VIC MODEM HOTEL NETWORK DESIGN AND IMPLEMENTATION

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Introduction

This report presents the design and implementation of a computer network for VIC Modem Hotel. The hotel has three floors with different departments. The objective is to interconnect all departments, ensure secure communication, provide dynamic addressing, and allow remote access using SSH.

❖ Routers and Interconnections

- Three routers were used to connect each floor, linked with serial DCE cables.
- Routers-to-router communication was established using the IP networks 10.10.10.0/30, 10.10.10.4/30, and 10.10.10.8/30.

❖ Switches and VLANS

- Each floor has switch to connect departmental devices.
- VLANs were created to logically separate department:
  - 1st Floor: Reception (VLAN 80), store (VLAN 70), Logistics (VLAN 60)
  - 2nd Floor: Finance (VLAN 50), HR (VLAN 40), Sales (VLAN 30)
  - 3rd Floor: Admin (VLAN 20), IT (VLAN 10)

❖ Wireless Access

- Each floor includes Wi-Fi networks for laptops and mobile devices.

❖ Printers

- Each department is assigned a network printer within its VLAN.

❖ Configuration summary

- VLANs: configured on switches and assigned to respective ports.
- Routing Protocol: OSPF was implemented to advertise networks and allow communication between floors.
- DHCP: Each router was configured as a DHCP sever, enabling device to obtain IP addresses dynamically.
- SSH: Enable on all routers for secure remote management.
- Port Security: Implemented in the IT department switch to restrict access only to the Test-PC.

❖ Testing and Verification

- Devices across different floors successfully obtained IP addresses via DHCP.
- Inter-VLAN communication worked through the routers using OSPF.
- Remote login to routers was tested using SSH.
- Printers were accessible within their respective VLANs.
- Port security successfully limited access in the IT department.

❖ Conclusion

The VIC Modem Hotel Network was successfully designed and implemented. The setup ensures efficient communication, logical segmentation of departments, secure remote access, and reliable resources sharing. This design meets the functional and security requirements of the hotel.