

**COMPUTER NETWORK LAB PROJECT**

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**HOTEL MANGEMENT SYSTEM**

**INTRODUCTION:**

In today's neighborliness industry, impactful and secure arrange foundation is fundamental for streamlining operations and guaranteeing consistent communication over offices. This extend centers on planning a strong Lodging Administration Framework Arrange, custom-made to meet the operational needs of a multi-floor inn. By actualizing VLAN division, inter-VLAN directing, and remote network, the organize guarantees unwavering quality, security, and adaptability.

The arrange interfaces different divisions, counting Deals, HR, IT, Admin, Fund, Coordinations, Gathering, and the Store. Each department's information is confined utilizing VLANs, whereas controlled communication is empowered between them for shared assets like printers and record get to. The plan underpins both wired and remote gadgets, guaranteeing portability and openness over three floors.

This proposition traces the network's design, equipment setup, VLAN setup, IP tending to, and security highlights. The plan emphasizes versatility, reasonability, and productivity, giving a future-proof arrangement for the hotel's operations

Organize Design:

The arrange is organized over three floors, each with its particular utilitarian divisions and VLAN arrangements. The division is accomplished utilizing VLANs, which improve security and reasonability. Switches and switches interconnect the floors, guaranteeing effective communication and information exchange.

Key Components:

Switches:

2901 Switches are utilized to interconnect the floors and course activity between VLANs.

Switches:

Overseen switches (2960-24TT) handle gadget associations inside each VLAN and floor.

Get to Focuses:

Remote Get to Focuses are sent to empower portability and interface remote gadgets.

USED DEVICES:

PCs, portable workstations, tablets, smartphones, and printers are categorized into their individual VLANs based on departmental needs.

LAN Arrangement:

The arrange utilizes VLANs for coherent division and progressed activity administration. Each division and useful region is alloted a special VLAN ID and subnet.

VLAN 10 (IT Division):

192.168.1.0/24

VLAN 20 (Admin Office):

192.168.2.0/24

VLAN 30 (Deals Division):

192.168.3.0/24

VLAN 40 (HR Office):

192.168.4.0/24

VLAN 50 (Finance):

192.168.5.0/24

VLAN 60 (Logistics):

192.168.6.0/24

VLAN 70 (Store):

192.168.7.0/24

VLAN 80 (Reception):

192.168.8.0/24

Inter-VLAN directing is designed on the switches to permit controlled communication between VLANs.

Floor Format and Network:

1st Floor:

Divisions:

Logistics, Store, Reception

VLANs:

60, 70, 80

Key Gadgets:

PCs, printers, smartphones, tablets

Get to is overseen by means of F1-Router and F1-Switch, guaranteeing network and gadget isolation.

2nd Floor:

Offices:

HR, Back, Deals

VLANs:

30, 40, 50

Key Gadgets:

PCs, printers, tablets, and tablets

Remote Get to Point empowers versatility for gadgets like smartphones and tablets.

3rd Floor:

Divisions:

IT, Admin VLANs:

10, 20

Key Gadgets:

PCs, printers, and a test PC for organize testing.

F3-Router and F3-Switch oversee activity

IP Addressing and Subnetting

networks use private class C IP ranges (192.168.x.x/24) to assign addresses to devices in a VLAN. Point-to-point connections between routers use /30 subnets to minimize waste of IP addresses. Example:

Router connections:

10.10.10.4/30, 10.10.10.8/30

Device IP ranges based on VLANs.

Security Features

VLAN Segmentation:

Prevents unauthorized access to sensitive data by isolating departmental traffic.

Access Control: is configured on the router to restrict communication between VLANs based on business needs.

Wireless Security:

WPA2 encryption for secure wireless connections.

Design Advantages

Scalability: The network can accommodate future growth in devices and departments.

Improved Management:

VLAN segmentation simplifies troubleshooting and network monitoring.

Security:

Logical isolation and access control minimizes unauthorized access and data leakage.

Cost-effective:

Efficient IP allocation and use of VLANs reduces hardware and operational costs.

Conclusion:

This hotel management system network design ensures robust communication, efficient management, and secure connectivity across all departments and floors. Leveraging VLANs, managed switches, and routers ensures a design that meets the hotel's functional and performance requirements. The network is extensible and can accommodate future technological advancements and expansions.