

# 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



by Harry Newton

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ements with Microsoft. The provision says that the company signing the agreement with Microsoft agrees not to sue Microsoft or Microsoft's customers and OEMs for infringement of said company's own patents. Some observers are arguing that signing an agreement with this provision would give Microsoft a royalty-free license to an outside company's patents.

**IMHO** In My Not So Humble Opinion. An acronym used for electronic mail on the Internet to save words or to be hip, whatever. See IMHO.

**I** Abbreviation for "In My Opinion," commonly used on E-mail and BBSs (Bulletin Board Systems). See IMHO.

**IMACS** An MCI International packets switching service that is useful to firms with overseas remote computing needs, and scientific, educational or commercial organizations that require periodic access to U.S. database facilities. IMPACS also includes overseas users with communications links to their computers in the USA for applications such as order processing, inventory control, billing, payroll, and sales statistics.

**Impact Strength** A test designed to ascertain the abuse a material configuration can absorb, without physical or electrical breakdown. Done by impacting with a given weight, dropped from a given height, in a controlled environment.

**Impact Tool** Also called a "punch down" tool. See PUNCH DOWN TOOL.

**Impaired** When an individual circuit exceeds the transmission limits or its signaling functions (e.g., seizure, disconnection) are experiencing failures.

**IMDU** Initial MAC Protocol Data Unit. A Connectionless Network Data Service (CBDS) term that corresponds to the Data Unit in Switched Multimegabit Data Service (SMDS). ISDN is the European equivalent of SMDS.

**Impedance** The total opposition (i.e. resistance and reactance) a circuit offers to the flow of alternating current. It is measured in ohms and the lower the ohmic value, the better the quality of the conductor. Low impedance will help provide safety and fire protection and a reduction in the severity of non and normal mode electrical noise and transient voltages.

For telecommunications, impedance varies at different frequencies. Ohm's law says that voltage equals the product of current and impedance at any single frequency. The unit of impedance is the ohm.

**Impedance Matching** The connection of additional impedance to existing impedance one in order to improve the performance of an electrical circuit. Impedance Matching is used to minimize distortion, especially to data circuits.

**Implementors' Agreement** An agreement about the specifics of implementing as a standard, reached by vendors who are developing products for the standard. Compare with IEC and De Jure.

**Implied Acknowledgment** Implied acknowledgment is a process whereby negative acknowledgment of a specific item of information implies that all previously transmitted items have been received correctly. See also PIPELINING.

**Import** Imagine you have a software program, like a spreadsheet or a database. And you have information in that program. Let's say it's Microsoft Word or Lotus 123. And you want to get it into a different program, say to give it to a workmate who uses WordPerfect or Excel. You have to convert it from one format to another. From Word to WordPerfect or Lotus to Excel. That process is typically called "exporting" and the process of your workmate getting it into his computer is called "importing." And you'll typically see the words "IMPORT" and "EXPORT" as choices on one of your menus.

**Import Computers** A Windows NT. In directory replication, the servers or workstations that receive copies of the master set of directories from an export server.

**Import Script** First read my definition of IMPORT. An import script is a series of specifications which control the merging processes. It contains a series of merge rules which specify how the fields are to be merged and a record precedence rule which governs which records to merge of the ones received.

**Important Call Waiting** Notifies you with a special ring tone that someone you want to hear from is calling you.

**Improved Definition Television** IDTV. Television that includes improvements to the standard NTSC television system, which improvements remain within the general parameters of NTSC television emission standards. These improvements may be made at the transmitter and/or receiver and may include enhancements in parameters such as encoding, digital filtering, scan interpolation, interlaced scan lines, and ghost cancellation. Such improvements must permit the signal to be transmitted and received in the historical 4:3 aspect ratio.

**Improved Mobile Telephone Service** IMTS. In the beginning, there was dispatch mobile service. The base operator broadcast a message to you. Everyone could hear it. You responded. Then they had mobile telephone service. You picked up the phone in your car, the operator responded. You asked for the number you wanted and she/he dialed it and connected you. You had the channel to yourself but others could still tune in. Then came Improved Mobile Telephone Service (IMTS). Now you could dial from your car without using an operator with some assurance of privacy. The latest development is cellular mobile telephone service. See CELLULAR.

**Impulse** A surge of electrical energy usually of short duration, of a non repetitive nature.

**Impulse Hits** Errors in telephone line data transmission are caused by voltage surges lasting from 1/3 to 4 milliseconds and at a level within 6 dB of the normal signal level (Bell standard allows no more than 15 impulse hits per 15 minute period).

**Impulse Noise** High level, short duration noise that comes on a circuit. You can get impulse noise from electro-mechanical relays. These noise "spikes" have little effect on voice transmission but can be devastating to data. You can get a piece of test equipment called an impulse noise measuring set. Such a machine establishes a threshold and counts the number of impulses (hits) above that threshold.

