

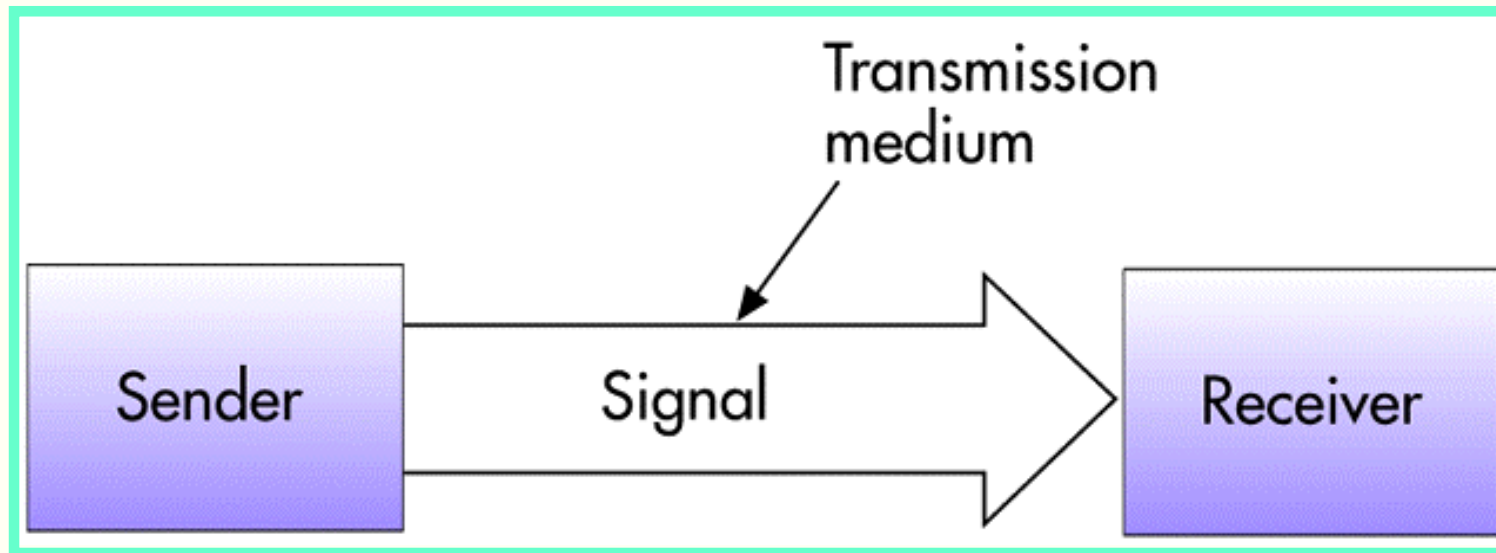
EMERGING TECHNOLOGIES IN LIBRARIES & INFORMATION CENTERS

LISC-01403
(Foundation –IV)



Communications

- Communications
 - The message (data and information) is communicated via the signal. The transmission medium “carries” the signal.



