

# Project Proposal

## BCY-4B

### Project Proposal:

## Virtual Office Network Design with VPN using Cisco Packet Tracer

### Project Members:

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|----|------------------------|---|----------|
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### 1. Introduction:

This project proposes the design and implementation of a virtual office network utilizing Virtual Private Network (VPN) technology and Cisco Packet Tracer simulation software to facilitate secure remote connectivity.

### 2. Objectives:

- Design a virtual office network topology that supports remote access and inter connectivity.
- Implement VPN solutions to establish secure communication channels between remote users and the central office.
- Configure network devices, including routers, switches, and VPN connection, using Cisco Packet Tracer.
- Ensure network security, performance, and scalability to accommodate the needs of a distributed workforce.
- Test and validate the virtual office network to ensure functionality, reliability, and adherence to security standards.

### 3. Methodology:

- Network Planning and Design: Develop a comprehensive network topology that encompasses remote access points, central office infrastructure, and VPN endpoints, While Considering factors such as scalability, redundancy, and security.
- VPN Implementation: Configure VPN tunnels using protocols to establish encrypted connections between remote clients and the central office network.
- Device Configuration: Utilize Cisco Packet Tracer to configure routers, switches, firewalls, and VPN according to the designed topology and security requirements.
- Security Measures: Implement access control policies, encryption, and authentication mechanisms to safeguard data transmitted over the VPN connections.
- Performance Optimization: Optimize network performance through Quality of Service (QoS) configurations, bandwidth management, and traffic prioritization techniques.
- Redundancy and High Availability: Design redundancy measures such as VPN backup links and device fail over to ensure continuous availability and fault tolerance.

- Testing and Validation: Conduct rigorous testing to validate network functionality, security posture, and performance metrics. Address any identified issues and ensure compliance with project objectives.

#### **4. Conclusion:**

The proposed project aims to design and implement a virtual office network infrastructure utilizing VPN technology. By creating a secure, scalability, and resilient network environment, organizations can effectively support remote work initiatives while maintaining high levels of data security, performance, and availability.