IF YOU WANT TO GO FAST,
GO ALONE
IF YOU WANT TO GO FAR,
GO WITH OTHERS!!

COMPANY NETWORK IMPLEMENTING ROUTING PROTOCOL AND LAN SWITCHING

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INTRODUCTION

COMPANY HAVING COMPUTER NETWORK

- A computer network or data network is a telecommunications network which allows computers to exchange data.
- In computer networks, networked computing devices exchange data with each other using a data link.
- The connections between nodes are established using either cable media or wireless media.

- The best-known computer network is the **Internet**.
- This project helps an organization to establish WAN network and the network is secured for the user.
- It also reduces the wastage of IP Addresses.
- Sub-netting is used here for creating the networks in a network.
- Many security features and technologies are also implemented on this network.

OBJECTIVE

- Creating a company network have best routing protocol for the given scenario and show LAN switching.
- To create a better communication at different branches of the company at different locations

Features :-

- The network is secured.
- It is easy to understand the whole network.
- Networking is done by areas.
- Easy to troubleshoot.
- Whole of the network is intelligent.

EFFECTIVENESS

This project is designed to provide security in your network to secure your private data and make a reliable and excellent communication in a WAN connection.

- The network is secured & easy to understand.
- Easy to troubleshoot because of its easy understanding.
- We can extend the range of slots in routers.
- Networking By areas.

PROJECT WORKING

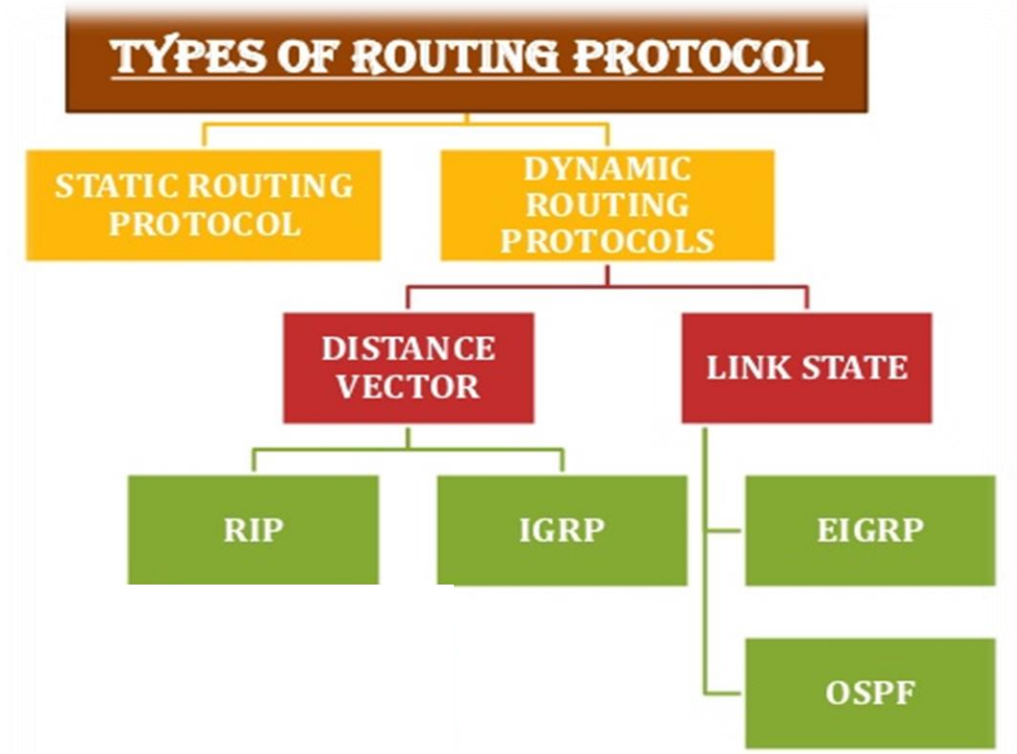
- This project consist of 5 routers.
- The main router is the Delhi Router which is further connected to Nirman Vihar and Vaishali router which are connected to Dwarka and Ghaziabad router respectively.
- The main Delhi Router is Password protected and it is assumed that headquarter of the company is located there.
- It is assumed that the other offices of company are located at different places like: Dwarka, Nirman Vihar, Ghaziabad and Vaishali.

