Definitions List

Word	Definition	Extra Links
Acoustical Signal (or Sound Signal)	Physical property of a sound (e.g. when someone speaks into the phone)	Systems Module Link
Asynchronous	Where sender and recipient are seperated in time.	Systems Module Link
Bidirectional	Communicates both ways, sending and receiving.	Systems Module Link
Binary Code	The use of a binary number, or a string of binary digits, to represent or record an item of data. Binary codes are used to represent data electronically within the circuitry of a computer and to transmit data electronically between computers. In practical applications, binary code words are likely to consist of 8 bits, 16 bits, 32 bits or 64 bits, depending on the application. If n bits are used in each code word, the total number of code words available is 2^n.	Technology Module Link
Bits	The smallest piece of information in a computer system. A bit is the information represented by a single binary digit (that is, it may be 0 or 1). Conventionally, 8 bits make 1 byte. Short for **B**inary dig**it**. In digital computers, information is stored, processed and transmitted as bits. Several methods can be used to represent a bit in a computer, or in its associated storage and transmission media. Optical, magnetic or electronic methods are the commonest. Whichever method is used, the representation of a bit depends on there being a property that can exist in either of two stable states, and which can be switched between those states. Conventionally we use 0 and 1 to represent the two states that a bit may take. There is an analogy with a coin on a table. It may show either heads or tails, and by examining the coin we can see which state it is in. The coin represents a	Technology Module Link

	single bit of information. To extend the amount of information held or transmitted, the number of bits is increased. Increasing the number of bits is analogous to having more coins on the table. Two coins (equivalent to two using two bits) allow four possible states to be represented: HH, HT, TH or TT (or 00, 01, 10 and 11). Each of these could stand for a different piece of information.	
Bytes	A unit of binary data. Conventionally 8 bits make one byte, although 7- or 9-bit bytes are also used. Eight-but bytes are sometimes also referred to as octets.	Technology Module Link
Channel	The medium used to transmit the signal from transmitter to receiver	Systems Module Link
Communication System	A system for communication either by people, equipment for dissemination information.	Systems Module Link
Computer System	A system of one or more computers and associated software with common storage.	Systems Module Link
Convergence	Split three ways: Content - text graphics, video, audio Platform - computer, TV, PDA's, mobiles Distribution - via cable, radio (how it gets to the platforms)	Systems Module Link
Cyberterrorism	To disable the enemy by blinding, jamming, deceiving and overloading his information and communications circuits.	Documents Module Link
Data	Something that is processed or acted on in a variety of ways.	Technology Module Link
Dedicated computer system	Where the supplier has pre-programmed the computer to perform a specific task or set of tasks – although the user may need to supply data for these tasks (e.g. dates and times for a diary alarm function) – and where the user cannot modify the tasks the computer performs by changing either the software or the hardware.	Systems Module Link

Destination	The person (or thing) for whom the message is intended.	
Duplex	Messages can go back and forth.	Sysems Module Link
Electrical Signal		Systems Module Link
General-purpose computer system	The user can determine, at least to some extent, the tasks the computer is to perform by buying and installing appropriate software, and perhaps by buying some additional hardware.	Systems Module Link
Hardware	Devices that are part of the physical component of a computer.	Technology Module Link
Information source	produces a message or sequence of messages	Systems Module Link
Input-output peripheral	Input and output peripherals may take signals from or provide signals to other systems. An example is a modem, which receives signals from the Internet via the telephone system and sends signals back into these same systems. As a modem performs both input and output functions, it is sometimes called an input–output peripheral. Another example network cards.	Systems Module Link
Input peripheral	Are the means by which users get their inputs into the computer system. An example of an input peripheral is a keypad, a mouse, stylus pen.	Systems Module Link
Input subsystem	Consists of whatever may be needed between a particular input peripheral and the processor (or the 'master' processor) for them to be able to work together.	Systems Module Link

Layer

Layer name	What goes on in this layer	Typical protocols
Application	E-mail formatting, file transfer, remote login.	FTP, Telnet, SMTP
Transport	Breaking messages into packets, routing messages	TCP
Internet	Assigning and resolving Internet Addresses	IP
Subnetwork	Passing packets round a local area network on their way to an Internet routher	Ethernet
Link	Setting up a connection between the transmitting computer and the Internet (e.g. by dial-up modem)	PPP, SLIP
Physical	The medium which carries the signals	RS232 (serial cable), 10BaseT (Ethernet), fibre optic, etc.