Telecommunications

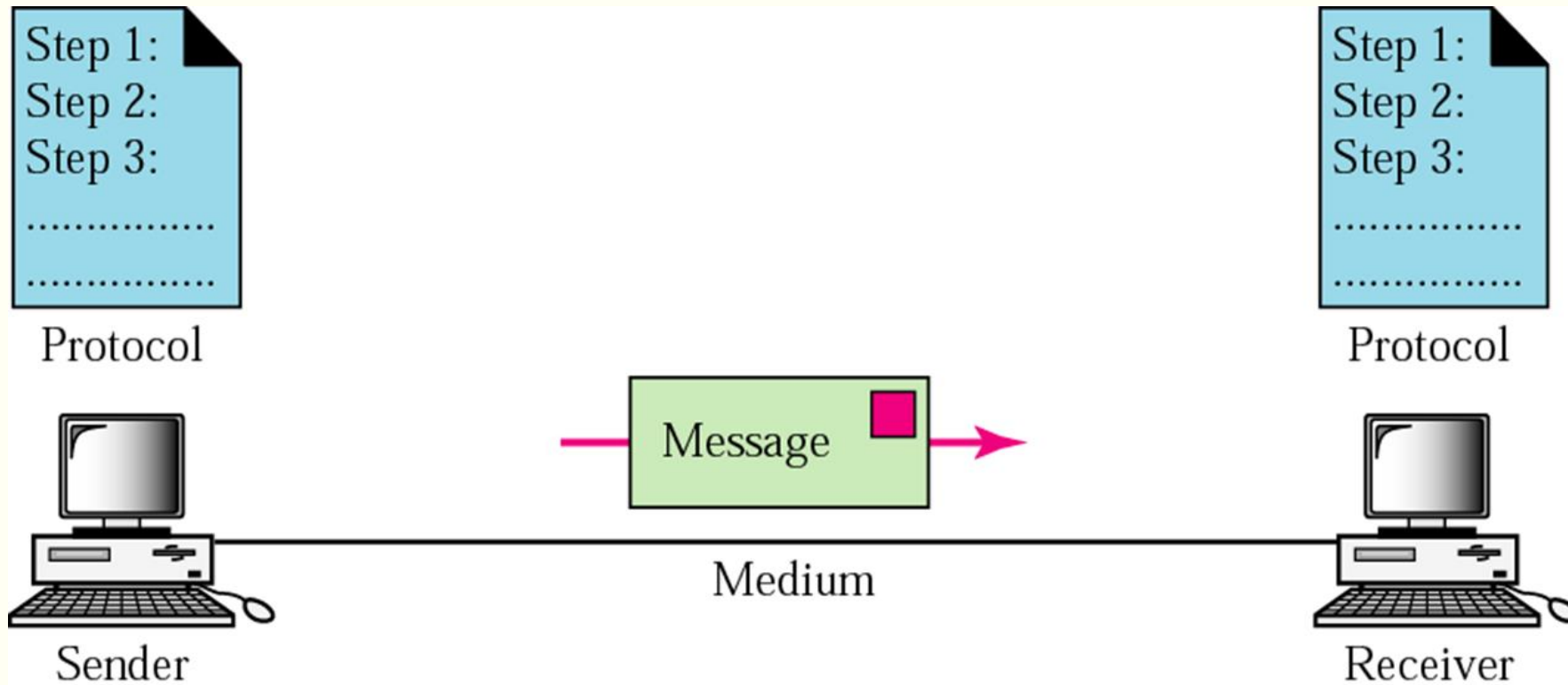
- Telecommunications
 - The electronic transmission of signals for communications, including such means as:
 - Telephone
 - Radio
 - Television

Telecommunication medium

Anything that carries an electronic signal and interfaces between a sending device and a receiving device.

Data Communications

- Data communications
 - A specialized subset of telecommunications that refers to the electronic collection, processing, and distribution of data -- typically between computer system hardware devices.



Computer Network

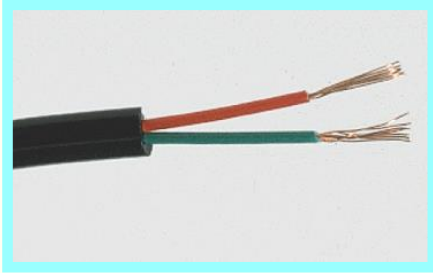
A network, in computing, is a group of two or more devices that can communicate. In practice, a network is comprised of a number of different computer systems connected by physical and/or wireless connections.

The scale can range from a single PC sharing out basic peripherals to massive data centers located around the World, to the Internet itself. Regardless of scope, all networks allow computers and/or individuals to share information and resources.

