

CN Project Proposal

Design & Implementation of a Bank System Network

Objective:

The project's goal is to create and deploy a complete network infrastructure for Meezan Bank Ltd. in Islamabad, Pakistan, so that effective banking and insurance services can be provided. This include installing VLANs for segmentation, ensuring dynamic IP allocation through DHCP, establishing secure remote access via SSH, configuring OSPF for routing, and integrating the required servers for HTTP and Email services. It also involves building up a safe and scalable network that can accommodate wired and wireless users across multiple departments.

Introduction:

Meezan Bank Ltd. is an Islamic bank in Pakistan, well-known for its Sharia-compliant banking methods. The opening of a branch in Islamabad is a calculated step to expand into the local market and provide advanced banking products, as the company has plans to grow its operations. In order to support the bank's operations effectively, a strong network infrastructure must be deployed, guaranteeing smooth communication, data security, and accessibility to critical banking services.

Description:

The project will be implemented using Cisco Packet Tracer, a powerful network simulation tool that allows for the creation, visualization, and testing of complex network topologies. It includes the following features and functions:

- **Hierarchical Network Design:** To maximize scalability, performance, and management effectiveness, the network will be organized hierarchically.
- **VLAN Segmentation:** To ensure network segmentation for security and traffic management, each department in the branch will be given its own VLAN.
- **IP addressing and subnetting:** To maximize IP address distribution, subnetting will be dependent on the number of hosts in each department. Subnet masks, broadcast addresses, and useable IP address ranges for every subnet will be calculated.
- **Dynamic IP Allocation:** In order to ensure smooth network management and seamless connectivity, dedicated DHCP servers will be installed in the server room and will assign dynamic IP addresses to all network devices.
- **Secure Remote Access:** To improve network security and control, SSH will be set up on all routers to allow secure remote login.
- **Routing Protocol Implementation:** In order to advertise routes and promote effective data transmission throughout the network, OSPF will be set up as the routing protocol.
- **Port-Security:** To improve network security, switches will be equipped with port-security by configuring violation modes and obtaining MAC addresses through the use of the sticky command.
- **Wireless Network:** To enable wireless users and offer flexibility and mobility within the branch premises, each department will have its own wireless network.
- **Server Configuration:** Email and HTTP servers will be configured to enable basic banking functions, guaranteeing dependable data access and communication for both bank clients and staff.
- **Testing & Verification:** To ensure that the network infrastructure is implemented successfully, extensive testing will be carried out to confirm network functionality, communication, and security measures.

Each floor has departments as shown in the table:

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	40	2

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

Project Team:

The effective implementation of this project will be supervised by a group of FAST University Cyber-Security students, comprising:

Ovais Adnan (22k-4677)

Hamza Khan (22k-4722)

Muhammad Sohaib (22k-4751)

We seek to provide a solid and scalable network infrastructure that satisfies the operational requirements of Meezan Bank Ltd.'s Islamabad branch, enabling smooth banking and insurance services while guaranteeing security, dependability, and efficiency. We will accomplish this by utilizing Cisco Packet Tracer and following to project specifications and methodologies.

Yours Sincerely,

[Ovais Adnan]

[Hamza Khan]

[Muhammad Sohaib]