ROUTING INFORMATION PROTOCOL (RIP)

RIP is a true distance-vector routing protocol.

➢ RIP Features:

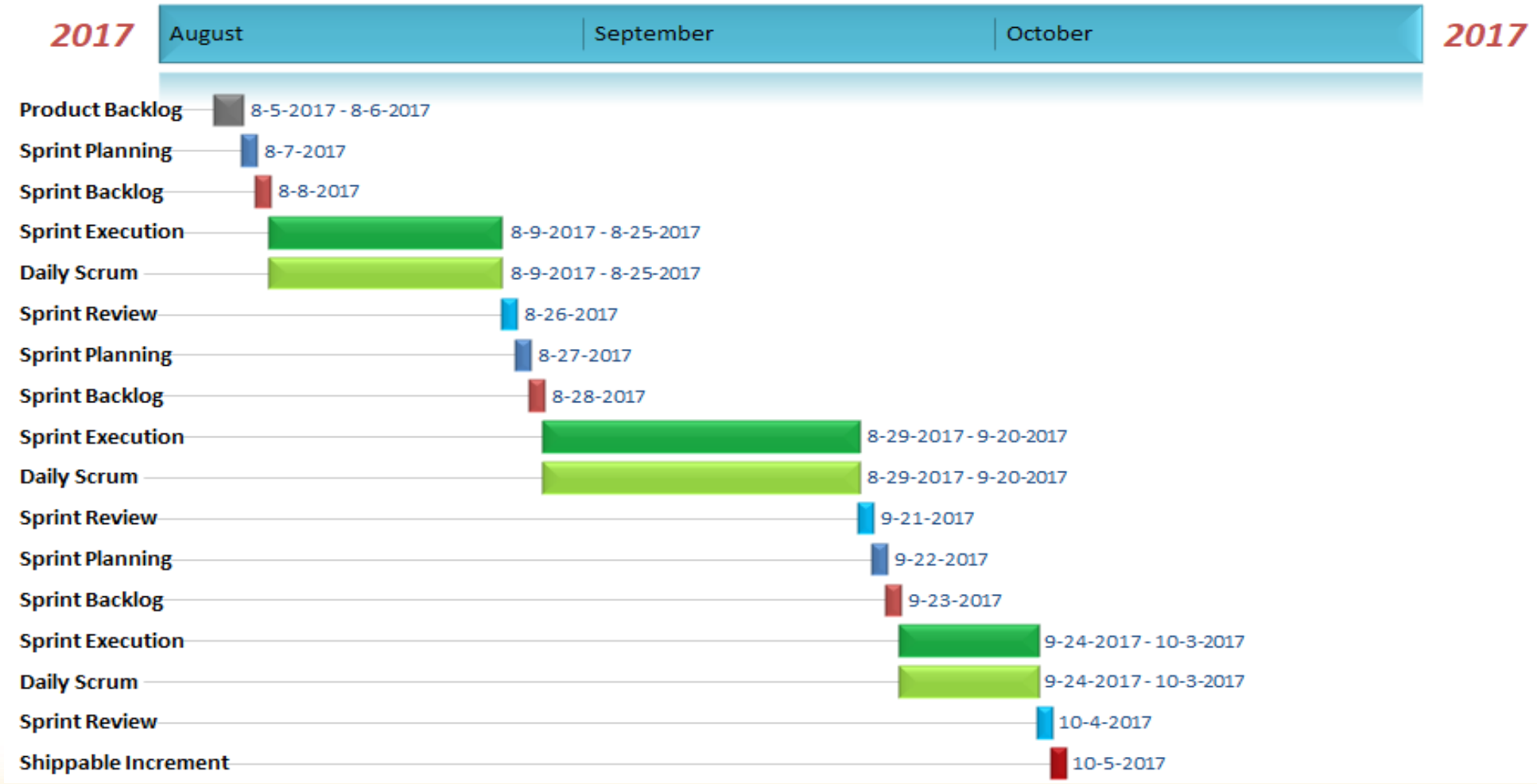
- Distance Vector Routing Protocol
- Maximum Reachable hop-count is 15
- Hop 16 is considered unreachable
- Metric is HOP COUNT
- Administrative distance 120
- Sends periodic update every 30 seconds



