The Bus Network Essay, Research Paper

The Bus Network

The world revolves around technology. Everywhere we go we are affected either directly or indirectly by technology. In fact, almost everything that surrounds us is a product of technology. Cell phones, beepers, television, radio; these are just a few basic examples of technological advancement in our human history. Of the many remarkable achievements of technology, there is one that stands out on all of them: Computers.

Computers started out as very complex machines to use and can only perform limited tasks for the user. However, as time passed by, computers evolved as very useful machines and, moreover, became user-friendlier. Still, man did not stop there. For man s need of sharing information, they found a way of setting up computer networks. A network can be defined as an interconnection of two or more communicating entities, or simply, a computer system that links two or more computers. Networks can either be a Local Area Network (LAN), a Wide Area Network (WAN), a Metropolitan Area Network (MAN), or an Enterprise Network. A LAN is a data communications network in which the computers are close to each other, usually in the same office or building. LAN typically includes a collection of computers and peripherals; each computer and shared peripheral is an individual node on the network. A WAN is a communications network that extends over a long distance. WAN uses devices such as telephone networks, satellite dishes, or radio waves to span a larger geographic area than can be covered by a LAN. A MAN is a data network intended to serve an area the size of a large city. An Enterprise Network can either be a LAN, WAN, or MAN, however, an Enterprise Network is restricted to one organization.

Now that we know the kinds of computer networks, have we ever wondered how these networks are connected to one another? Are these computers just plugged-in together by some kind of wire and then they re ready to work? Actually, networks need a special physical and logical design in order for them to function properly. This physical and logical design is what we call Network Topology.

Network Topology has six major categories: the Star Network; the Hierarchical Network; the Mesh Network; the Bus Network; the Ring Network; and the Hybrid Network. We can use either one or a combination of these networks; it just depends on what suits our needs.

The Bus Network, being the simplest form of network topology, is what I prefer to write about.

A Bus Network is a network topology in which multiple nodes are attached to a single circuit of limited length. A Bus Network is typically a local area network that transmits data at high speed.

In a Bus Network, devices are attached to the bus by a tap connection that breaks into the bus cable. The Bus Network has many special characteristics. Examples of these characteristics are as follows: when a computer or node sends data to another node, every computer or node in the bus receives the transmission, however, only the computer that was addressed is the one that responds; to prevent transmission from bouncing back and forth between the communicating computers, a phenomenon known as signal bounce, a device called a Terminator is placed at each end of the Bus Network. Another characteristic of a Bus Network is that it uses a single cable connection. Bus Networks use coaxial cables, which is a transmission line for high-frequency signals. Lastly, when there is a need for expanding the Bus Network, all that is needed is a T-connector and the network is ready for expansion.

The Bus Network is one of the most commonly used networks today. It is very efficient to small businesses. One of the reasons that many businesses choose to use this type of network is because it is easy to set up. On top of it s setting up being easy, the Bus Network is very cheap and easy to expand.

To every advantage there is a disadvantage. The Bus Network has its fair share of disadvantages. Since the computers or nodes are connected in a single line they are dependent with one another, so if one crashes, the whole network crashes. Troubleshooting computers that are connected by a Bus Network is very difficult. As mentioned earlier, if one node crashes, the entire network is affected, and it will only function again when the defective device is disconnected from the network. Imagine if your system crashes, you have to disconnect the devices one by one in order to find the defective device. This is a very long and tiring process. Another disadvantage of using the Bus Network is that expansion of this network is limited due to attenuation; which is the weakening of a signal in accordance with distance.

Now, if you are considering building a network, you have a wide variety of choices. Only by understanding the characteristics, advantages, and disadvantages, between the various types of network topologies, will you be able to reach a reasonable solution for what particular network will best suit your need.

Works Cited

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