In computer programming, layering is the organization of programming into separate functional components that interact in some sequential and hierarchical way, with each layer usually having an interface only to the layer above it and the layer below it.

	Communication programs are often layered. The reference model for communication programs, Open System Interconnection (OSI) is a layered set of protocols in which two multilayered programs, one at either end of a communications exchange, use an identical set of layers. In the OSI model, each multilayer program contains seven layers, each reflecting a different function that has to be performed in order for program-to-program communication to take place between computers. TCP/IP is an example of a two-layer (TCP and IP) set of programs that provide transport and network address functions for Internet communication. A set of TCP/IP and other layered programs is sometimes referred to as a protocol stack.	
Main Memory	Holds the program the processor is executing (or, at least, an appropriate portion of the program). It also provides storage space for any needed data that is associated with that program. And thirdly it holds some essential programs that enable the computer to start up and keep going.	Systems Module Link
Noise	Something which disturbs or distorts a signal while it is travelling along a communication path. Examples: 'snow' on the TV screen	Systems Module Link
Output peripherals	Are the means by which users get outputs from the computer system. An example of an output peripheral is a screen, printer, headphones, speakers.	Systems Module Link
Output Subsystem	Is whatever may be needed between the processor and a particular output peripheral to enable them to work together.	Systems Module Link

Packet	A packet is the unit of data that is routed between an origin and a destination on the Internet or any other packet-switched network. When any file (e-mail message, HTML file, Graphics Interchange Format file, Uniform Resource Locator request, and so forth) is sent from one place to another on the Internet, the Transmission Control Protocol (TCP) layer of TCP/IP divides the file into "chunks" of an efficient size for routing. Each of these packets is separately numbered and includes the Internet address of the destination. The individual packets for a given file may travel different routes through the Internet. When they have all arrived, they are reassembled into the original file (by the TCP layer at the receiving end). A packet-switching scheme is an efficient way to handle transmissions on a connectionless network such as the Internet. An alternative scheme, circuit-switched, is used for networks allocated for voice connections. In circuit-switching, lines in the network are shared among many users as with packet-switching, but each connection requires the dedication of a particular path for the duration of the connection. "Packet" and "datagram" are similar in meaning. A protocol similar to TCP, the User Datagram Protocol(UDP) uses the term datagram.	
Programs	Series of steps be it in a collection of libraries, or basic code that perform a stated function. Added from text: must be in some form the computer can recognize.	Technology Module Link

Protocol	In information technology, a protocol (pronounced PROH-tuh-cahl, from the Greek protocollon, which was a leaf of paper glued to a manuscript volume, describing its contents) is the special set of rules that end points in a telecommunication connection use when they communicate. Protocols exist at several levels in a telecommunication connection. There are hardware telephone protocols. There are protocols between each of several functional layers and the corresponding layers at the other end of a communication. Both end points must recognize and observe a protocol. Protocols are often described in an industry or international standard. On the Internet, there are the TCP/IP protocols, consisting of: Transmission Control Protocol (TCP), which uses a set of rules to exchange messages with other Internet points at the information packet level. Internet Protocol (IP), which uses a set of rules to send and receive messages at the Internet address level. Additional protocols that are usually packaged with a TCP/IP suite, including the Hypertext Transfer Protocol (HTTP) and File Transfer Protocol (FTP), each with defined sets of rules to use with corresponding programs elsewhere on the Internet.	
Radio Signal		Systems Module Link
Receiver	Performs the inverse operation of that done by the transmitter.	Systems Module Link