VLAN (Virtual LAN)

- VLANs are operating at OSI Layer 2.
- VLANs can be characterized as “logically separated networks”.
- The devices, which are member of same Vlan, are able to communicate with each other.
- The devices of different Vlan may communicate with each other with routing.
- So that different Vlan devices will use different networking addresses.
- Advantage – To enhance Network Security.

TIMEPLAN AND WORK COMPLETED



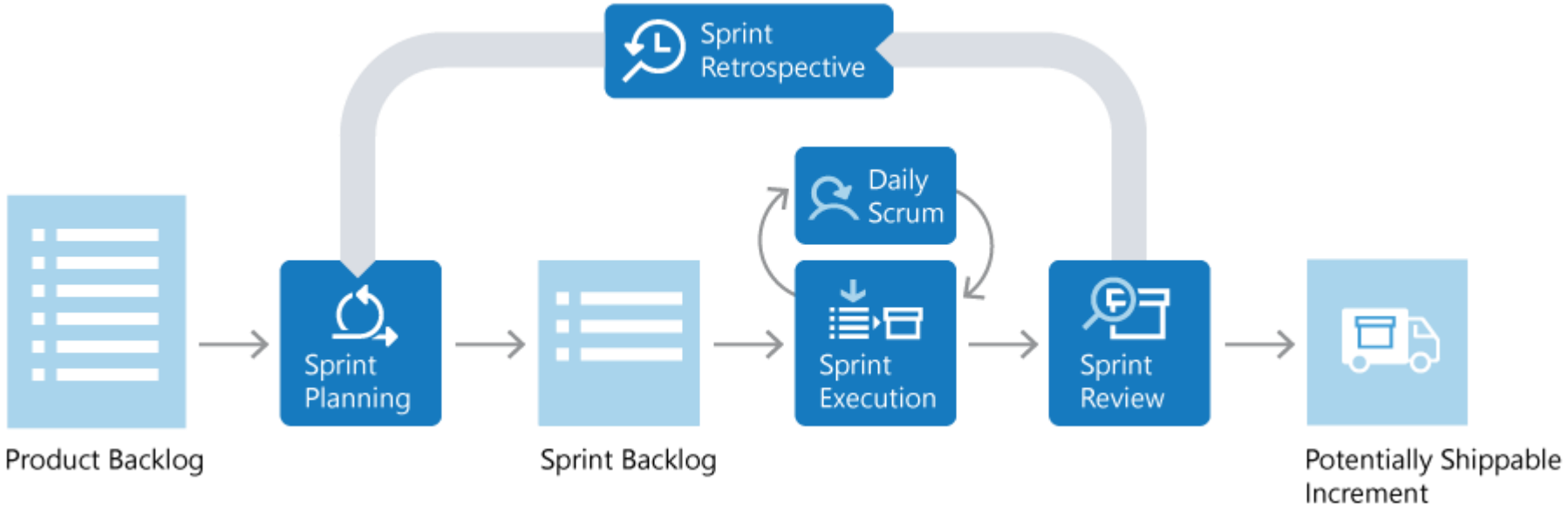
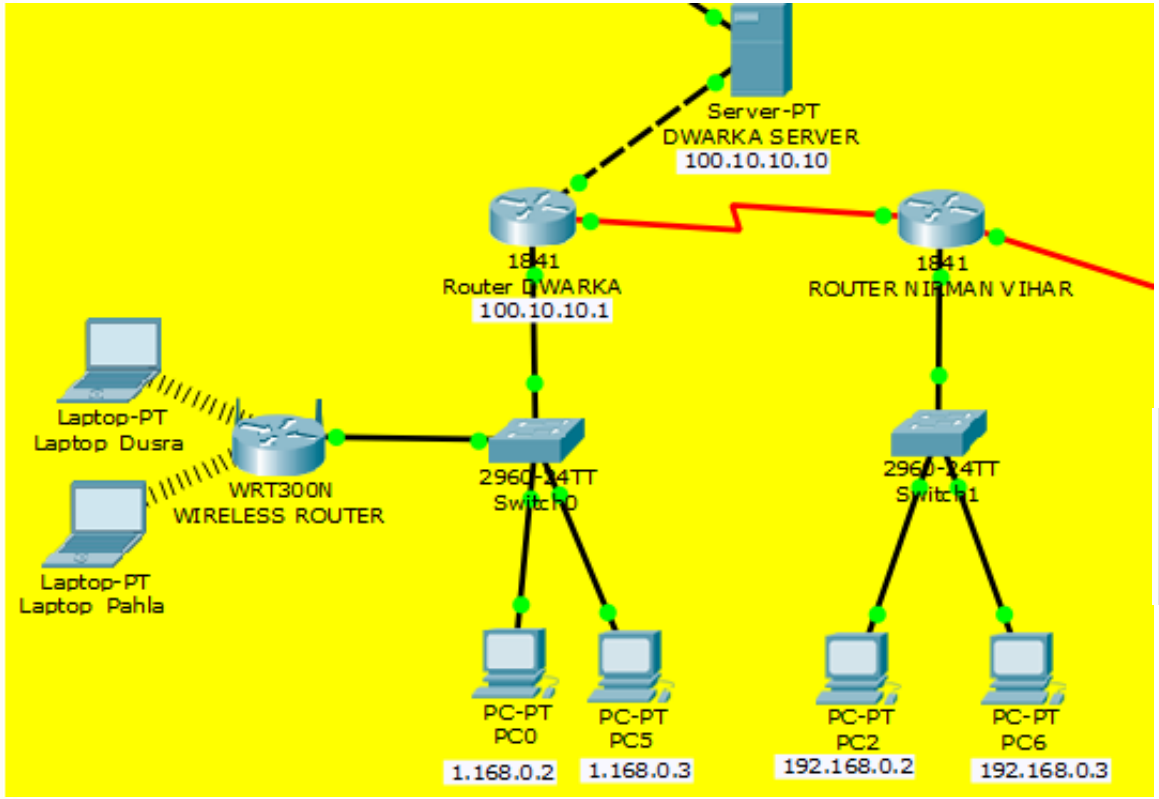


FIGURE I : FLOW DEPICTION OF SCRUM

NOTE: Gantt chart uses a Software Development methodology among **Agile** Methodology, knows as **Scrum.**

