NEWTON's TELECOM DICTIONARY
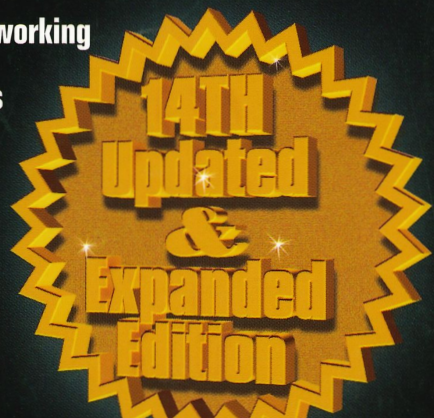
The Official Dictionary of Telecommunications

- ◆ Computer Telephony ◆ The Internet ◆ IP Telephony ◆ Intranets, LANs & WANs
- ◆ Windows 95, NT, NetWare & Unix Networking
- ◆ Wired & Wireless Telecommunications
- ◆ Voice Processing ◆ Carrier Telephony
- ◆ The Intelligent Network ◆ ISDN & T-1
- ◆ Voice on The Internet & Intranets

14TH Updated & Expanded Edition

by Harry Newton

NEWTON's TELECOM DICTIONARY

TIE 1. Joining cables and/or wires together.
2. Time Interval Error.
3. Trusted Information Environment, an encryption scheme.

TIE/Communications A PBX and key system distributor to end users based in Seymour, CT. TIE was one of the original manufacturers of interconnect equipment in the US. TIE stood for Telephone Interconnect Equipment. The company fell on hard times in the late 1980s. It ceased manufacturing equipment and ceased acting as a wholesaler of others' equipment. Now it's simply a distributor and Nitsuko, its primary Japanese supplier, has taken over the sale of its own equipment directly.

Tie Down Verb meaning to terminate a wire on a main, intermediate or satellite distribution frame.

Tie Line A dedicated circuit linking two points without having to dial the normal phone number. A tie line may be accessed by lifting a telephone handset or by pushing one, two or three buttons.

Tie Trunk A dedicated circuit linking two PBXs.

Tie Trunk Access Allows a phone system to handle tie lines which can be accessed either by dialing a trunk group access code or through the attendant.

TIFF Tag Image File Format. TIFF provides a way of storing and exchanging digital image data. Aldus Corp., Microsoft Corp., and major scanner vendors developed TIFF to help link scanned images with the popular desktop publishing applications. It is now used for many different types of software applications ranging from medical imagery to fax modem data transfers, CAD programs, and 3D graphic packages. The current TIFF specification supports three main types of image data: Black and white data, halftones or dithered data, and grayscale data. Some wags think TIFF stands for "Took It From a FotograF." It doesn't.

TIES Time Independent Escape Sequence, a feature of modems.

Tiger Team A group hired by an organization to defeat its own security system to learn its weaknesses.

Tight Buffer Fiber Optic Cables Tight-buffered fiber optic cables use aramid strength members inside the cable instead of gel filling, as is the case with loose-tube gel-filled fiber optic cables. One of the advantages of tight-buffered fiber optic cables having aramid strength members along every inch of the cable is that the cable can be hung vertically and the fibers are still protected for the entire length of the cable. This is not the case with loose-tube gel-filled fiber optic cables because, when they are hung vertically, all the gel filling settles to the bottom and the optical fibers are no longer protected. Tight-buffered fiber optic cables also have buffer coatings (up to 900 microns) over each optical fiber cladding for added environmental and mechanical protection, increased visibility, and ease of handling. Tight-buffered fiber optic cables can be used indoors and outdoors which allows one cable to be used instead of having to switch cable types at the building entrance. This is different from loose-tube gel-filled cables because the gel is flammable and the cable must be spliced to indoor flame-retardant cables for runs into buildings. Therefore, according to manufacturers, tight-buffered fiber optic cables reduce labor, equipment and materials cost while improving system performance and reliability. See also Aramid and Tight Jacket Buffer.

