Introduction-

Under the employ Nguyen Networking Limited, during the first phase an initial plan was developed for Jin Ping Educational Institute, outlining the several network types and topologies. I have further prepared an elaborated in-depth view of the relayed plan with a rough insight of the proposed network model that is needed for the formation of the network. Here I have displayed the techniques and how we will form the network within the three floors , in detail.

Task-A. Elaborate the advantages for network design and planning strategies

- A reliable network design is very crucial in every day implementation. A better network design ensure the constant high level of performance, which can bring forth visible difference within the reaction time and response of the plethora of computers in the network, given that the network design is optimized and properly implemented. A well designed network can for minimal downtime of the important applications required to be executed within a network in the event of a malfunction. Otherwise, resulting in the eradication of the loss of a whole client to server session in the event of a procedure failure.

  Hence, creating a good network design is very crucial for a seamless implementation and can be beneficial when more devices are added to the network and proper support can be given with the chances of a crash event reduced to minimal.

- The three floors of the Jin Ping Educational Institute are to be connected. In each respective floors, individual networks are to be formed, and the following networks of each floors are connected to individual switches, which will receive and unicast the data to the designated end device. The three switches will then be connected to a router which will direct an broadcast data to the different switches.

Task-B. Design a network and reason the design decisions made, elaborating how the design will fulfil its purpose and meet client requirements.

- The three different floors contain switches with an individual IP address assigned to each floor, Fist floor with the IP address (192.168.1.1), Second floor with the IP address of (192.168.2.1) & the Third floor with the IP address (192.168.3.1). The first floor contains 2 servers(1 DNS server and an FTP server) along with a laptop and a PC to configure the network, the second floor contains 5 PCs and 2 Laptops for the teacher and students and finally the third floor contains the HTTP server for the website of the institute along with 7 PCs for the students and teachers. The end devices and servers are configured and connected to the switches which are in turn relayed and connected to the router which is also configured.

  As a result an overall network design is shown in the above figure which gives a rough idea how the network is to be formed and configured.

Task-C. Test the network to ensure client requirements are met.

For the formed network a test is required in order to test whether or not the PCs or laptops in the networks can communicate or not. This can be carried out by the “Ping” command form a command prompt of any PC or laptop.

From the above displayed design, for the test PC0 from the first floor with the IP address of 192.168.1.2 is used to communicate with another laptop from the third floor Laptop 3 with the IP address of 192.168.3.8.

Here after pinging form PC0 from the first floor, the first time the connection timed out due to the server trying to form a connection, whereas the PC0 received a reply three times , which proves that the network is well functional and can communicate with different PCs on the network.

The same process can be done to test the HTTP server or from a browser. A PC form the first floor is used to access the website form the browser by going to the link address

‘www.jinpingeducationalinstitute.com’.

From the PC0 from the first floor with IP address 192.168.1.2 the website hosted by the HTTP server on the third floor is accessed by going to the address ‘www.jinpingeducationalinstitute.com. The result is the display of the website which shows the HTTP is properly configured and connected to the network.

Task-D. Demonstrate individual responsibility and effective self-management in the planning and implementation of the network

In the Jin Ping Educational Institute, the 3 floors of the institute are connected together with 3 different networks. On each floor they end devices such as PCs, Laptops & several servers are connected to a Network, for uni-casting the designated data to the intended end-device. The end-devices are configured with assigned IP addresses unique of each switch of the individual floors.

After the end-devices are connected to the respective switches, they are configured and certain number of ports are disabled.

The switch with the IP (192.168.2.1) is configured using the CLI command prompt and the ports of the switch are disabled from 8-24.

Hence, when another end device (PC) is connected, it does not receive any network and is disconnected from the network. This is shown by the red arrows on the copper straight through wires.

The servers added to the network are now required to be optimized, which is done by adding a DNS server for the HTTP server. The services are turned on and using the DNS server the IP address of the HTTP address is given a name- “www.JinPingEducationalInstitute.com”.