Designing the infrastructure for the network essay sample

1. Draw a diagram of the new network. (10 points)

2. Will the current horizontal cabling suffice for the new network? If it will not, what type of cable should be used for the horizontal cabling? Provide detailed specifications for this cable. (10 points) I believe that it works with the current cabling, but if we wanted the network smoothly, I would use a Category 6 network cable. The DHCP, or a Dynamic Host Configuration Protocol cable, is a network protocol that enables a server to automatically assign an IP address to a computer from a defined range of numbers configured for a given network. It assigns an IP address whenever a system is started.

3. Should fiber optic horizontal cabling be installed but not terminated as future proofing for a future higher-speed network? What is the cost difference between copper UTP cable and fiber optic cable? Use this model to compute the relative cost—http://www. fols. org/cost_model. (10 points) Fiber optic cable is very expensive and is usually run on a WAN. If fiber optic cabling is already in use, I would leave the cable as it is, but if not, I wouldn't recommend using it because fiber optic is very expensive. If there are enough funds available, I would recommend using fiber optic cabling if the network is being used for a future higher-speed network.

Fiber optic cabling and copper UTP cables are very different when it comes to the cost for installing. They are roughly the same price for installation but not when purchasing a large amount of cable. Some of the long-term benefits of using fiber optic cabling include higher bandwidth, ease of scalability, and lower maintenance. Also fibers in the horizontal costs for

installation are very attractive. Overall, fiber optic cables are about 2-3 times more expensive than the standard copper UTP cables are. Fiber optic cable per foot=$. 40, UTP cabling =$. 32

4. Does this network require an access layer? What devices would operate at the access layer? Draw a diagram of these devices at the access layer. Label all of the devices. (10 points) This specific network does require an access layer, for the PC's, switches and databases because the computes in each office and lab need a switch nearby in order to communicate to the server or the internet. The devices that would operate at the access layer include switches, Hubs, and Database servers.

5. Does this network require a distribution layer? What devices would operate at the distribution layer? What would these devices be responsible for? Could the access and distribution layer be combined into a single layer? Draw a diagram of these devices at the distribution layer. Label all of the devices. (10 points) This network does require a distribution layer. The devices that would operate at the distribution layer include LAN-based routers and layer 3 switches, which are responsible for ensuring packets, are properly routed between subnets and VLANs in the enterprise you are using. The access and distribution layer cannot be combined to form a single layer. In the access layer, you have PC's, laptops, printers, phones, switches and connections to the switches. In the distribution layer, you have routers that connect to the switches. In the core layer, you have high-end switches; high-end speed cables (such as fiber optic cables) and ensures reliable delivery of packets.

6. Does this network need a core layer? What devices would operate at the core layer? (10 points) I don't think that this network needs a core layer because the whole network runs through a single server, which acts as a core for the system. If a core layer is necessary for this network, the network will run on a layer 2 or 3 switch along with a router in order to connect to other servers.

7. Is redundancy required at any layer of this network? If it is, where and how would this redundancy be added to the network? What device or devices would be used to make this network redundant? (10 points) There is no need for redundancy at any network layer in this setup, but if redundancy is required it is necessary to have two completely independent networks therefore, if one network is down, the other network can be used instead. Some devices needed to create redundancy include at least 2 switches and 2 modules in order for there to be redundancy in a network, therefore is a fault occurs, the network will still run smoothly.