Networking

Technology, Information Technology

Computer Science, Information Technology and Networking al Affiliation) According to Forouzan et al., conventionally, there are four major media formats of transmission. They include, the twisted pair cable, the coaxial cables, wireless and fiber optics. However, they all possess varying characteristics and transmission capacities. The media types differ in terms of performance, bandwidth, distance between repeaters, susceptibility to noise, their costs and their security needs (Forouzan et al., 2007). Their differences are highlighted in the table below.

Media Type

Bandwidth

Performance

Distance between Repeaters

Twisted Pair Cable

1MHz

Poor

Very short

Coaxial Cable

1 GHz

Fair

Short

Wireless

100 GHz

Good

Moderate

Fiber Optics

75THz

Excellent

Very far

Some characteristics such as security are difficult to compare and contrast because they differ in terms of their transmission mode. For example, security needs may entail authentication, encryption security levels and modes of detecting intrusion. Additionally, the costs involved in the three mediums are difficult to contrast due to the different costs involved such as- acquisition costs, installation costs and maintenance costs.

With regards to the data transmission speeds of coaxial cable, microwave, fiber optic cable, satellite and twisted pair cable, in descending order, they are as below :-

a. Fiber Optic Cable

b. Satellite

c. Microwave

d. Coaxial Cable

e. Twisted Pair Cable

For an entrepreneur who wants to establish a global satellite radio system, I would begin with using at least two GEO satellites strategically placed above the globe. This would enable the satellites to transmit signals to the radio satellite receivers. Additionally, the entrepreneur would have no interference since the satellites are placed directly above the earth and would orbit continuously. The frequency of the transmission would range from 5GHz to around 30GHz.

A synchronous connection can be likened to a lift that stops every floor to

allow people on and off from the ground floor to the tenth floor. The first four floors refer to the input messages, while the next six floors are responsible for producing data.

The network chosen is a local LAN, which is wirelessly connected and also through coaxial cables. If additional media is required, a USB cable can be used for connecting to the network. In some instances, one may want to use an external hard drive. In such instances, the hard drive is connected either via the USB or wirelessly.

References

Forouzan, B., & Fegan, S. (2007). Data communications and networking (4th ed.). New York: McGraw-Hill Higher Education.