# Network Documentation

## Overview

This documentation provides a detailed overview of the network infrastructure for a company that consists of multiple departments: IT, Sales, and Admin. The network is designed with VLAN segmentation to enhance security and manageability.

## Network Topology

The network topology consists of the following components:

1. Core Layer Router (Core-Layer-Router):

- Acts as the gateway for all VLANs.

- Provides inter-VLAN routing.

- Connects to the distribution layer switch.

2. Distribution Layer Switch (Distribution-Switch):

- Connects the core layer router to the access layer switches.

- Acts as an aggregation point for traffic from the access layer switches.

3. Access Layer Switches:

- IT-Department-Switch: Provides connectivity for devices in the IT department.

- Sales-Department-Switch: Provides connectivity for devices in the Sales department.

- Admin-Department-Switch: Provides connectivity for devices in the Admin department.

## VLAN Configuration

The network is divided into three VLANs, each corresponding to a department:

- VLAN 10: IT Department (192.168.1.0/24)

- VLAN 20: Sales Department (192.168.2.0/24)

- VLAN 30: Admin Department (192.168.3.0/24)

## IP Addressing Scheme

Each VLAN is assigned a unique subnet from the private IP address range (192.168.0.0/16) for internal communication. The IP addressing scheme is as follows:

- VLAN 10 (IT Department):

- Subnet: 192.168.1.0/24

- Default Gateway: 192.168.1.1

- DHCP Range: 192.168.1.10 - 192.168.1.254

- DHCP Pool: vlan10

- VLAN 20 (Sales Department):

- Subnet: 192.168.2.0/24

- Default Gateway: 192.168.2.1

- DHCP Range: 192.168.2.10 - 192.168.2.254

- DHCP Pool: vlan20

- VLAN 30 (Admin Department):

- Subnet: 192.168.3.0/24

- Default Gateway: 192.168.3.1

- DHCP Range: 192.168.3.10 - 192.168.3.254

- DHCP Pool: vlan30

## Device Configuration

### Core Layer Router (Core-Layer-Router)

- Configured with subinterfaces for VLAN routing.

- DHCP pools configured for each VLAN.

- VLAN interfaces configured with IP addresses.

## Distribution Layer Switch (Distribution-Switch)

- Configured with access ports for VLANs 10, 20, and 30.

- Trunk port configured to connect to other switches.

### Access Layer Switches

### IT-Department-Switch

- Configured with access ports for VLAN 10 (IT department).

### Sales-Department-Switch

- Configured with access ports for VLAN 20 (Sales department).

### Admin-Department-Switch

- Configured with access ports for VLAN 30 (Admin department).

## Additional Configurations

- Spanning Tree Protocol (PVST) is enabled on all switches.

- Port security and DHCP snooping are not configured in the provided configurations but should be considered for enhancing security.

## Conclusion

This documentation outlines the network infrastructure, VLAN configuration, IP addressing scheme, and device configurations for the company's network. It provides a clear overview of how the network is designed and implemented to meet the requirements of the different departments while ensuring security and manageability.