

Design Scenario 3- Auteco Mobility. Characterization of the existing network

Auteco Headquarters has two buildings: the Administrative Building and the Production Building, in which LAN networks are located with the following characteristics:

The Administrative Building has the following distribution:

Floor	Dependencies	# PCs	#Servers
1	Reception	3	
	S. Office	10	
	Systems Office	6	1
2	Planning	15	1
	Accounting	8	1
	Human Resources Of.	10	1
	Operations	25	
	Treasury	6	
3	General Secretary's Office	5	
	Board room	2	
	CEO's Office	5	
	Commercial & marketing	25	1

All PCs in this building are connected by twisted pair cable to three 24-port D-Link 10/100/1000 Ethernet switches (Sw1, Sw2 and Sw3), which are located in the TR wiring center on floor 2. These switches are cascaded together via front ports. The five existing servers are connected to a 24-port 10/100/1000 D-Link switch (Sw4), which is interconnected to the three described above. The servers are x86 Dell branded and have Windows Server 2013 OS installed. The data exchange between the different applications installed in the dependencies is done under a client/server scheme.

Due to the fact that the cabling points have been running out, 8-port switches have been installed in work areas to connect the PCs that have been added. There are 8 D-Link switches with these characteristics.

There is an 802.11n AP on the second floor in the Operations area.

The Production Building is a single floor building with twenty (20) PCs networked to a single D-Link Ethernet switch (Sw4) located in a small rack in the east wing. A Cisco 1811 router (R1) located in the Administration Building connects to another 1811 router (R2) in the Production block via an Ethernet port with static routing. Sw1 connects via UTP to R1 and Sw4 to R2. There is an 802.11n AP on the second floor in the Packaging area.

Data exchange between the different applications installed in the premises is done under a client/server scheme.

The existing cabling is a mix of category 5, 5E and 6. It is not marked or certified. The existing plans correspond to those of the initial installation.

The electrical network has grown haphazardly and there is no guarantee that there is a separate regulated network for the data network. There is no updated information on the grounding system of the building. There are only two 2 KVA UPS for use by the servers in the TR of the administrative building.

The entire network handles a single 172.16.20.X/16 class addressing scheme.

The current network management is very poor and is only limited to solving connectivity problems between equipment. There are no clear security policies and access is not controlled.

If you were the consultant for this project, how would you answer these questions?

1. Using a diagramming tool develop an updated diagram of the current network.
2. Complete the application chart, as defined in chapter 3.
3. What are the current network protocols? Explain.
4. Inventory the main network devices, servers, firewalls, APs, PCs, telephony, cabling. Consider scenarios 1 and 2.
5. Complete the following table of strengths and weaknesses of the current network based on the technical objectives to be achieved according to the state of health of the network:

<i>Aspect</i>	<i>Strengths</i>	<i>Weaknesses</i>
Performance		
Availability		
Bandwidth usage		
Efficiency		
Response times		
Physical infrastructure, data and electrical cabling.		
Status of switches, routers, firewalls.		