Project #3

Project No. 3 Case Study and Requirements

We want to design a network for a commercial company, the company consists of 4 floors. On the first floor, there are three departments (reception, store, and logistics), On the second floor there are two departments (Finance, and Sales/Marketing), on the third floor there are the IT department and , Human Resources While on the fourth floor is the administration. Therefore, the following are part of the considerations during design and implementation;

* There should be four routers connecting each floor (all placed in the server room in the IT department).
* All routers should be connected to each other using a serial DCE cable.
* The network between the routers should be 10.10.10.0/30,10.10.10.4/30 ,10.10.10.8/30 and 10.10.10.12/30.
* Each floor is expected to have one switch (placed on the respective floor).
* Each floor is expected to have WIFI networks connected to laptops and phones and a printer.
* Each department is expected to be in a different VLAN with the following details;

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| --- | --- | --- | --- | --- |
| 4th floor | Admin  VLAN 80 192.168.80.0/24 |  |  |  |
| 3rd floor | IT  VLAN 60  192.168.6.0/24 | HR  VLAN 70 192.168.7.0/24 |  |  |
| 2nd floor | Finance  VLAN 40 192.168.4.0/24 | Sales  VLAN 50 192.168.5.0/24 |  |  |
| 1st floor | Reception  VLAN 10  192.168.1.0/24 | Store  VLAN 20  192.168.2.0/24 | Logistics  VLAN 30  192.168.3.0/24 |  |

* Use OSPF as the routing protocol to announce routes.
* All devices in the network are expected to obtain an IP addresses dynamically with their respective router configured as the DHCP server.
* All the devices in the network are expected to communicate with each other.
* Configure SSH in all the routers for remote login.
* In IT department, add PC called Test-PC to port fa0/2 and use it to test remote login.
* Configure port security to 3rd-switch to allow only Test-PC to access port fa0/2 (use sticky method to obtain mac-address with violation mode of a shutdown.)

Technologies Implemented

* Creating a network topology using Cisco Packet Tracer.
* Hierarchical Network Design.
* Connecting Networking devices with Correct cabling.
* Creating VLANs and assigning ports VLAN numbers.
* Subnetting and IP Addressing.
* Configuring Inter-VLAN Routing (Router on a stick).
* Configuring DHCP Server (Router as the DHCP Server).
* Configuring SSH for secure Remote access.
* Configuring switchport security or Port-Security on the switches.
* Configuring WLAN or wireless network (Cisco Access Point).
* Test and Verifying Network Communication.