PROJECT SCREENSHOTS

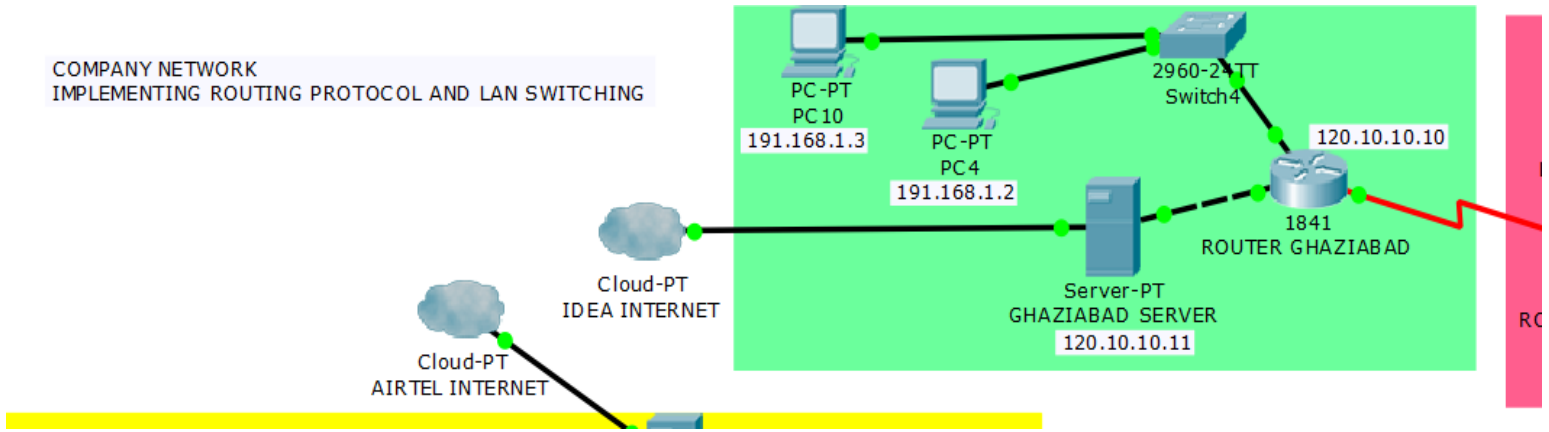
COMMUNICATING IN SAME NETWORK & DIFFERENT NETWORK



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	PC5	ICMP		0.000	N	0	(e...

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	PC2	ICMP		0.000	N	0	(e...
	Successful	PC5	PC6	ICMP		0.000	N	1	(e...
	Successful	PC6	PC0	ICMP		0.000	N	2	(e...