Tight Jacket Buffer A buffer construction which uses a direct extrusion of plastic over the basic fiber coating. This construction serves to protect the fiber from crushing and

induced during cabling operations. See also LOOSE TUBE BUFFER.

Tightly Coupled Describing the interrelationship of processing units that share real storage, that are controlled by the same control program and that communicate directly with each other. Compare with loosely coupled.

Tightly Coupled CPUs Term used to describe multiple-processor computers in which several processors share the same memory and bus.

Tile A surface segment of a furniture system panel, usually removable for access to cables or patch panels contained within the panel.

Tiling An unpleasant mosaic-like effect created by block-oriented video compression techniques like DCT (Discrete Cosine Transform), used in the JPEG (Joint Photographics Expert Group) standard. See DCT and JPEG.

TIM Teletyper Input Method. See TELETYPER INPUT METHOD.

Timbre The quality of tone distinctive to a particular voice.

Time-based Authoring Tool A multimedia creation tool that uses time as a metaphor for building a project. Generally, objects are set up to happen at a certain time in a project, rather than in a certain place.

Time Assignment Speech Interpolation TASI. A voice telephone technique whereby the actual presence of a speech signal activates circuit use. The result is clipping of the first bit of the speech, but more efficient use of the transmission facility. TASI is used on expensive circuits, such as long submarine cables. See TASI.

Time Congestion The time resources (outgoing trunks) are busy.

Time Divert To Attendant A system feature which automatically transfers a phone to the attendant if the phone has been left off-hook too long.

Time Diversity A method of transmission wherein a signal representing the same information is sent over the same channel at different times. Often used over systems subject to burst error conditions and with the spacing adjusted to be longer than an error burst.

Time Division Controller TDC. A device which commands functions, monitors status and connects channels of TDM cards.

Time Division Multiple Access TDMA. A technique originated in satellite communications to interweave multiple conversations into one transponder so as to appear to get simultaneous conversations. A variation on TASI. A technique now used in cellular and other wireless communications. See TDMA.

Time Division Multiplex TDM. A technique for transmitting a number of separate data, voice and/or video signals simultaneously over one communications medium by quickly interleaving a piece of each signal one after another. Here's our problem. We have to transport the freight of five manufacturers from Chicago to New York. Each manufacturer's freight will fit into 20 rail boxcars. We have three basic solutions. First, build five separate railway lines from Chicago to New York. Second, rent five engines and schlepp five complete trains to New York on one railway track. Or, third, join all the boxcars together into one train of 100 boxcars and run them on one track. The train might look like this: Engine, Boxcar from Producer A, Box Car from Producer B, Producer C, Producer D, Producer E, and then the order begins again...Boxcar from Producer A, Producer B...Moving one large train of 100 boxcars is likely to be cheaper and more

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five separate railway tracks. Time Division Multiplexing, thus, represents substantial savings over have five separate networks (five separate tracks) and sending five separate transmissions (five separate trains).

This is what Time Division Multiplexing is all about. And the analogy is perfect. Take one large train (fast communications channel) and interleave pieces (boxcars) from each conversation one after another. If you do this fast enough, you'll never notice you've broken the conversations apart, moved them separately, and then put them back together at the distant end. In TDM, you "sample" each voice conversation, interleave the samples, send them on their way, then reconstruct the several conversations at the other end. There are several ways to do the sampling. You can sample eight bits (one byte) of each conversation, or you can sample one bit. The former is called word interleaving; the latter bit interleaving. The basic goal of multiplexing — whether it be time division multiplexing, or any other form — is to save money, to cram more conversations (voice, data, video or facsimile) onto fewer phone lines. To substitute electronics for copper. See also the following three definitions.

Time Division Multiplexer TDM. A device which derives multiple channels on a single transmission facility by connecting bit streams one at a time at regular intervals. It interleaves bits or characters from each terminal or device using the time. See TIME DIVISION MULTIPLEX.

Time Division Signaling Signaling over a time division multiplex system in which all voice channels share a common signaling channel, with time division providing the separation between signaling channels. See SIGNALING SYSTEM 7.

Time Division Switching The connection of two circuits in a network by assigning them to the same time slot on a common time division switched bus.