**Impurity Level** An energy level outside the normal energy band of the material, caused by the presence of impurity atoms. Such levels are capable of making an insulator semiconductor.

**IMS/VS** Information Management System/Virtual Storage. An IBM host operating environment.

**IMSI** International Mobile Subscriber Identity. A ITU-T specification used to uniquely identify a subscriber to mobile telephone service. It is used internally to a GSM (Global System for Mobile Communications) network, and has been adopted for future use in all cellular networks. The IMSI is a 50-bit field which identifies the phone's home country and carrier.

**IMT** InterMachine Trunk. A circuit which connects two automatic switching centers, both owned by the same company.

**IMTC** International Multimedia Teleconferencing Consortium. A non-profit corporation with the mission of promoting, encouraging and facilitating the development and implementation of interoperable multimedia teleconferencing solutions based on open international standards. Emphasis is on ITU-T standards such as T.120, H.320, H.323, and H.324.

IMTC sponsors and conducts interoperability test sessions between suppliers of conferencing products and services based on those standards. It also focuses on market education. IMTC comprises over 140 members, including 3Com, Alcatel, BellSouth, Cisco, Compaq, Dialogic, IBM and Motorola — manufacturers, carriers, end users and others committed to open standards are welcome. [www.imtc.org](http://www.imtc.org)

**IMTS** See IMPROVED MOBILE TELEPHONE SERVICE.

**IMUIMG** ISDN Memorandum of Understanding Implementation Management Group. Formed in 1992, the IMUIMG is intended to ease ISDN implementation in Europe. The organization's stated goal is to ensure consistency when ordering or using ISDN services, regardless of provider or country. Carriers in the U.S., Canada and the Asia-Pacific have been invited to join.

**IMUX** Inverse Multiplexer

**IN** Intelligent Network. Ericsson has done focus groups on Mobile Intelligent Network Services. Among the new IN (Intelligent Network) services, Ericsson identified: \* Enhanced number translation services functions \* Enhanced screening services, i.e. selective call diversion \* Selective forwarding of calls \* Location-dependent call forwarding \* Improvements to voice announcements \* Services to support fixed and mobile integration, i.e. personal communications services, PCS and universal personal telecommunications, UPT, and \* Enhanced billing. See AIN.

**In-band Control** Control information that is provided in the same channel as data.

**In-band Signaling** Signaling made up of tones which pass within the voice frequency band and are carried along the same circuit as the talk path that is being established by the signals. Virtually all signaling — request for service, dialing, disconnect, etc. — is in-band signaling. Most of that signaling is MF — multi-frequency dialing. The more modern form of signaling is out-of-band. Several local and long distance companies provide ANI (Automatic Number Identification) via in-band signaling. Some long distance companies provide it out-of-band, using the D-channel in a PRI ISDN loop. See ISDN and SS7 (ITU Signaling System Number 7).

**In-Collect** A CLEC term for the process of collecting long distance calling records from IXCs for purposes of subscriber billing. See CLEC.

**In-line Device** Hardware that is physically attached between two communications lines.

**In-Safe** An inbound store-and-forward MCI International Telex service that automatically answers a subscriber's incoming calls, provides an answerback, and accepts the messages.

**INA** Information Networking Architecture. Bellcore developed INA to facilitate the interoperation of proprietary software components through open interfaces based on voluntary international standards. INAsoft is the set of guidelines used to design interoperable, vendor-independent solutions, allowing rapid and successful product development.

**Inactivity Time-outs** Dial-in users can be disconnected after specific periods of inactivity. By eliminating idle connections, you reduce the number of ports required for remote access to a network.

**INAsoft** See INA

**Inbound Path** On a broadband LAN, the transmission path used by stations to transmit packets toward the headend.

**incAlliance** incAlliance stands for the Isochronous Network Communication Alliance. It was announced publicly on June 13, 1995. It was formed by high-technology businesses,

in the cellular world. TMN specifies a set of standard functions with standard interfaces, and makes use of a management network which is separate and distinct from the information transmission network. Further, standard network protocols such as the OSI CMIP (Open Systems Integration Common Management Information Protocol) are specified. Implementation of this concept involves the linking of all subject device elements to OMCs (Operation and Maintenance Centers) which, in turn, are linked together over a separate network. A centralization occurs to facilitate control, monitoring, and management of all devices in the communications network, which can include legacy systems as well as newer technologies. Operation systems functions include the full range of functions defined in the OSI model: Performance Management (PM), Fault Management (FM), Configuration Management (CM), Accounting Management (AM), and Security Management (SM).

