Bank Network Design Project Report

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# 1. Project Title

Design and Implementation of a Bank Network Using Cisco Packet Tracer

# 2. Objective

To design and implement a secure, scalable, and efficient computer network for a bank with a head office in Peshawar and five remote branches, ensuring safe inter-branch communication, centralized management, and service availability.

# 3. Network Overview

The bank network consists of:  
- 1 Main Branch (Head Office in Peshawar)  
- 5 Regional Branches  
- All branches are interconnected securely using routers.  
- The Head Office contains centralized servers (Database, DNS, Web, Backup).  
- DMZ (Demilitarized Zone) is implemented for public web services (e.g., online banking).  
- Inter-branch communication is secured using dynamic routing protocols.

# 4. Network Design Components

Devices Used:  
- Routers (Cisco 2901) for each branch  
- Switches for internal LAN segmentation  
- End Devices: PCs, Servers, Printers  
- Cable Types: Copper straight-through, serial for WAN

**Addressing Scheme:**

|  |  |  |
| --- | --- | --- |
| Branch | IP Address | Subnet Mask |
| Peshawar | Router5 – 170.20.104.0/21 Router6– 170.20.96.0/21 Router 7– 170.20.88.0/21 | 255.255.248.0 255.255.248.0 255.255.248.0 |
| Panyala | Router3 – 172.20.120.0/21 | 255.255.248.0 |
| Mansehra | Router14 – 172.20.32.0/21 | 255.255.248.0 |
| Swabi | Router17– 172.20.48.0/21 | 255.255.248.0 |
| Karak | Router4 – 172.20.152.0/21 | 255.255.248.0 |
| Di khan | Router13 – 172.20.16.0/21 | 255.255.248.0 |

# 5. Security Implementation

- DMZ at Main Branch for hosting public-facing servers (web, DNS).  
- Static Routing / RIP / EIGRP used to establish connectivity.  
  
  
**Routing:**  
- Dynamic Routing (RIP or EIGRP)  
- Static routes for control where necessary.

# 8. Testing & Verification

Test Cases and Results:  
- Ping from Branch to Main Server: ✅ Successful  
- DNS resolution from branches: ✅ Working  
- Web access to internal site: ✅ Working

# 10. Conclusion

This project successfully demonstrates a secure and organized bank network using Cisco Packet Tracer. The design ensures:  
- Secure communication between branches  
- Scalability for future expansion

Branches Screen shots:

**Peshawar (Main Branch)**

