Wired Media

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ITCO 251 Network Infrastructure Basics

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April 9, 2017

AIU Online

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A wide area network is a network that connects two local area networks (LANs) (Dean, 2013, p. 293). These connections can either be done wirelessly or via wired connections. In this paper, I will be talking ab out various wired connections and devices and how they relate to both WANs and LANs respectively. There are many options to choose from the type of cabling to use to what type of network adapter to connect to when connecting terminals to the network. Internet connectivity is important too if you want to connect your network to multiple locations.

A wide area network can be organized among a university campus. As long as the distance between the buildings is less than 1 mile and a line of site can be seen, then those buildings can be included inside the network (American InterContinental University, 2017). An example of this would be a university campus or a medical campus.

There are three different types of cabling used in wired networking. This can vary from cable television service to internet service, as well as telephone wiring. The first and most common type of cabling is twisted pair cabling. This type of cabling is very flexible and less expensive than fiber optic or coaxial cabling. It is also very easy to work with. The down side to working with these copper wires is that they are prone to eavesdropping, which is not very secure if you are looking to transmit sensitive information across your network (LabSim, Section 2.1, 2017). The major benfit to using this type of cabling is its ease of use and it offers higher bandwidth the tighter the twist in the cables. Also, newer protocols use this type of cabling.

The second type of cabling used in networking is coaxial cabling. This is a much older technology and is most commonly seen when hooking up cable tv or internet connections. Usually it is connected in a bus network topology, although its not commonly used that way today. Some advantages to coaxial cabling include resistance to electromagnetic interference or physical damage and not prone to eavesdropping like twisted pair cabling. These cables are super thick, which is one of the disadvantages (LabSim, 2017, Section 2.2). Because they are so old and thick, they are very expensive to install. You usually have to call the cable or satellite company to help you install a connection to the building if you do not have one. Also, modern high speed networking standards typically do not support coaxial cabling. More often we are seeing twisted pair and wireless connections because they are faster and cheaper to implement.

The most advanced type of cabling is fiber optic cabling. Fiber Optics do not use electricity, but instead use light waves to transfer data. This supports super high fast transmission rates. Since electricity is not used, it is immune to electromagnetic interference and reduces eavesdropping, making it very secure when transmitting data. Usually these types of cables are used for backbones of very large networks and are typically not meant for small businesses or home users. They are also more difficult to work with making them more expensive to install and implement.

Eventually, however, more and more fiber optic connections will be sued to give us faster WANs so we all can enjoy the fastest internet technology has to offer. In the past, the fastest connection we could get was a T1 line, but as networks grow bigger and bigger, fiber optics are becoming more common. These days, fiber optic cabling would be perfect for a client who has a network that has multiple locations across the country. They would implement single mode fiber optic cabling which transmits a very large amount of data. The size of the cable is very tiny so it may travel the long distance. The wider the cable, the shorter the distance it can travel because they have to keep the rays of light in the center of the cable. Multi-mode cabling is used for short distances with data rates up to 1 Gbps (LabSim, 2017, Section 2.3).

A local area network (LAN) is a network that is connected locally, usually in one floor or a whole building. This can connect to a larger network called a wide area network (WAN). Inside this network, they are all connected to the internet through routers that sends that signal to a hub usually provided by an internet service provider. The ISP’s job is to provide access to the information highway and link all these routers to a gateway or hub, which connects to other hubs across the globe.

In summary, networks can be connected a variety of different ways and can vary in size and structure. There are also many different types of ways to wire a wired network connection. Fiber optic cabling is expensive but offers a very fast connection speed. Twisted pair cabling is most commonly used and is easy to manage. The internet has spawned the growth of many different types of networks and more are on the way. Wireless connections are becoming more common among households and I do not think they are going anywhere any time soon.

References

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