Secondary memory	Holds data and programs not in active use (except for the essential programs mentioned above, which stay in main memory). In a desktop computer system the hard disk, floppy disks, CD-ROMs and DVDs are all examples of secondary memory. Notice that the secondary memory often takes the form of several different physical components, and some of it may well be removable from the computer (a fact made use of when back-ups are taken). In a PDA there may be little or no secondary memory, with all the programs and data held in main memory at all times. Some PDAs do, however, have memory cards which act as secondary memory.	Systems Module Link
Secure Sockets Layer	The Secure Sockets Layer (SSL) is a commonly-used protocol for managing the security of a message transmission on the Internet. SSL has recently been succeeded by Transport Layer Security (TLS), which is based on SSL. SSL uses a program layer located between the Internet's Hypertext Transfer Protocol (HTTP) and Transport Control Protocol (TCP) layers. SSL is included as part of both the Microsoft and Netscape browsers and most Web server products. Developed by Netscape, SSL also gained the support of Microsoft and other Internet client/server developers as well and became the de facto standard until evolving into Transport Layer Security. The "sockets" part of the term refers to the sockets method of passing data back and forth between a client and a server program in a network or between program layers in the same computer. SSL uses the public-and-private key encryption system from RSA, which also includes the use of a digital certificate. TLS and SSL are an integral part of most Web browsers (clients) and Web servers. If a Web site is on a server that supports SSL, SSL can be enabled and specific Web pages can be identified as requiring SSL access. Any Web server can be	

	enabled by using Netscape's SSLRef program library which can be downloaded for noncommercial use or licensed for commercial use. TLS and SSL are not interoperable. However, a message sent with TLS can be handled by a client that handles SSL but not TLS	
Simplex	Can only go in one directions - messages. From the dictionary: (telecommunication) allowing communication in only one direction at a time, or in telegraphy allowing only one message over a line at a time.	Systems Module Link
Software	Programs that allow the computer to run.	Technology Module Link
Switching Centre	Technical term for a telephone exchange.	Systems Module Link
Systems	A collection of component pars which together perform some task or tasks.	Systems Module Link
Stack	(1) TCP/IP is frequently referred to as a "stack." This refers to the layers (TCP, IP, and sometimes others) through which all data passes at both client and server ends of a data exchange. A clear picture of layers similar to those of TCP/IP is provided in our description of OSI, the reference model of the layers involved in any network communication. The term "stack" is sometimes used to include utilities that support the layers of TCP/IP. The Netscape Handbook says (and we quote): "To make a successful connection to the Internet, your PC needs application software such as Netscape plus a TCP/IP stack consisting of TCP/IP software, sockets software (Winsock.dynamic link library), and hardware driver software (packet drivers). Several popular TCP/IP stacks are available for Windows, including shareware stacks."	

	(2) In programming, a stack is a data area or buffer used for storing requests that need to be handled. The IBM Dictionary of Computing says that a stack is always a push-down list, meaning that as new requests come in, they push down the old ones. Another way of looking at a push-down list - or stack - is that the program always takes its next item to handle from the top of the stack. (This is unlike other arrangements such as "FIFO" or "first-in first-out.")	
Standard	There are three types of standards: International - defined by International bodies Industry-wide - defined by the industry itself Proprietary - defined by a manufacturer itself for its use only.	Systems Module Link
Synchronous	Where sender and recipient are not seperated in time.	Systems Module Link
TCP	TCP (Transmission Control Protocol) is a set of rules (protocol) used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet. For example, when an HTML file is sent to you from a Web server, the Transmission Control Protocol (TCP) program layer in that server divides the file into one or more packets, numbers the packets, and then forwards them individually to the IP program layer. Although each packet has the same destination IP address, it may get routed differently through the network. At the other end (the client program in your computer), TCP reassembles the individual packets and waits until they have arrived to	

	forward them to you as a single file. TCP is known as a connection-oriented protocol, which means that a connection is established and maintained until such time as the message or messages to be exchanged by the application programs at each end have been exchanged. TCP is responsible for ensuring that a message is divided into the packets that IP manages and for reassembling the packets back into the complete message at the other end. In the Open Systems Interconnection (OSI) communication model, TCP is in layer 4, the Transport Layer.	
Transmitter	Operates on the message in some way to produce a signal suitable for transmission over the channel.	Systems Module Link
Unidirectional	Communicates in only one direction either sending or receiving but not both at the same time.	Systems Module Link
User Interface	Facilities provided by the manufacturer for users to make use of the device: the buttons, the keys, the stylus and the touch-sensitive screen	Systems Module Link

Revised: 09 February 2002