TRANSMISSION MEDIA date : 17.03.2006 [1]

Sankar Tejaswi

03CS1001

[1]

A. Performance
Transmission Media

- Transmission medium is the physical path between transmitter and receiver.
- The characteristics and quality of data transmission are determined both by thecharacteristics of the signal.
- Transmission media are broadly classified into two types.
  - Guided Transmission Media : Medium is more important in determining the limitations of transmission.
  - Unguided Transmission Media : Bandwidth is more important than the medium in determining transmission characteristics.
- The three guided media commonly used for data transmission are twisted pair,coaxial cable and optical fibre.
- Twisted pair consists of two insulated copper wires arranged in a regular spiral patern.A wire pair acts as a communication link.It may be used for both analog and digital transmission.
- Twisted pair comes in two varieties
  - Shielded and unshielded.
- Coaxial Cable consists of two conductors but is constructed differently to operate over a wider range of frequencies.It consists of a hollow outer cylindrical conductor that surrounds a single inner wire conductor.
- Coaxial cable is also used to transmit both analog and digital signals.
- An optical fibre is a thin flexible medium capable of guiding an optical ray.It has a cylindrical shape and consists of three concentric sections : the core, the cladding and the jacket.
- Optical fibre transmits a signal encoded beam by means of total internal reflection. There are mainly three forms of propagation

[1]Ref: Data and Computer Communications by William Stallings

  - Step-index multimode.
  - Graded-index multi mode.
  - Single mode.
- For unguided media, transmission and reception are achieved by means of an antenna.
- The various types of waves used for wireless transmission are
  - Terrestrial Microwave.
  - Satellite Microwave.
  - Broadcast Radio.
  - InfraRed.
- Wireless propagation is through one of the following routes
  - Ground wave.
  - Sky wave.
  - Line of Sight.
- For figures refer fig 4.2,fig 4.4 and fig 4.8 of Stallings.