Green University of Bangladesh
Department of Computer Science and Engineering (CSE)

Faculty of Science and Engineering

Semester: (Fall, Year:2023), B.Sc. in CSE (Day)

LAB PROJECT PROPOSAL

Course Title: Computer Networking Lab

Course Code: CSE-312 **Section:** D4

Project Name: Design and simulation a small office/Home Office network system.

Student Details

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Submission Date : 24-10-23

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Lab Report Status

Marks: …… **Signature:** ……...

Comments: ……... **Date:** ……...

1. TITLE OF THE PROJECT PROPOSAL:

Design and simulation a small office/Home Office network system.

2. PROBLEM DOMAIN & MOTIVATIONS:

In today's digital age, small office/home office (SOHO) environments require reliable and efficient network systems to facilitate seamless communication, collaboration, and data sharing. The problem domain encompasses the design and simulation of a network system tailored for small office and home office setups.

Challenges in SOHO Networks:

1. Limited Resources: SOHO environments often have limited resources, including budget constraints, space, and technical expertise.
2. Scalability: The network should be scalable to accommodate potential growth in the number of devices and users.
3. Security Concerns: Protecting sensitive data from unauthorized access and ensuring network security are paramount in any network design.
4. Reliable Connectivity: Ensuring reliable connectivity and minimal downtime is crucial for uninterrupted workflow.

Motivations for the Network System:

1. Efficient Collaboration: Enable employees or users to collaborate effectively, share files, and work on projects collectively.
2. Remote Access: Facilitate secure remote access to network resources, allowing employees to work from home or on the go.
3. Resource Sharing: Enable shared access to printers, storage devices, and other resources to optimize resource utilization.
4. Data Backup and Security: Implement automated backup solutions and robust security measures to safeguard data against loss or breaches.
5. Cost-Effectiveness: Design a network system that optimizes costs without compromising on performance or security, ensuring the best value for investment.
6. User-Friendly Setup: Create an intuitive and easy-to-manage network environment that doesn't require extensive technical expertise for setup and maintenance.

Designing and simulating a SOHO network system addresses these challenges and motivations, creating a reliable, secure, and user-friendly network tailored to the specific needs of small office and home office users.

3. OBJECTIVES/AIMS:

- Efficient Collaboration: Foster a network environment that promotes seamless communication and collaboration among office and remote users. Implement unified communication tools, shared calendars, and instant messaging platforms to enhance teamwork and information exchange.

- Resource Optimization: Enable efficient resource sharing, including printers, files, and centralized storage, ensuring optimal utilization of office resources. Implement secure access controls to protect sensitive data while allowing convenient sharing and accessibility.

- Scalability and Adaptability: Design a network infrastructure that can scale seamlessly with the growing needs of the business. Implement technologies and architectures that allow easy integration of new devices and services, ensuring the network remains adaptable to future requirements.

4. TOOLS & TECHNOLOGIES:

Using this tool to completing my project-

- cisco packet tracer
- Router
- Switch
- Server-DNS, EMAIL, FTP
- Cables

5. CNCLUSION:

Designing and simulating a Small Office/Home Office (SOHO) network system is a multifaceted process that involves careful consideration of various factors, including scalability, security, efficiency, and budget constraints. In this simulation, we have explored the integration of essential components such as routers, switches, security appliances, and collaborative tools. These technologies empower businesses to enhance communication, collaboration, and data sharing while ensuring the safety and integrity of sensitive information.