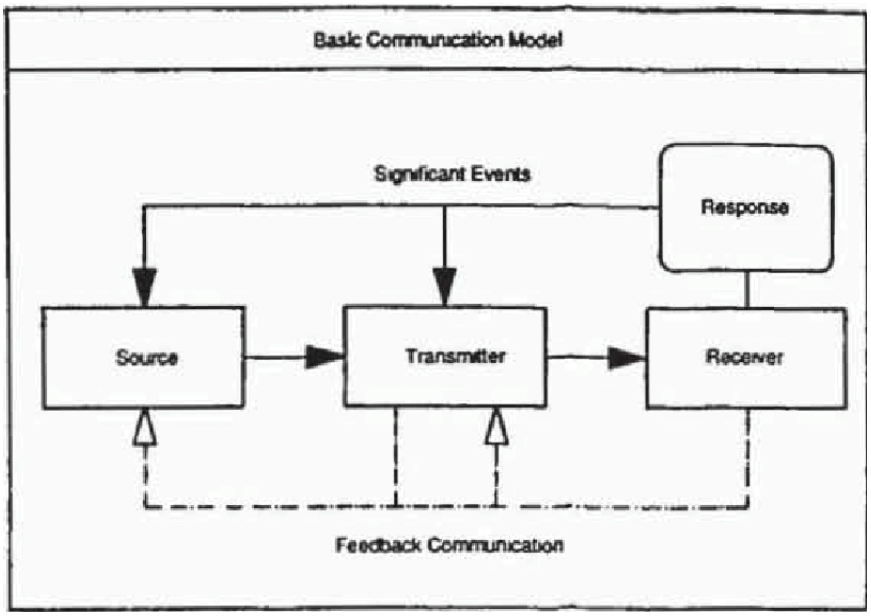
Basic Communication Model



1.1 basic communication model.

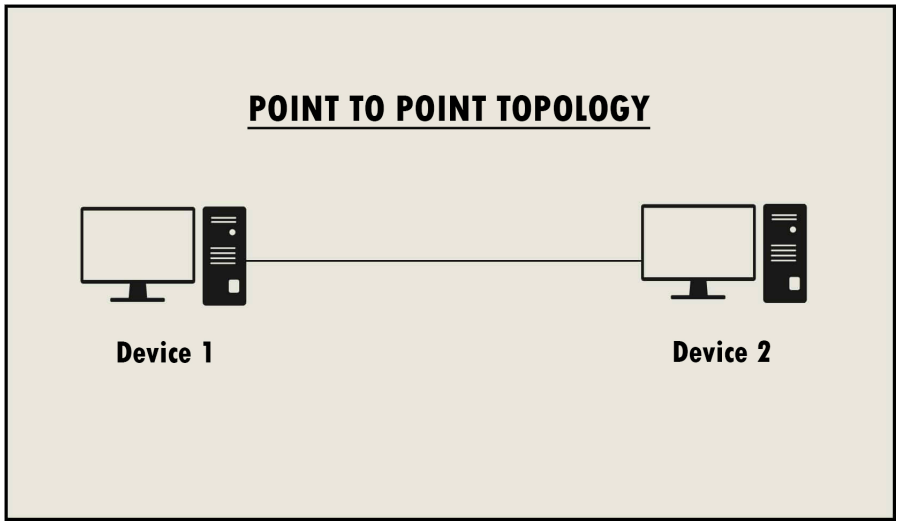
1. **Source -** The source is the origin of the message. Source can also be analogous to sender as the messenger provides the initial context of the interaction. The source must have basic communication skills such as reading, speaking and listening to be an effective communicator.
2. **Transmitter -** A transmitter is an electronic telecommunications device used for transmitting data. Transmitters (also known as radio transmitters) generate radio waves from an antenna and use them to send and receive data. The purpose of radio transmitters is the communication of information over a distance.
3. **Transmission system -** Consists of information/data transmission from one point to another like that the original/main information signal is passed through various stages and then undergoes so many changes in its orientation and features because of noise and attenuation.
4. **Receiver -** The receiver is directly across from the speaker. The receiver can also communicate verbally and nonverbally. The best way to receive a message is to listen carefully, sitting up straight and making eye contact. Don't get distracted or try to do something else while you're listening.
5. **Destination -** The destination is the final stage in the communication system. Generally, humans at some places are considered as the destination. A destination is a place where humans consume information. For example, if you are watching TV, you are considered as the destination.

