MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

IV SEMESTER B.TECH.(CCE)

CNP

Subject Code – ICT 2226

FISAC – GROUP ASSIGNMENT

GROUP_12

GROUP MEMBERS

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Problem Statement

Question 14

Task 1 - The network consists of 15 hosts, 3 routers, 5 switches, 3 Servers. The topology should consist of OSPF and BGP protocols.

Task 2 - While configuring the network use Class A, B, C ip addresses (Both classful and classless)

Task 3 - Check the connectivity between PC 0 and Server0 by displaying the “All the Best” message at PC 0 using web browser.

Task 4 - Display the routing table of all the routers.

Task 5 - Use the same Topology and configure the Ethernet frame in the network.

Display the configuration of frame in network.

INTRODUCTION

Cisco Packet Tracer

Cisco Packet Tracer is one of those tools that makes learning networking feel incredibly accessible and hands-on. When we first started using it, we were amazed by how simple it was to create a network by just dragging and dropping devices like routers, switches, and even firewalls—giving us the feel of a real-life lab without the hefty price tag of actual hardware. What really stands out is that it lets you learn by doing; you can experiment with various configurations, watch how data flows through your network, and troubleshoot issues in a completely safe, virtual environment. The simulation is so realistic that it almost mimics working with genuine Cisco equipment, which not only helps in understanding complex networking concepts but also builds the confidence needed for certifications like the CCNA. The interface is user-friendly and intuitive, making it easy for beginners to get started without being overwhelmed by technical details. It's like having your own personal lab where mistakes are just a stepping stone to deeper understanding and growth, and overall, it has been an indispensable tool in our networking journey, blending fun with practical learning in a way that truly resonates.

Switch

A switch is a network device that connects multiple devices within a LAN and forwards data based on MAC addresses.

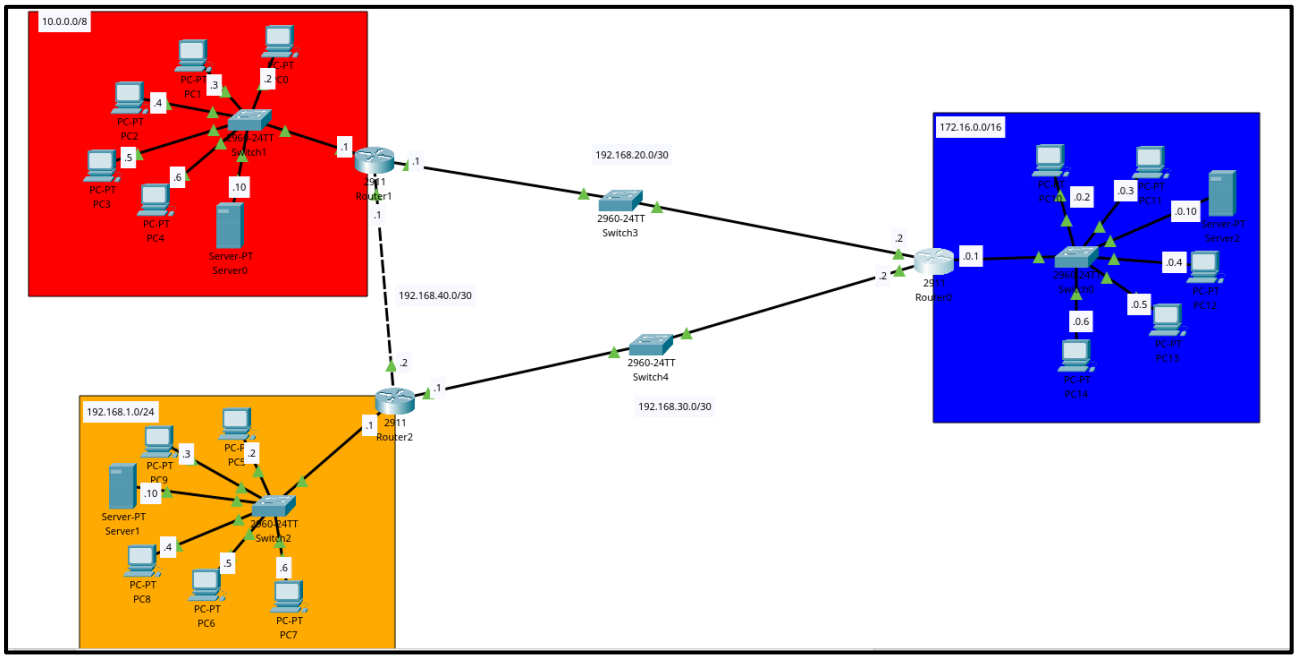
Router

A router connects different networks, directing data between them using IP addresses, often linking a LAN to the internet.

Server

A server is a computer or system that provides services, data, or resources to other devices (clients) in a network.

Network Topology



- The network is divided into three distinct subnetwork(indicated by colored regions).
- Each subnetwork has its own router, switch, and collection of end devices (PCs and servers).
- The routers in each subnetwork connect to every other router
- In this topology OSPF is used to efficiently route traffic within each area, while BGP is configured to handle external routing between different autonomous systems or external networks.

Contributions

Parth Verma – Configured BGP protocol on the network
Mayur R Das – Configured OSPF protocol on the network
Utkarsh Kumar Jha – Configured Server 0 to display “All the best” and Ethernet frame
Noorain Eqbal – Designed network topology and configured IP addresses