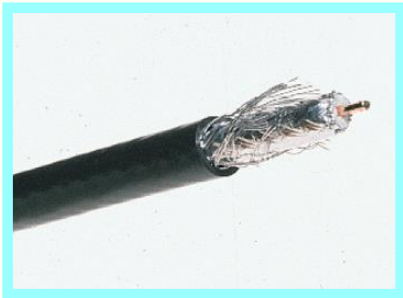
Computer networks serve a number of purposes, some of which include:

- Communications such as email, instant messaging, chat rooms, etc.
- Shared hardware such as printers.
- Shared data and information through the use of shared storage devices.
- Shared software, which is achieved by running applications on remote computers.

Types of Telecommunication Media



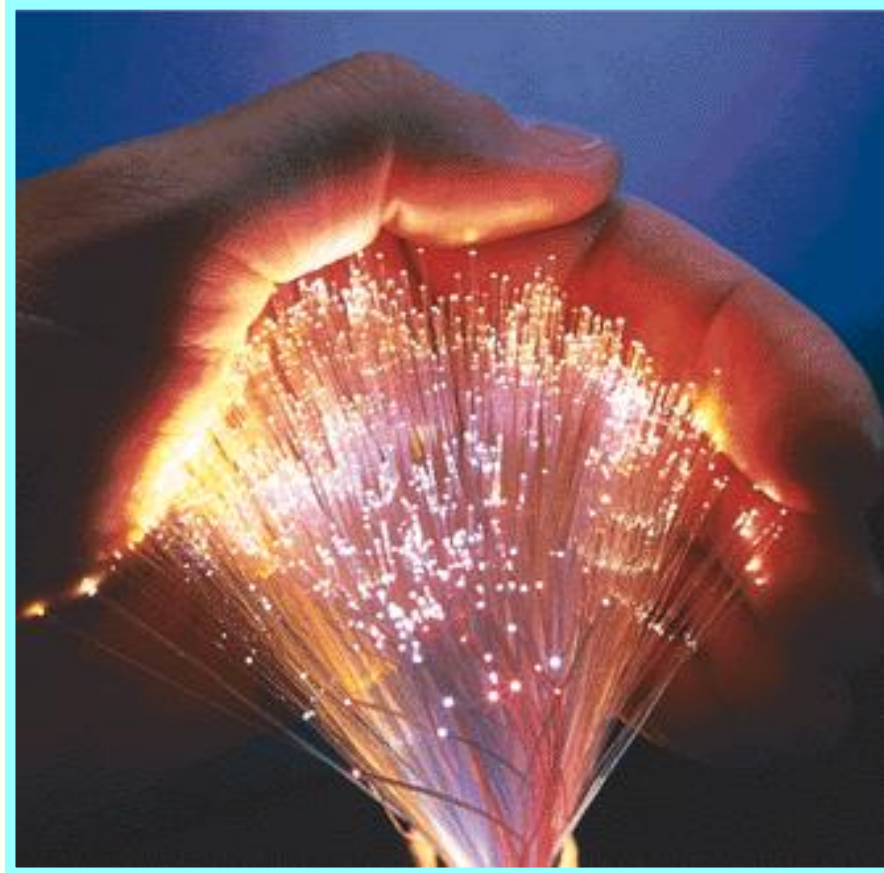
- Twisted Pair Wire Cable
 - Insulated pairs of wires historically used in telephone service and to connect computer devices.



- Coaxial Cable
 - Consists of an inner conductor wire surrounded by insulation, called the dielectric. The dielectric is surrounded by a conductive shield, which is surrounded by a non-conductive jacket. Coaxial cable has better data transmission rate than twisted pair.

Types of Telecommunication Media

- Fiber-optic Cable
 - Many extremely thin strands of glass or plastic bound together in a sheathing which transmits signals with light beams. Can be used for voice, data, and video.