A gentleman called James Keil who wrote his master's thesis at the University of Boulder, Interdisciplinary Telecommunications Program, on TMN compliant equipment, says that a "quick and dirty definition of TMN" would be "A network management standard which seeks to provide IT, business and network service management in a multi-domain environments (i.e. VPN, RBOC, Cellular providers)." Mr. Keil also says TMN fully implemented can retrieve resources from disparate networks like SNMP, through the use of managed objects or ANSI.1. TMN has much more functionality than SNMP. See also TINA.

**TMP** Test Management Protocol: As an ATM term, it is a protocol which is used in the test coordination procedures for a particular test suite.

**TMR** Trunk Mobile Radio. Another name for SMR (Specialized Mobile Radio). See SMR.

**TMS** 1. Time Multiplexed Switch. In the AT&T 5ESS switch CM, the TM provides switch paths between switching modules and passes control messages to and from the message switch, and functions as the hub for clock distribution to the switching modules.

2. TOPS Message Switch.

**TMSI** Temporary Mobile Station Identifier A mobile station identifier (MSID) sent over the air interface and is assigned dynamically by the network to the mobile station.

**TN** 1. Telephone Number.

2. Twisted Nematic. Most used display technology for calculators, watches and measuring equipment. TN uses liquid crystals sandwiched between two plates of glass with integrated transparent electrodes which can be made transparent and non-transparent by applying an electric current to them. See LCD.

**TN3270** Delivery of a 3270 data stream via Telnet, provided as part of the TCP/IP protocol suite.

**TNC** A small connector used on coaxial cable, commonly used for cellular antennas, and some data and test equipment.

**TNL** Terminal Net Loss.

**TNPP** A protocol used to send paging messages from terminal to terminal on LANs and WANs over a wire circuit.

**TNS** Transit Network Selection: As an ATM term, it is a signaling element that identifies a public carrier to which a connection setup should be routed.

**TNSS** Non-Synchronous test line provides for rapid testing of ringing, tripping and supervisory functions of toll completing trunks. This test line provides an operation test which is not as complete as the Synchronous test but which can be made more rapidly.

**TOA/NPI** Type Of Address/Numbering Plan Identifier.

**TOF** Time Out Factor: As an ATM term, it is an ABR service parameter, TOF controls the maximum time permitted between sending forward RM-cells before a rate decrease is required. It is signaled as TOFF where  $TOF=TOFF+1$ . TOFF is a power of 2 in the range: 1/8 to 4,096.

**TOFF** Time Out Factor: See TOF.

**Toggle** 1. A flip-flop switch that changes for every input pulse.

2. Any simple two-position switch.

**Token** 1. In networking, a unique combination of bits used to confer transmit privileges to a computer on a local area network. It also carries important information for routing messages over the network, such as source and destination addresses, access control information, route control information, and date checking information. When a LAN-attached computer receives a token, it has been given permission to transmit. On a token ring network, the token is 24 bits long. See TOKEN PASSING and TOKEN RING.

2. Here is a Rolm definition: The floating master message which coordinates use of the CBX control packet network among the nodes connected to it.

**Token Bus** A local network access mechanism and topology in which all phones or workstations attached to the bus listen for a broadcast token or supervisory frame. That token confers on them the right to communicate over the share channel, the token bus. An example of a Token-Bus is IEEE 802.4. See TOKEN PASSING.

**Token Latency** The time it takes for a token to be passed around the local area network ring.

**Token Passing** A method whereby each device on a local area network receives and passes the right to use the single channel on the LAN. The key to remember is that a token passing, or token ring LAN has only one channel. It's a high-speed channel. It can move a lot of data. But it can only move one "conversation" at a time. The Token acts like a traffic cop. It confers the privilege to send a transmission. Tokens are special bit patterns or packets, usually several bits in length, which circulate from node to node when there is no message traffic. Possession of the token gives exclusive access to the network for transmission of a message. The token is generated by one device on the network. If that device is turned off or fails, another device will assume the token creation task. When the package of token and message reaches its destination, the computer copies the message. The package is then put back on the network where it continues to circulate until it returns to the source computer. The source computer then releases the token for the next computer in the sequence.

With token passing it is possible to give some computers more access to the token than others. Usually one device on the network is designated the token manager. It generates the token. If that device is turned off or fails, another device will assume management of the token. There is a complicated sequence of events that result in the generation of a token and that deal with the eventuality of token loss or destruction. The logic for this process is built into token ring cards that fit inside computers. In some manufacturers' products, the logic is slightly different and can cause incompatibilities. See TOKEN, TOKEN RING and TOKEN RING PACKET

**Token Ring** A ring type of local area network (LAN) in which a supervisory frame, or token, must be received by an attached terminal or workstation before that terminal or workstation can start transmitting. The workstation with the token then transmits and uses the entire bandwidth of whatever