

Good report about network analysis and design

[Technology](#), [Internet](#)



Being a consultant at XYZ educational institute, I have the responsibility to analyze and design the corporate network. There are different buildings in the campus of XYZ educational institute including main campus with labs, library, hostels, staff rooms, office departments like administration, examination, accounts, and so on. There are separate buildings for all like there is a separate building that only has a library and in other main building, there are labs and classes. Now what I have to do is to analyze the XYZ educational institute buildings and other requirements of teachers, students, and other staff. After a thorough analysis, I will design a network for the campus. In the preliminary phase of design I will only focus on designing a network for the main campus (labs and classes), and the office departments building.

Business Description

Objective

The institute lacks a network that can connect each of the institute's building. If there was a network then all building would be connected to each other and had been simplified the functions. The staff members might not be required to visit the other's building for smaller tasks. There are many other benefits of creating a network within the XYZ educational institute; for example, the network removes ambiguities in data, simplifies the functions, speeds up the activities, and minimizes the communication costs. Upon installing the centralized networked database, the staff members would be able to access it from anywhere in the building, the additions or updates will always be available to the staff members of the institutes, every staff member has the same copy of database with him/her. Another, plus point of

centralized database are the privacy options. The institute's network administrator can setup privacy settings as according to use; for example, the top management may be given full access to the data, but other staff members and students will be permitted to access selected information. In addition to database, there are other functions as well that can be improved upon creating a network like communication. Institute's personal email domain address can be developed that would make the system secure and keep the official data separately. Besides the various advantages, one but the most important constraint of the network is that it needs to be highly secure. Different security measures are considered to make the system safe and secure because there are risks that any hacker may also access the network and break into confidential information.

Network Configurations of Hardware, Software and Applications

In order to connect the buildings together in a network, there are certain things that has to be considered first; for example, how much distance is in between the locations that needs to be connected. In this case, there is not much distance between the library and the campus. Therefore Wide Area Network of WAN can be deployed. However, in order to first connect the computers and other machines within a single building Local Area Network or LAN can be deployed. After establishing a LAN, it can be converted into Wireless LAN in place of wired LAN. For expanding the area of wireless LAN, Wireless Ethernet Bridge can be used. Once, the LAN has been established at the building then it has to be connected with the LAN of the other building. For this purpose, routers and switches are installed to direct the data

packets to another network or device. Dedicated servers are installed for specific tasks; for example a separate server may be added in for the database, and a separate one for the emails, files, and so on.

The client computers all over the XYZ education institute will access the server for their network requests. Server responds to each client as per the request. The client computers will be installed with the Windows 7 Ultimate Operating System; however servers will be installed with the Windows Server 2008 Operating System. The choice of the Windows Server 2008 is being made because of the reason that it is more secure, support high level networking, reliability and performance monitoring tools, and many more plus points. Microsoft Windows Server 2008 supports various applications including Microsoft Application Virtualization 4. 5, Microsoft Commerce Server, Microsoft Office Server, Microsoft Exchange Server, Microsoft SQL Server, Microsoft Project Server, and many more applications. The hardware machines can be purchased from Dell as their company offers low costs and discounts for the educational institutes.

Most importantly, there is a need to connect with the internet service provider (ISP). One needs to make choice of the reliable internet service provider that guarantees security and a reliable service. Read the agreement and the privacy policies before connecting to the ISP. In start, the user has to pay for the registration as well as the monthly fees. Internet service providers usually offer data packages of an internet with a variable cost. For the case of an educational institute, there is a need of an unlimited package with high speed connection of an internet. Usually, 50 Mbps speed unlimited package works well for the organizations. It cost around \$100. The network

once developed does not require any more investments except the monthly internet service provider fees. However, the depreciation cost may also be added to the monthly circuit cost.

Network Diagram

The network design shows wide area network that is made through connecting two local area networks. Internet Service Provider provides an internet to both local area networks. Moreover, it also provides internet service to the centralized servers. A switch has been used to connect the client computers, other network devices like printer, fax, or scanner. Router connects the two networks together and allows the communication between them. By means of this design, the clients or the users of XYZ educational institute can access the centralized database server, file server or email server. By means of the centralized database server, users from the main campus will be able to access the database and make updates related to students' results or other details. On the other hand, the institute's office (administration, examination, or accounts) will use the updated information since it is centralized and any information added or updated will be shown to all users.

Cost of Hardware, Software, and other Basic Applications

The cost of hardware machines including, client computers, servers or workstations, router, switches, and Network Interface Cards vary based on the brand. However, the basic cost of the items remains the same. Initial, monthly, and yearly costs are measured based on the number of items and their costs. In addition to the basic costs of the items, depreciation cost is

added on yearly basis. The network cost will be increased when other local area networks i. e. staff rooms, libraries and other buildings will be added to the wide area network. In future, this network can be expanded up to even states or country wide by introducing virtual area network or cloud computing concept. The cloud computing concept is gaining high popularity nowadays due to its low cost capabilities and efficient usage but it is still thought to be not as secure as the traditional networks. However, it is expected that in near future, network designers and experts will be able to find a solution for it as well. In that case, the cost of the network may get decreased.

Financial Report

The financial report attached with the document briefs the initial expenses, monthly and yearly cost excluding initial one. Second sheet explains the monthly cost of the network. The next expenses will be same as the current year. However, new initial cost is added but just the monthly services and maintenance charges will be applied.