

MULTIMEDIA COMMUNICATION



Chapter 2 Multimedia Communications

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MMS2401 – MULTIMEDIA SYSTEMS & COMMUNICATIONS (3 CREDITS)

CONT:

Multimedia Communication Network

◆ Interactive Multimedia Networks

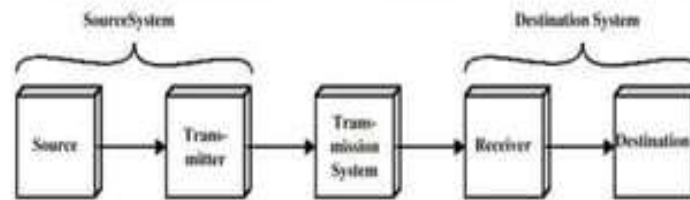


What is Multimedia?

- ▶ Multimedia is the use of computers to present text, graphics, video, animations, and sound in an integrated way.
- ▶ The term Multimedia describes a number of diverse technologies that allow visual and audio media to be combined in new ways for the purpose of communication.
- ▶ Its application include entertainment, education, medicine, advertising etc.

CONT:

Data Communication Model



(a) General block diagram



(b) Example

CONT:

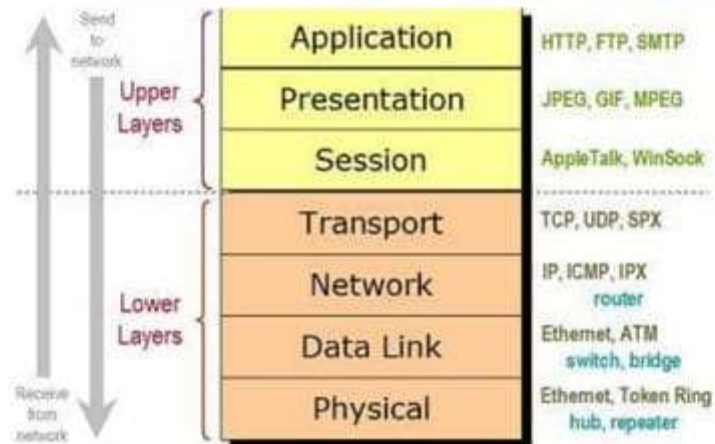
Multimedia Communication

- ▶ **Multimedia communication involves showing information in multiple media formats.** Images, video, audio and text all are part of multimedia communication. A single instance of multimedia communication does not have to have all four components.
- ▶ Examples: Websites, Information Kiosks and Interactive Media



CONT:

Multimedia Communication Network Components



CONT:

Channels / Mediums

- ▶ A communication channel refers either to a physical transmission medium such as a wire, or to a logical connection over a multiplexed medium such as a radio channel.
- ▶ A channel is used to convey an information signal, for example a digital bit stream, from one or several senders (or transmitters) to one or several receivers.
- ▶ A channel has a certain capacity for transmitting information, often measured by its bandwidth in Hz or its data rate in bits per second.



CONT:

Choice of Channels

- ▶ We choose wireless mediums if we require just a limited amount of speed. For e.g. for a home or office connection where we use the network for personal file sharing and for streaming multimedia contents. Also it covers a limited reason of space.
- ▶ Wired medium are used if we need a very high connection speed, this is usually true in case we want to transfer over an Exabyte of data. It also allows for a reliable long distance connection between computers.
- ▶ Choice of channels depends on
 - ▶ Availability of channel
 - ▶ Availability of equipment
 - ▶ Ability to use the channel
 - ▶ Ability to understand message
 - ▶ Economic considerations
 - ▶ Time problems

CONT:

Media Types and Classification

- ▶ Audio (MP3, WAV, AIFF)
- ▶ Video (MPEG, AVI, MP4)
- ▶ Graphics (JPEG, PNG, TIFF, GIF)
- ▶ Text (HTML, TXT, RTF)

CONT:

Medium Types and Classification

There are 2 multimedia transmission mediums

▶ Wired



- ▶ Co-axial Cable
- ▶ Twisted Pair Cable
 - ▶ Shielded Twisted Pair Cable
 - ▶ Unshielded Twisted Pair Cable
- ▶ Fiber Optics Cable
 - ▶ Single Thread
 - ▶ Multi Thread

▶ Wireless

- ▶ Microwave (Satellite Waves)
- ▶ Radio wave (FM, AM, Bluetooth, Wi-Fi, Cellular Network)
- ▶ Light Waves (Infrared, Li-Fi)



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CONT:

Concept of Information

- ▶ Information is that which informs.
- ▶ When raw data are well arranged, they become information that gives meaning
- ▶ Example: Graphs, Charts, Articles, Graphics, Movies etc.



CONT:

Information Structure

- ▶ Information structure refers to how data are arranged in order to give a related useful meaning as information.
- ▶ Information Structures can be:
 - ▶ Tabular Structure
 - ▶ Spatial or temporal structure
 - ▶ Trees, network or graphs
 - ▶ Text and documentation
 - ▶ Combination of multiple strategies