ANOTHER NETWORK SHOWING PC COMMUNICATING TO ROUTER AND ROUTER TO PC & PC TO PC

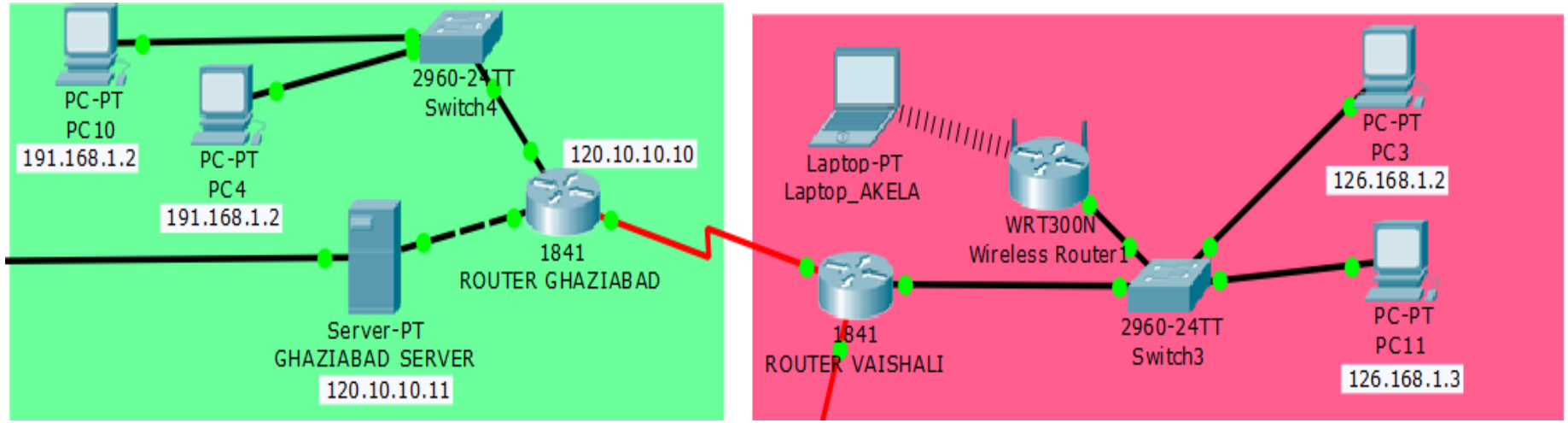


Fire	Last Status	Source	Destination	Type	Color	Time(sec)	P
	Successful	PC10	PC4	ICMP		0.000	
	Successful	PC10	ROUTER GHAZIABAD	ICMP		0.000	
	Successful	ROUTER GHAZIABAD	PC4	ICMP		0.000	