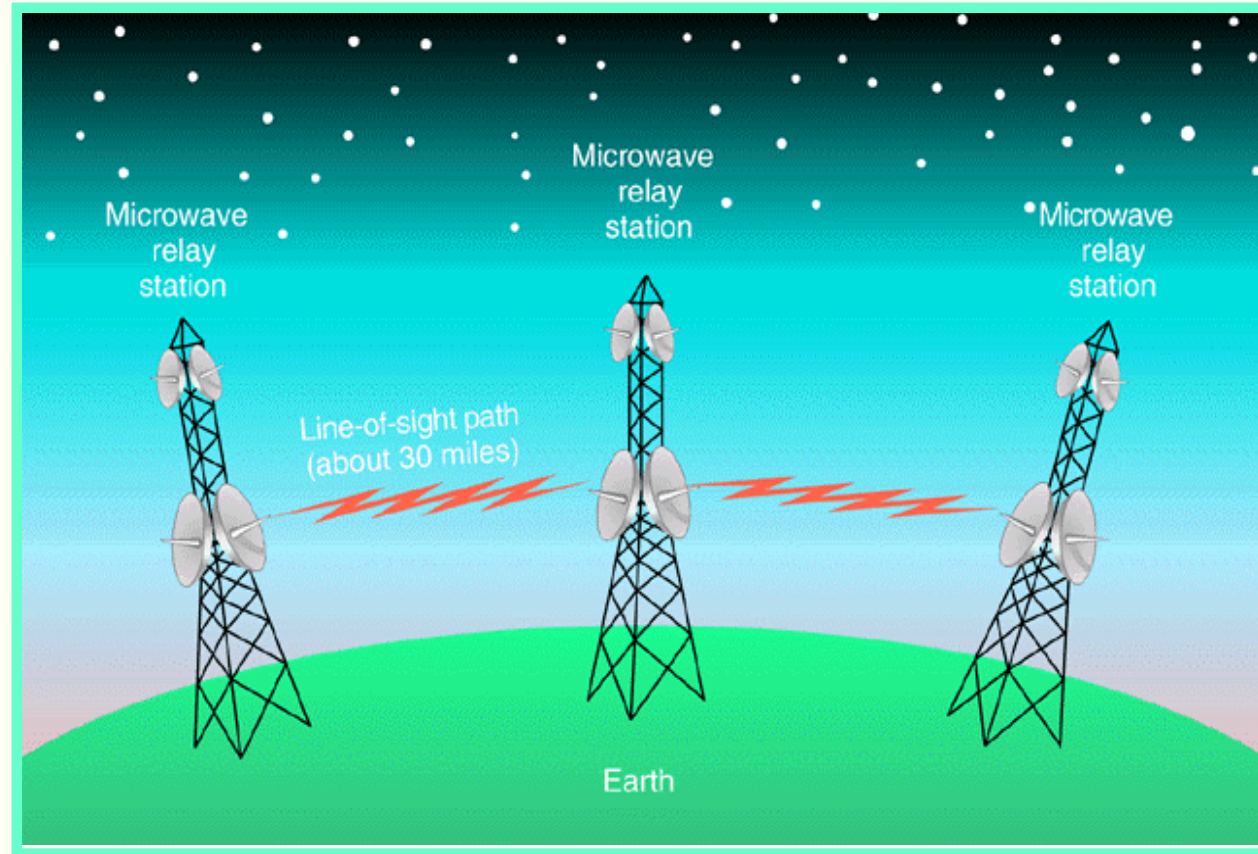
Types of Telecommunication Media

Microwave Communications

Line-of-sight devices which must be placed in relatively high locations.

