Network topology design

Network topology models Network topology models Network topology is defined as the arrangement of a variety of computer elements which may include linking computers using links and nodes (n-nodes) among other elements (they way network is configured physically or logically). This is usually done to ensure sharing of resources such as the printers, internet among other for the purpose of minimizing the cost of buying resources. In this paper, am going to depict various network topology models. For instance, I will start by that for ten employees, hundred employees and finally two hundred employees. For the case of these increasing numbers of employees, it is recommended for a company to use hierarchical topology where we will have a hierarchical network with one or more powerful server controlling the entire network; departmental server control lower levels of processing and network devices. A good example of this type of network is that of retail clothing with a central computer that stores the data about the sales activity. When it comes to the case of hundred employees or more, one is recommended to use a meshed network with a switch going them and a router (router can be used to connect LANs or WANs) extending the network. This is to make sure that there is efficient communication within the organization or a company. However, when designing a network topology which is a crucial step towards logical design phase of the top down-down networking scheming methodology. In addition, it is important for one to identify networks and interconnection points within it. A flat network topology is sufficient for very small networks (ten employees or less); with this kind there is no hierarchy, each networking devices has its necessary job. But with the growing numbers of clients, it becomes undesirable, lack of

hierarchy make trouble shooting difficult within the organization

(Oppernheimer, 2004, p. 133).

When numbers of clients in organization increase, it recommended for the company to use meshed hierarchical design, there are two types of hierarchical models; partial mesh hierarchical model and full meshed model. In partial meshed hierarchical design, we have the core layers at the headquarters i. e. head of departments followed by the distribution layers. This kind of network topology is recommended for hundred clients in an organization. This model is usually implemented using hubs, with little mesh network among the clients. On the other hand, full meshed network topology can be used to meet the demands of large number of clients (two hundred employees); a good example of this type of network topology is that of Cisco systems, Inc. this type of topology is at times called the three layer hierarchical model since it involves three layers of clients; the cooperate clients, headquarters clients and the distributed clients. Despite this model being developed when routers were first developed, it can also use switches where each layer of the hierarchy has a role; the core layers provided transport between sites, while the distributed layers connected the networks to provide access and insured security of information. For example in WAN design, the access layers consist of the routers at the end of the network, this is closely attached to access layers which has switches and hubs for end users to use. In general, hierarchical topology is not usually prone to problems since it is well managed. It is a simple one to understand for users since each layer has its own function, faults isolations is improved because technicians can easily identify the transition points with problems and

possible rectify them. On the other hand, large meshed topology can be quite difficult to identify faults, when replacement of devices in the topology is done; it may lead or create complex interconnection failures leading to inefficiency of the network (Oppernheimer, 2004, p. 134).

Reference

Oppernheimer, P. (2004). Top-down network design. Indianapolis, Cisco press