Time Domain Reflectometer TDR. A testing device that acts on radar-like principles to determine the location of metallic circuit faults.

Time Guard Band A time interval left vacant on a channel to provide a margin of safety against interference in the time domain between sequential operations, such as detection, integration, differentiation, transmission, encoding, decoding, or switching.

Time Jitters Short-term variation or instability in the duration of a specified interval.

Time Marker A reference signal, often repeated periodically, enabling the correlation of specific events with a time scale. markers are used in some systems for establishing synchronization.

Time Multiplexed Switch The space switch of which the cross point settings are changed in each time slot.

Time Of Day Display The time and date displays on phones. Actually, it's very useful information. Sometimes it's not displayed on the operator's console. As a result, the operator may never know that every phone in the office is showing the wrong time and date.

Time Of Day Routing 1. This feature automatically changes access to certain types of lines at times when the lines change from being expensive to cheap, or vice versa. For example, it's cheaper to use WATS lines before 8:00 AM in the morning. A company has offices in New York and Los Angeles. It might be cheaper to route calls to Chicago in the morning over the tie lines to LA and then out the LA WATS lines to Chicago, than to go directly out the New York WATS lines. This is a way to allocate bandwidth for LAN traffic over corporate T-1 Networks. By programming T-1 multiplexers,

customers can allocate the amount of T1 bandwidth that can be used by voice, data, and LAN traffic on a time of day basis. For example, during the day, most of the T1 bandwidth can be allocated for voice. At night, after employees go home, more bandwidth can be allocated to LAN and other computer data traffic so that file transfers can be done faster. This is particularly useful in IBM mainframe environments where large amounts of data needs to be transferred form remote offices/divisions to the headquarters.

Time Out In telecommunications and computer networks, an event which occurs at the end of a predetermined interval of time is called Time Out. For example if you lift the phone off the cradle and do not proceed to dial, after a certain number of seconds you will hear either a voice telling you to get on with it or a howling sound of some sort. Data networks have the same thing. Don't do anything for x minutes and the system will knock you off the air, i.e. hang up on you. In more technical terms, time out is the amount of time that hardware or software waits for an expected event before taking corrective action. In its most common form, time out is the amount of time an OCC or telephone system waits after your call goes through before it begins billing or timing the call. Also see ANSWER SUPERVISION.

Time Sharing A mode of operation that provides for the interleaving of two or more independent processes on one functional unit. Its most common use is the interleaved use of time on a computing system enabling two or more users to execute computer programs concurrently. Time sharing of computer resources is now relatively obsolete. See also TIMESHARING below.

Time Sharing Computer System A computer system permitting usage by a number of subscribers, usually through data-communication subsystems. This is usually the case where the users have only dumb terminals that cannot process data by themselves the way a stand alone computer can. Computers are being joined together to deliver more computing power where it is most needed.

Time Slice In a multi tasking environment, each task is allotted a portion of the CPU's overall processing power. This portion is called a time-slice. And it's usually measured in milliseconds. The CPU switches between tasks, and those with higher priority receive more time-slices than lower-priority tasks. See TIME SLICING.

Time Slicing The term used to describe the dividing of a computer resource so multiple applications or tasks requesting the resource are allocated some amount of the resource's time. See TIME SLICE.

Time Slot 1. In time division multiplexing or switching, the slot belonging to a voice, data or video conversation. It can be occupied with conversation or left blank. But the slot is always present. You can tell the capacity of the switch or the transmission channel by figuring how many slots are present.
2. An SCSA term. The smallest switchable data unit on the SCbus or SCxbus Data Bus. A time slot consists of eight consecutive bits of data. One time slot is equivalent to a data path with a bandwidth of 64 Kbps.

Time Space Time System TST. The most common form of switching matrix for small digital telephone exchanges in which a space switch is sandwiched between two time switches.

Time Switch A device incorporating a clock which arranges to switch equipment on or off at predetermined times.

Time Varying Media An SCSA definition. Time-varying media, such as audio data (as opposed to space-varying media, such as image data).