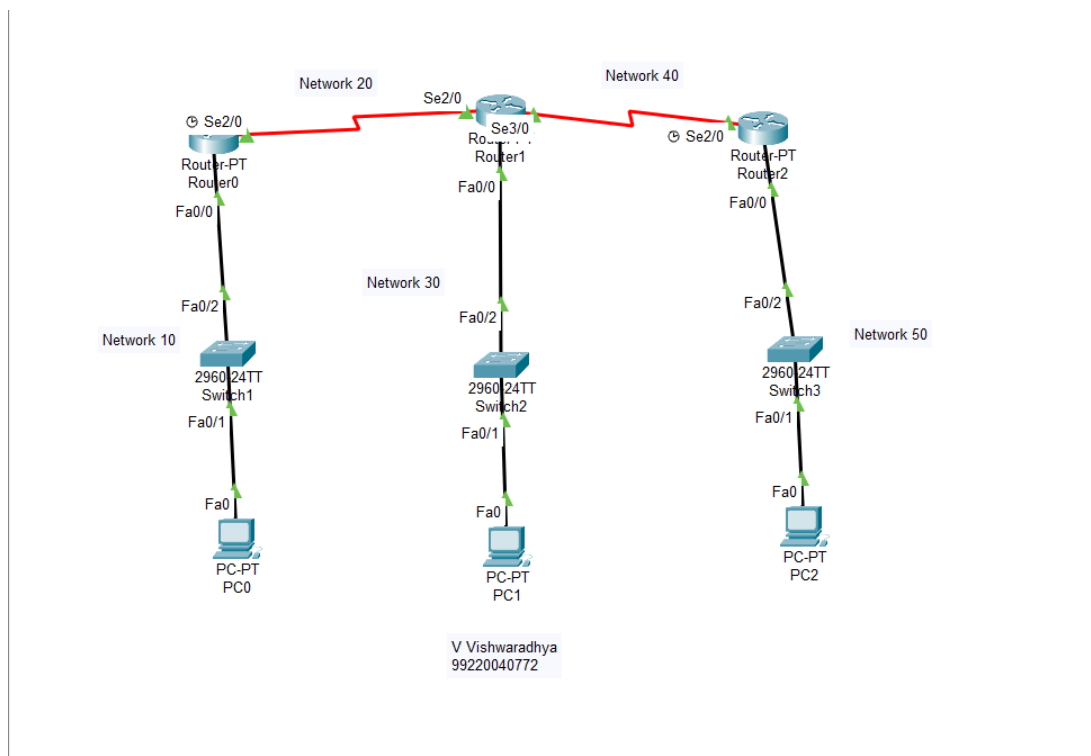
1. Device Requirements:

1. PC's
2. Switches
3. Routers
4. Cables

2. Network Diagram for your experiment (draw the diagram either hand drawing/ms paint or any other drawing tools)



3. Network Diagram (Packet tracer diagram before configuration):



4. Configuration details:

Device Name	Interface Name	IP Address	Subnet mask	Default Gateway
PC0	Interface Fa0/1	10.0.0.1	255.0.0.0	0.0.0.0
PC1	Interface Fa0/1	30.0.0.1	255.0.0.0	0.0.0.0
PC2	Interface Fa0/1	50.0.0.1	255.0.0.0	0.0.0.0

5. Describe step by step configuration steps properly (you may copy the commands used in the configuration tab and paste it.)

1) Router Configuration: (R0, R1, R2)

1. Click the Router
2. Click Config
3. Select the Fast Ethernet
4. Type the IP and Subnet mask)
5. Port Status - ON

2) Assign the IP Address in Each Router:

1. Open the Router0
2. Click the Option Config
3. Click the option Serial2/0
4. Enter the IP Address and Subnet mask (10.0.0.2, 255.0.0.0)
5. Change the Clock Rate (64000)
6. Switch on the Port Status

1. Open the Router1
2. Click the Option Config
3. Click the option Serial2/0
4. Enter the IP Address and Subnet mask (10.0.0.3, 255.0.0.0)
5. Change the Clock Rate (Not Set)
6. Switch on the Port Status