Microwave Usage

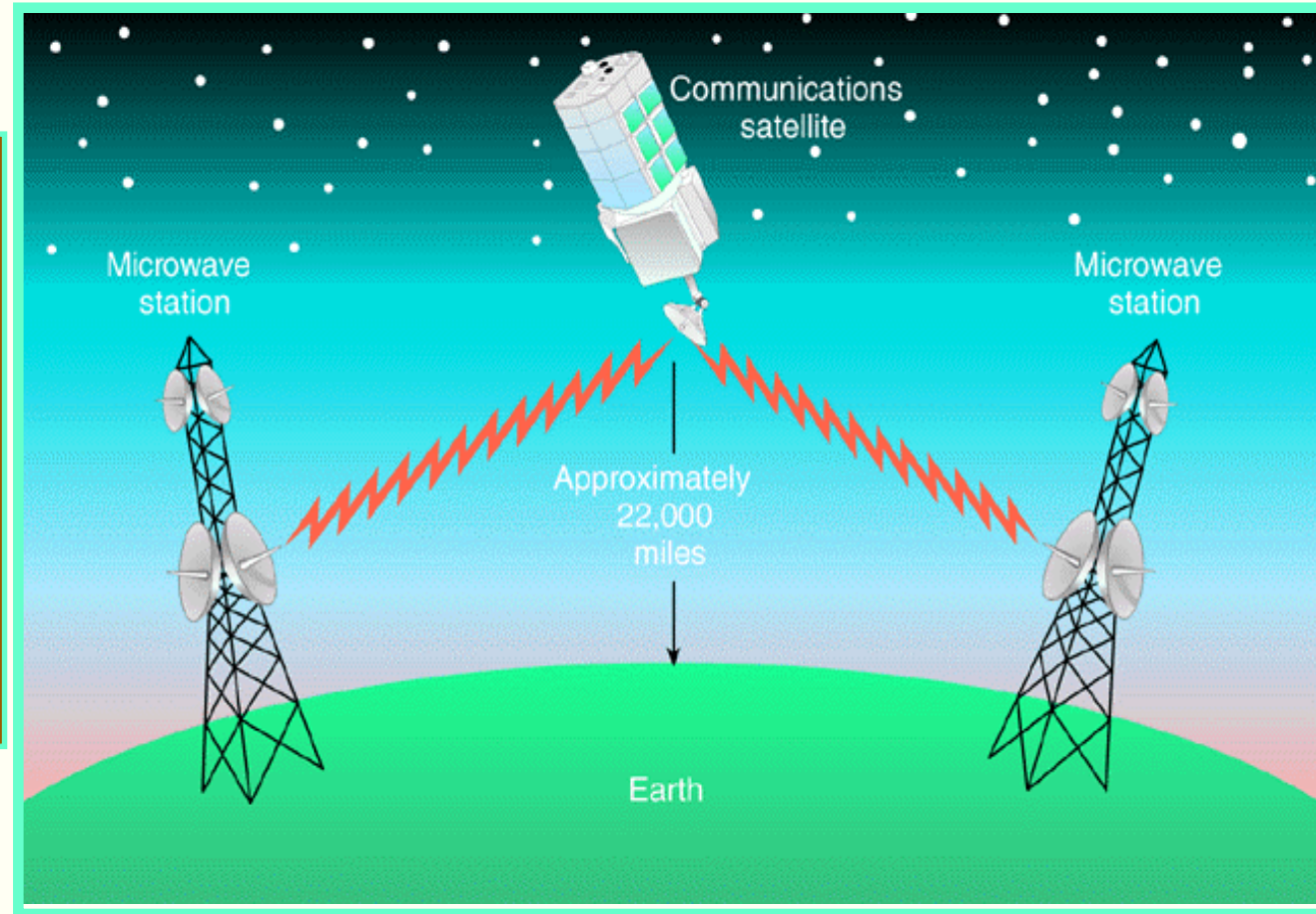
Information is converted to a microwave signal, sent through the air to a receiver, and recovered.



