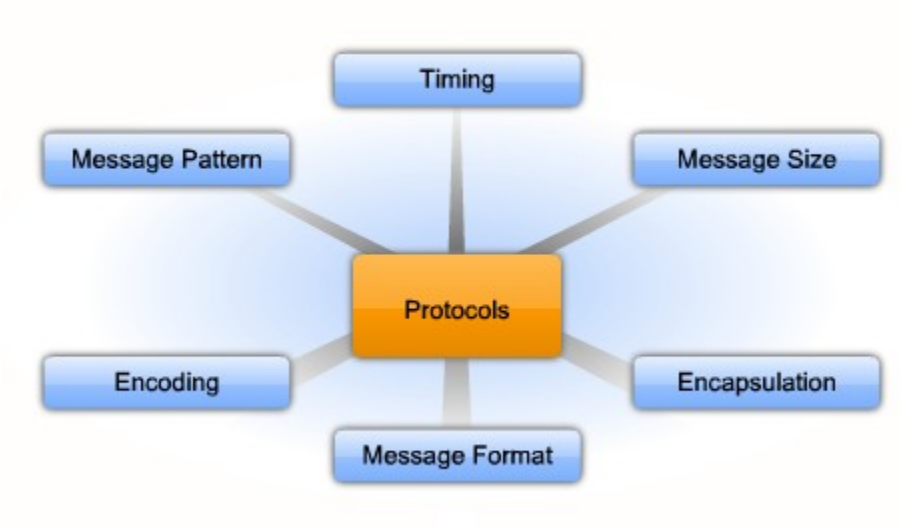
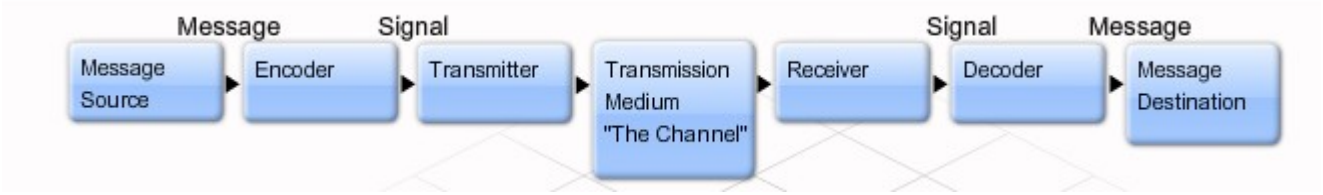
PRINCIPLE OF COMMUNICATION





The primary purpose of any network is to provide a method to communicate. All communication methods have three elements in common. The first of these elements is the message **source, or sender.** Message sources are people, or electronic devices, that need to communicate a message to other individuals or devices. The second element of communication is the **destination, or receiver,** of the message. The destination receives the message and interprets it. A third element, called a **channel**, provides the pathway over which the message can travel from source to destination.

Protocols are specific to the characteristics of the source, channel and destination of the message. The rules used to communicate over one medium, like a telephone call, are not necessarily the same as communication using another medium, such as a letter.

Protocols define the details of how the message is transmitted, and delivered. This includes issues of:

1. Message format
2. Message size
3. Timing
4. Encapsulation
5. Encoding
6. Standard message pattern

Encoding:
Encoding is the process of putting a sequence of characters (letters, numbers, punctuation, and certain symbols) into a specialized format for efficient transmission or storage. Encoding between hosts must be in an appropriate form for the medium. Messages sent across the network are first converted into bits by the sending host. Each bit is encoded into a pattern of sounds, light waves, or electrical impulses depending on the network media over which the bits are transmitted. The destination host receives and decodes the signals in order to interpret the message.

Message Format:
Message that is sent over a computer network follows specific format rules for it to be delivered and processed. Just as a letter is encapsulated in an envelope for delivery, so computer messages are encapsulated. Each computer message is encapsulated in a specific format, called a frame, before it is sent over the network. A frame acts like an envelope; it provides the address of the intended destination and the address of the source host.

Message Size:
When a long message is sent from one host to another over a network, it is necessary to break the message into smaller pieces.

Message Timing:
One factor that affects how well a message is received and understood is timing . People use timing to determine when to speak, how fast or slow to talk, and how long to wait for a response. These are the rules of engagement.

1. Access Methods
2. Flow Control
3. Response Timeout

Service	Protocol ("Rule")
World Wide Web (WWW)	HTTP (Hypertext Transport Protocol)
E-mail	SMTP (Simple Mail Transport Protocol) POP (Post Office Protocol)
Instant Message (Jabber; AIM)	XMPP (Extensible Messaging and Presence Protocol) OSCAR (Open System for Communication in Realtime)
IP Telephony	SIP (Session Initiation Protocol)

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