1. Open the Router1
2. Click the Option Config
3. Click the option Serial3/0

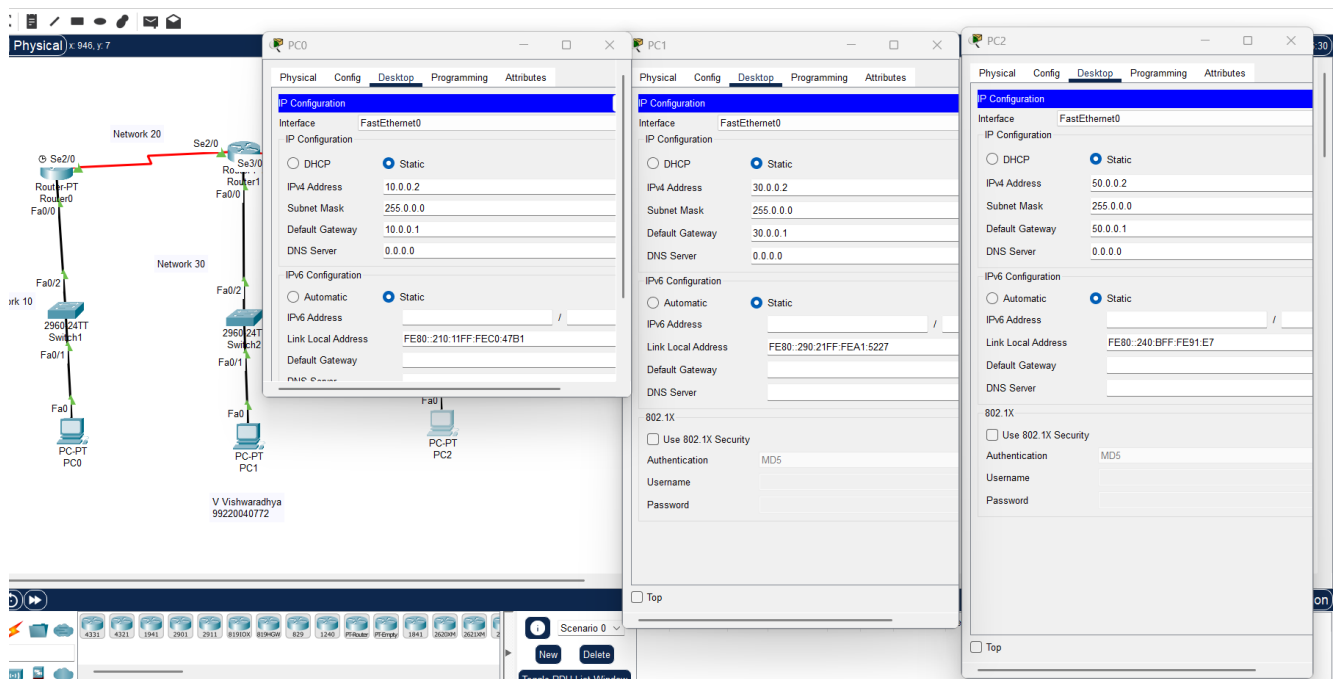
4. Enter the IP Address and Subnet mask (20.0.0.2, 255.0.0.0)
5. Change the Clock Rate (64000)
6. Switch on the Port Status

1. Open the Router2
2. Click the Option Config
3. Click the option Serial2/0
4. Enter the IP Address and Subnet mask (20.0.0.3, 255.0.0.0)
5. Change the Clock Rate (Not Set)
6. Switch on the Port Status

3)Router RIP Configuration:

1. Add the two address in Network Field and go to settings and click save.

6. Output Diagram (Minimum 3 screenshot):



Rubrics for Experiment Assessment:

Rubrics	Good	Normal	Poor	Marks
Creation of Topology (4)	Created the topology, identified the proper devices and made the connections (4)	Created the topology, Identify the proper devices, making the connections But missing some features (2)	Created wrong topology, Failed to Identify the proper devices and made connections (1)	
Verify the connectivity (4)	Verified the connectivity in all the levels (4)	Verified the connectivity at some levels (only some nodes) (2)	Verified the connectivity is not done. (1)	
Timely Completion (2)	Completed the lab before the allotted time (2)	Completed the lab after the deadline (1)	Did not submit before grading (0)	
Total				

CONCLUSION (provide conclusion about this experiment): Thus the process of designing and implementing Distance Vector routing using packet tracer has done successfully