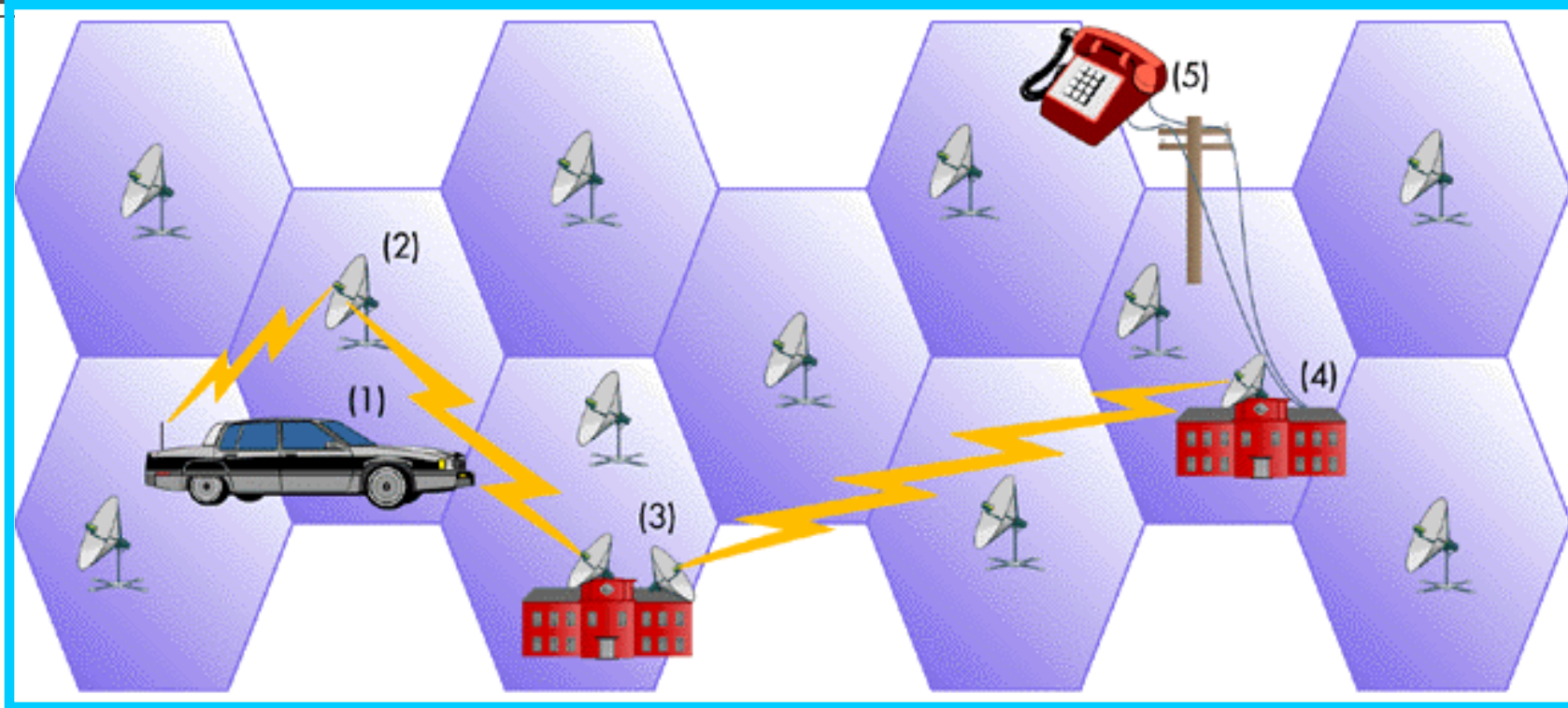
Types of Telecommunication Media

Satellite Transmission

Communications satellites are relay stations that receive signals from one earth station and rebroadcast them to another.



Types of Telecommunication Media



Cellular Transmission

Signals from cells are transmitted to a receiver and integrated into the regular network.

Types of Telecommunication Media

- Infrared Transmission
 - Involves sending signals through the air via light waves.
 - Requires line-of-sight and short distances (a few hundred yards)
 - Used to connect various computing devices such as handheld computers