

Network Project for Company

Sri Lanka National Bank (SLNB) is a prominent financial institution in Sri Lanka, renowned for its commitment to providing reliable and innovative banking solutions. Established in 1985, SLNB has grown to serve a diverse clientele across the island, offering services in retail banking, corporate banking, and financial management. The bank continuously invests in cutting-edge technology to enhance customer experiences and ensure secure, efficient operations. With a strong focus on digital transformation, SLNB aims to lead the financial sector by integrating modern IT infrastructure to support seamless banking services.

Project Overview:As part of an initiative to upgrade their IT infrastructure, Sri Lanka National Bank (SLNB) is offering the opportunity to design a comprehensive network for one of their branch offices. This project includes network layout planning, hardware selection, IP addressing, VLAN configuration, and ensuring network security protocols are in place to meet banking industry standards. This hands-on project will provide valuable real-world experience in network architecture, allowing me to demonstrate my technical expertise, problem-solving skills, and understanding of secure, scalable network design. Completing this project will showcase my ability to handle end-to-end network development, making it a strong addition to my CV as I pursue a career in networking and cybersecurity.

First Floor			
No.	Departments	No. of PC	No. of Printers
1	Management	20	4
2	Research	20	4
3	Human Resource	20	4

Second Floor			
No.	Departments	No. of PC	No. of Printers
1	Marketing	20	4
2	Accounting	20	4
3	Finance	20	4

Third Floor			
No.	Departments	No. of PC	No. of Printers
1	Logistics and store	20	4
2	Customer care	20	4
3	Guest Area	20	2

Fourth Floor				
No.	Departments	No. of PC	No. of Printers	No of Servers
1	Administration	20	2	-
2	ICT	20	2	-
3	Server Room	2 Admin PC's	-	3 (DHCP, HTTP and Email)

Requirements:

1. Use a software modeling tool to visualize the network topology
 - Software Modeling Tools: MS Visio, Visual Paradigm, or Draw.io for modeling network design.
2. Use any of the following network simulation software to implement the above topology:
 - Simulation software : Cisco Packet Tracer or GNS3 for design and implementation.
 - There should be one router on each floor. The router should be connecting switches on that floor.
 - Use OSPF as the routing protocol to advertise routes.
 - Each department is required to have a wireless network for the users.
 - Each department except the server room will be anticipated to have around 60 users both wired and wireless users.
 - Host devices in the network are required to obtain IPv4 address automatically.
 - Devices in all the departments are required to communicate with each other.
 - All devices in the network are expected to obtain an IP address dynamically from the dedicated DHCP servers located at the server room.
 - Create HTTP, and Email servers
 - Configure SSH in all the routers for remote login
3. Use hierarchical network design with redundancy included:
 - Having core, distribution, and access layers
4. Configure the basic configuration of the devices:
 - Hostnames
 - Line Console and VTY passwords
 - Banner messages
 - Disable domain IP lookup
5. Each department should be in a different VLAN
 - Create VLANs in every department
 - VLANs you will use in your case, including VLAN1 also e.g. 10,20,30..etc.
 - Each VLAN should be a different subnetwork

6. Planning of IP Address:
 - You have been given 192.168.10.0 as the base address for this network.
 - Do subnetting based on the number of hosts in every department as provided above.
 - Identify subnet mask, useable IP address range, and broadcast address for each subnet.
7. End Device Configuration:
 - Configure all the end devices in the network with the appropriate IP address based on the calculations above.
8. Configure port-security
 - Use sticky command to obtain MAC Address
 - Violation mode of the shutdown.
9. Test Communication
 - Do devices in the same VLAN communicate?
 - Do the devices in different VLANs communicate?
10. Document the project design and implementation