Following are some business applications of computer networks:

1. **Resource Sharing:** The goal is to make all programs, equipment(like printers etc), and especially data, available to anyone on the network without regard to the physical location of the resource and the user.
2. **Server-Client model:** In this model, the data is stored on powerful computers called Servers. Often these are centrally housed and maintained by a system administrator. In contrast, the employees have simple machines, called Clients, on their desks, using which they access remote data.
3. **Communication Medium:** A computer network can provide a powerful communication medium among employees. Virtually every company that has two or more computers now has e-mail (electronic mail), which employees generally use for a great deal of daily communication.
4. **E-commerce:** A goal that is starting to become more important in businesses is doing business with consumers over the Internet. Airlines, bookstores and music vendors have discovered that many customers like the convenience of shopping from home. This sector is expected to grow quickly in the future.

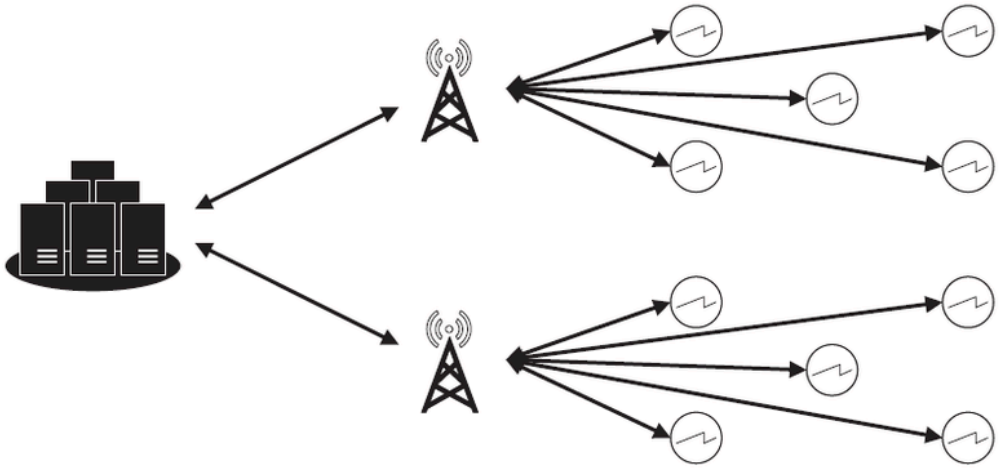
There are two ways to connect the devices

a. **Point-To-Point Connection -** In telecommunications, a point-to-point connection refers to a communications connection between two communication endpoints or nodes. An example is a telephone call, in which one telephone is connected with one other, and what is said by one caller can only be heard by the other.



2.1 a point-to-point communication model

b. **Multipoint Connection -** In telecommunications, multipoint communication is communication which is accomplished via a distinct type of one-to-many connection, providing multiple paths from a single location to multiple locations.



2.2 a multipoint communication model

Types of Network Topology

1. **BUS -** It consists of one flat network where all devices, known as stations, directly connect and transmit data between one another. When one station transmits data, the bus automatically broadcasts it to all other stations. Only the destination station accepts the transmission; all the other devices can recognize that the traffic isn't meant for them and ignore the communication.
2. **RING -** A configuration where every device directly connects to two other devices on a network, forming a continuous circle in a nonhierarchical structure. Data sent to a specific device transmits from device to device around the ring until it reaches its intended destination. In some cases, the data transmits in a single direction around the ring. In others, transport occurs bidirectionally.
3. **STAR -** Also known as a hub-and-spoke topology, a star topology uses a central node -- typically, a router or a Layer 2 or Layer 3 switch. Unlike a bus topology, which simply broadcasts transmitted frames to all connected endpoints, a star topology uses components that have an extra level of built-in intelligence.
4. **MESH -** It is another nonhierarchical structure where each network node directly connects to all others. Mesh topologies ensure tremendous network resiliency because neither an outage nor loss of connectivity occurs if a connection goes down. Instead, traffic simply reroutes down a different path.

5. **TREE -** It is a hierarchical structure where nodes link and arrange like a tree when drawn out in network diagram form. Network professionals typically deploy tree topologies with core, distribution and access layers.
6. **HYBRID -** Corporate networks often use more than one type of network topology. One topology may be more preferable when compared with another, depending on factors related to performance, reliability and cost. For example, a network professional may configure a wireless LAN that uses a star-based topology for most network connections but also use a wireless mesh network in certain situations, such as when a network cable can't connect to an access point.