Network topology design

Technology, Information Technology

Network Topology Design Executive Summary In the current speedy and constantly advancing technological world, designing of a high quality network topology is always a very crucial subject of concern (Karris, 2009). In essence, a quality network topology design results into in a computer network configuration that maintains confidentiality, integrity and all time availability of services. On this regard, this paper lays major emphasis on designing quality network topologies via an account of an account of a company that has been experiencing aggressive expansion every year.

It is vital to note that this paper provides a well outlined explanation for three different network topologies. Major emphasis has been laid on the use of a three-layer hierarchical model. The company's initial network configuration revolved around ten (10) users. This lays the foundation for the first network topology. By the end of the first twelve months, the number of users or employees rose to one hundred. Consequently, this rise in the number of employees acts as the building for the second network topology design. Lastly, it is projected that in the second year, the number of employees will again rise by one hundred.

As indicated in the network topology diagram below, the initial computer network configuration at the company is composed of ten user computers. This is to offer services to the company's ten employees. For efficiency and smooth connectivity, a three-layer hierarchical network model has been applied. This is to promote successful execution of the day-to-day company operations. In essence, the model provided a quality platform for flexibility, which is a key requirement for the aggressive expansion in the company's networking operations. The assumption for this initial model is that, virtual

private network connectivity is the main security mechanism. This is because, as indicated in the diagram, all operations are within a network that has been well integrated into one coherent unit (Karris, 2009).

It is essential to clarify that the second diagram below provides an extended version of the initial company network. This is because the number of employees has increased to one hundred. The main assumption for this network configuration is that it is divided into two virtual local area networks (VLANS). That is, each router is composed of its own local area network. This is to promote efficient management of each segment of the company network where one of them connects to the company warehouse. It has also been assumed that, each of the switches has a minimum of thirty ports. This is to support connectivity to the required one hundred computers in the company (Karris, 2009).

Lastly but certainly not the least, the third diagram provides the projected computer network configuration. Its scope is to support a total of two hundred users along with an offsite recovery centre or server area. The main assumption is that, access control lists have been implemented on each of the company routers and switches. This is to prevent any unauthorized user (hacker) access to the company resources. It has also been assumed that, due to the ever-advancing global cyber crime or insecurity issues, a cloud network connectivity should be implemented to further aid in disaster recovery (Karris, 2009).

References

Karris, S. (2009). Networks: Design and management. Fremont, Calif: Orchard Publications.