GHAZIABAD ROUTER COMMUNICATING WITH GHAZIABAD SERVER AND VICE VERSA

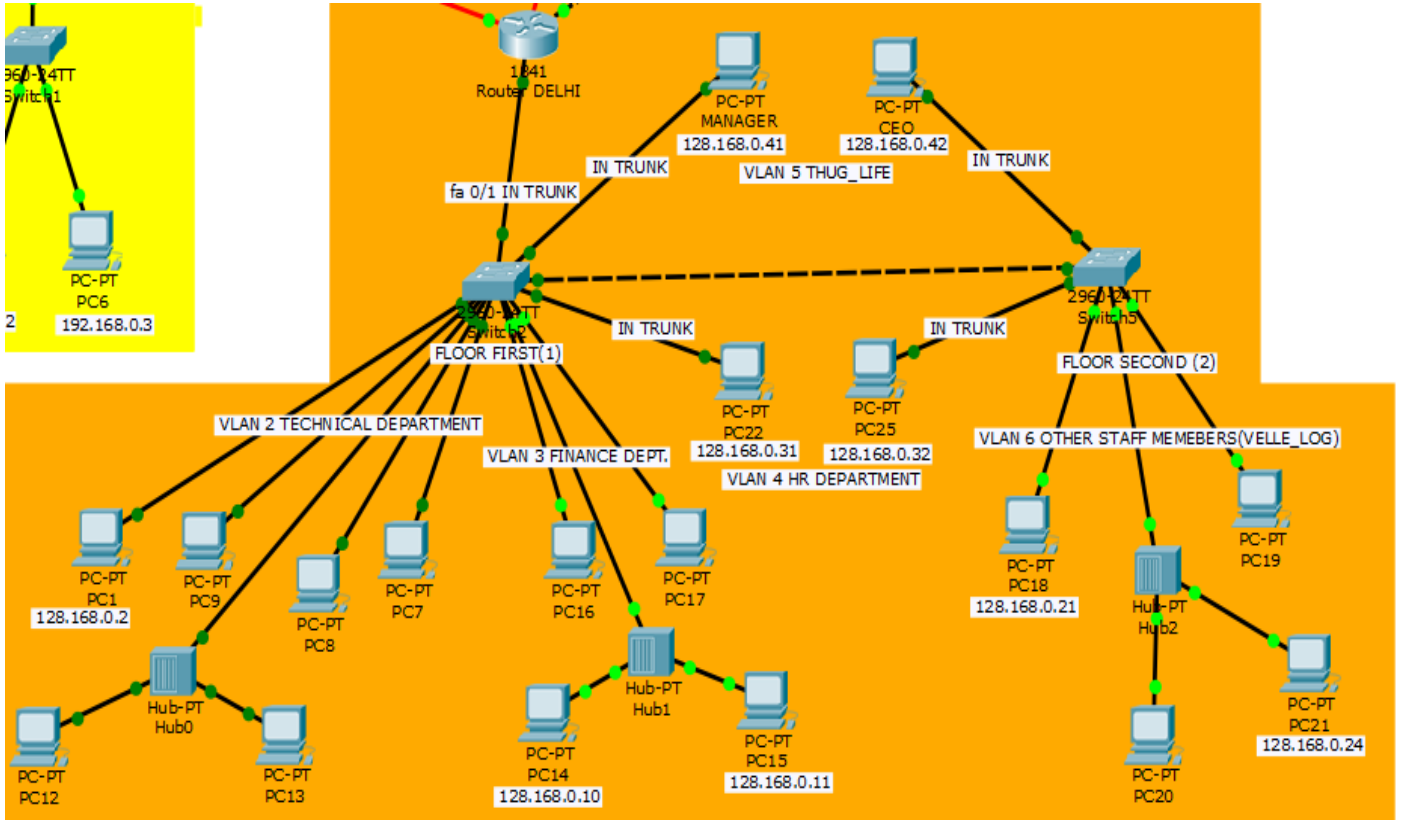
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	P
	Successful	ROUTER GHAZIABAD	GHAZIABAD SERVER	ICMP		0.000	
	Successful	GHAZIABAD SERVER	ROUTER GHAZIABAD	ICMP		0.000	

