



SUPERIOR UNIVERSITY

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Subject: Computer Network

Foxtex private limited Pakistan

Network Documentation for Foxtek Pakistan Limited

1. Company Overview

Foxtek Pakistan Limited is a technology-driven company specializing in innovative IT solutions. The company requires a robust, secure, and scalable network infrastructure to support various departments, including Admin, CR2, Production, HR, Mobile App Development, Innovation, Cyber Security, and Marketing.

2. Network Topology Overview

The network topology is designed as a VLAN-based hierarchical structure connecting different departments with centralized control using a multilayer switch. Each department is assigned a unique VLAN to segment network traffic, enhance security, and manage resources efficiently.

3. Network Components

1. Core Devices:

Multilayer Switch: Centralized device for managing inter-VLAN communication.

- **Router:** Provides WAN connectivity and DHCP services for VLANs.
- **Servers:** Located in separate VLANs for security and easy management.

2. End Devices:

- Desktops, Laptops, and Printers connected across different VLANs.

4. VLAN Configuration

Department	VLAN ID	Subnet	Default Gateway
Admin	VLAN 10	192.168.1.0/24	192.168.1.1
CR2	VLAN 20	192.168.2.0/24	192.168.2.1
Production	VLAN 30	192.168.3.0/24	192.168.3.1
HR	VLAN 40	192.168.4.0/24	192.168.4.1
Mobile App Development	VLAN 50	192.168.5.0/24	192.168.5.1
Innovation	VLAN 60	192.168.6.0/24	192.168.6.1
Cyber Security	VLAN 70	192.168.7.0/24	192.168.7.1
Marketing	VLAN 80	192.168.8.0/24	192.168.8.1

5. DHCP Configuration

DHCP services are centralized on the router to dynamically assign IP addresses within each VLAN subnet, ensuring efficient IP management.

6. Security Measures

- **VLAN Segmentation:** Departments are isolated to prevent unauthorized access
- **Switch Port Security:** MAC address filtering enabled on access ports to prevent unauthorized devices.

7. Network Design Benefits

- **Scalability:** VLANs allow easy expansion by adding new devices or departments.
- **Security:** Segmented network reduces risks of internal threats.
- **Manageability:** Centralized DHCP and VLANs simplify network management.
- **Efficiency:** Minimized broadcast traffic enhances overall network performance.