

HARGRAVE'S COMMUNICATIONS DICTIONARY

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traffic path

traffic path A channel, circuit, frequency band, line, switch, time slot, or trunk over which individual communications pass.

traffic shaping Allows the station sending information into an asynchronous transfer mode (ATM) network to:

- Specify the priority and throughput of information going into the network, and
- Monitor performance to meet required service levels.

traffic unit A synonym for *erlang* (*E*).

traffic usage recorder A device (or system) used to sample and record the occupancy of equipment, i.e., the amount of telephone traffic carried by a group, or several groups, of switches or trunks.

trailer Information occupying the last several bytes of a block or packet. *Trailers* often contain checksums or other error control information.

train (1) A sequence of events or items, such as a *pulse train*. (2) To modify the behavior of a device based on external conditions, as in the *training* of an echo canceler for each new connected path.

transaction (1) An interaction between a client and a server. A sequence of messages between a master and client station required to perform a specific function. (2) The smallest complete action when using the Structured Query Language (SQL) to search or modify a database. (If any step in the transaction cannot be completed, the entire transaction fails, and all the intermediate steps in the transaction are undone.) (3) An entry in a database.

transaction code An identifier or symbol associated with a specific transaction and representing the action to be carried out.

For example, the letter *A* may be used as a transaction code for the operation "add," *D* may be "delete," and so on.

transceiver (1) A contraction of **TRAN**smitter and **RE**ceiver. A device that can both transmit and receive signals, such as cellular telephones, modems, and network interface controllers (NICs). Often NICs provide some form of collision detection as well. Also known as a *medium attachment unit (MAU)* in IEEE specifications. (2) In military communications, the combination of transmitting and receiving equipment which:

- Is housed in a common chassis or enclosure,
- Is usually designed for portable or mobile use,
- Uses common circuit components for both transmitting and receiving, and
- Provides half-duplex operation.

transceiver cable In Ethernet, a cable that attaches a terminal device to an Ethernet backbone cable (either 10Base2 or 10Base5).

transcoder A device that directly converts one digital code into another digital code, i.e., without returning the original code to an analog form before generating the new code.

For example, the conversion of μ 255-law encoded pulse code modulation (PCM) to A-law PCM for transmission from the United States to countries in Europe.

transducer A device for converting energy from one form (heat, light, sound, temperature, electrical, etc.) to another for either measurement of a physical quantity or information transfer.

Examples of transducers include devices that:

- Convert sound pressure levels into electrical signals (microphones).
- Convert electrical signals into sound pressure waves (speakers).

transfer time

transfer (1) The *movement of data* from one location to another. (2) The *passing of control* from one device to another. (3) In telephony, a switching system feature that allows a user to reassign a call to different end station.

transfer characteristics Those intrinsic parameters of an entity (system, subsystem, or device) which, when applied to the input of the entity, will fully describe its output. See also *transfer function*.

transfer delay A performance characteristic that expresses the amount of elapsed time required to send a message through a system. It includes not only the link's propagation time but any signal processing time required at either end of the link.

transfer function (1) A mathematical statement that describes the *transfer characteristics* of a system, subsystem, or device. (2) A rule (the *transfer characteristic*) describing how the output signal of circuit, device or system responds to an input signal. The rule may be stated in mathematical, graphical, or tabular terms. A *transfer function* is essentially the complex ratio of the output signal of the entity to the input signal.

When the *transfer function* (*T*) operates on the input (e_i), the output (e_o) is obtained. Given any two of these three entities (*T*, e_i , and e_o), the third can be obtained, that is,

$$T = e_o / e_i, e_o = T \cdot e_i, \text{ or } e_i = e_o / T$$

Simple transfer functions express the ratio of output to input signals when the imaginary part of the signals can be ignored, examples are voltage and current gains, reflection coefficients, transmission coefficients, and efficiency ratios. *Complex transfer functions* include the imaginary part and are frequency dependent, examples include filter response and envelope delay distortion. *Transfer functions* are frequently expressed in terms of amplitude vs. frequency and phase vs. frequency. (3) In an optical fiber, the complex mathematical function that expresses the ratio of the variation of the instantaneous power of the optical signal at the output of the fiber (P_o) to the instantaneous power of the optical signal that is launched into the fiber (P_i), as a function of modulation frequency.

transfer mode In telecommunications, the manner in which data are transmitted and/or switched in a network, i.e., synchronous vs. asynchronous, circuit switched vs. packet switched, and so on.

transfer rate The rate at which information is conveyed across a communications channel or circuit. *Transfer rate* is expressed in units per second (e.g., bits per second, characters per second, bytes per second, and so on). It may represent either the maximum number of units per second possible or the average number of units per second (including headers, trailers, and gaps between blocks). See also *baud*.

transfer rate of information bits (TRIB) The *average* transfer rate of actual, error-free, useful information (not including overhead, error bits, or retransmitted bits) through a device or series of devices. Mathematically, *TRIB* can be expressed as:

$$\text{TRIB} = \frac{\text{Number of information bits properly received}}{\text{Total time required to get the bits}}$$

Data compression increases the transfer rate by reducing the number of bits to be transmitted so that more information can be transferred in the same time. *TRIB* is also called the *throughput* or *data transfer rate*.

transfer ratio A dimensionless transfer function.

transfer time (1) The time it takes to switch from one process or device to an alternate. (2) In gas tube surge protectors, the amount of time required for the voltage across the gap to drop into the arc region after the initial gap conduction begins. (3) The amount of time required to transmit and receive a complete message.