DIFFERENT NETWORKS COMMUNICATING TO EACH OTHER AND LAPTOP CONNECTED TO WIRELESS ROUTER



Fire	Last Status	Source	Destination	Type	Color	Time(sec)
	Successful	PC3	PC11	ICMP		0.000
	Successful	PC3	PC4	ICMP		0.000
	Successful	Laptop_AKELA	Wireless Router1	ICMP		0.000

SAME VLANS ABLE TO COMMUNICATE



Fire	Last Status	Source	Destination	Type	Color	Time(sec)
	Successful	PC1	PC9	ICMP		0.000
	Failed	PC7	PC14	ICMP		0.000
	Successful	PC22	PC25	ICMP		0.000

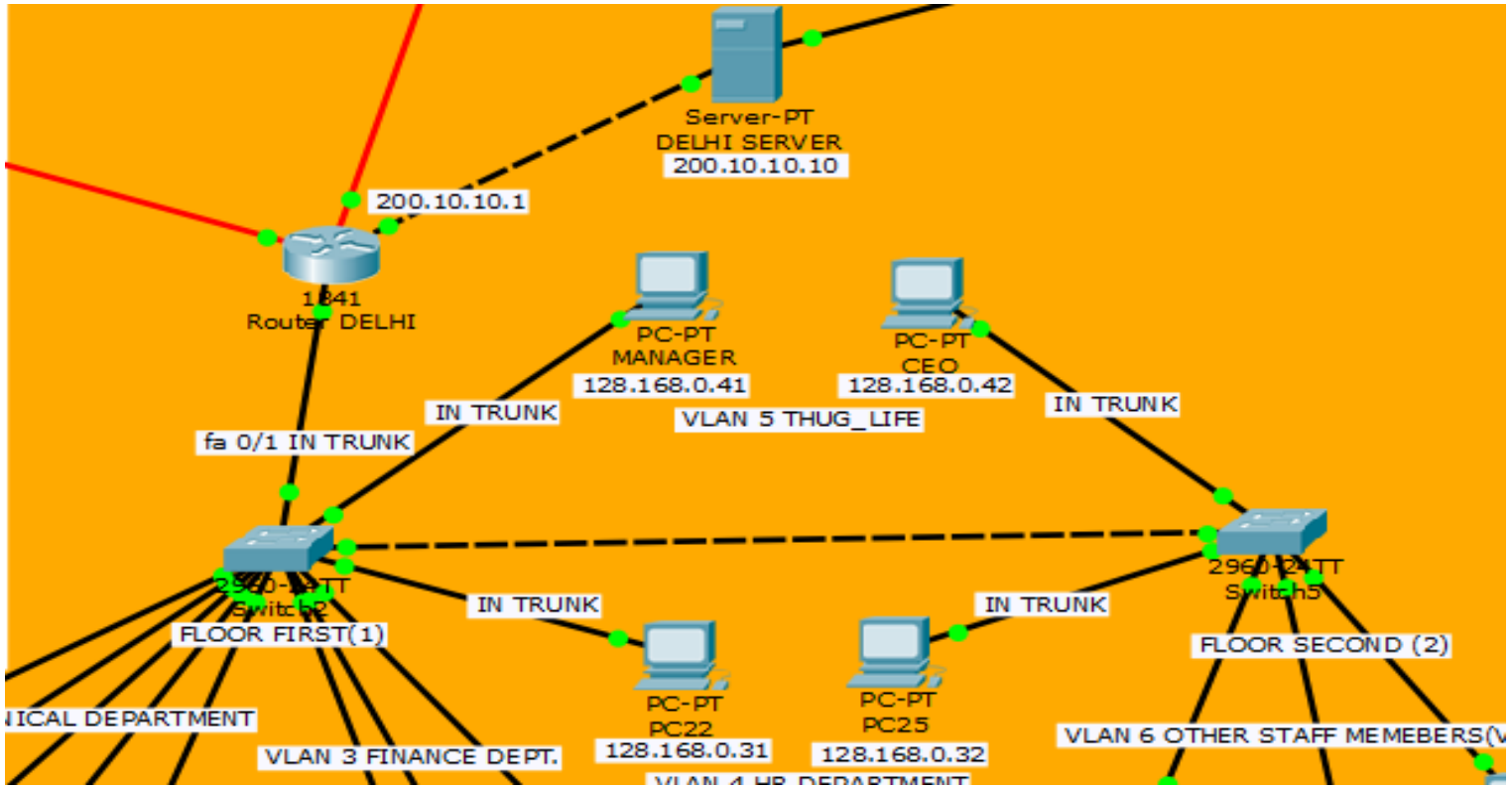
MANAGER AND CEO COMMUNICATING WITH EACH OTHER AND WITH HR DEPARTMENT

Fire	Last Status	Source	Destination	Type	Color	Time(sec)
	Successful	MANAGER	CEO	ICMP		0.000
	Successful	MANAGER	PC25	ICMP		0.000
	Successful	CEO	PC22	ICMP		0.000

PCs CONNECTED WITH HELP OF HUBS ABLE TO COMMUNICATE IN NETWORK

Fire	Last Status	Source	Destination	Type	Color	Time(sec)
	Successful	PC18	PC20	ICMP		0.000
	Successful	PC15	PC14	ICMP		0.000
	Successful	PC13	PC8	ICMP		0.000

MANAGER AND CEO ABLE TO COMMUNICATE WITH DELHI'S SERVER



Fire	Last Status	Source	Destination	Type	Color	Time(sec)
	Successful	MANAGER	DELHI SERVER	ICMP		0.000
	Successful	DELHI SERVER	CEO	ICMP		0.000
	Successful	PC25	DELHI SERVER	ICMP		0.000

INDIVIDUAL WORK DONE

Ashish Kumar

- Setting up the scenario for the company network (A random scenario is taken in the project as CCNA labs are created according to needs of customer)
- Making connections in trunk for the different users to communicate with each other (Manager, CEO and HR department)
- Configuring Routers, Switches, Hubs, Servers and End devices like laptops and PC's for Router Delhi
- IP addresses configuration in PC's for the main headquarter network Delhi
- Configuring Vlans for different department in Router Delhi Network (Technical, Finance, HR department and other users department)

Deepak Chopra

- Implementing the best routing protocol for he given scenario (Routing Information Protocol, RIP)
- IP addresses configuration in PC's for the following network Nirman Vihar, Dwarka, Vaishali and Ghaziabad.
- Configuring Routers, Switches, Wireless Router, Servers and End devices like laptops and PC's for Router Nirman Vihar, Dwarka, Vaishali and Ghaziabad.
- Checking for sending/receiving of data in the entire network
- Enabling gateways for all PC's in Nirman Vihar, Dwarka, Vaishali and Ghaziabad network and making sure the sending and receiving of data is done(package transfer viewing done in both realtime and simulation)

thank you!