

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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Published in the United States by
Flatiron Publishing,
a division of Miller Freeman, Inc.

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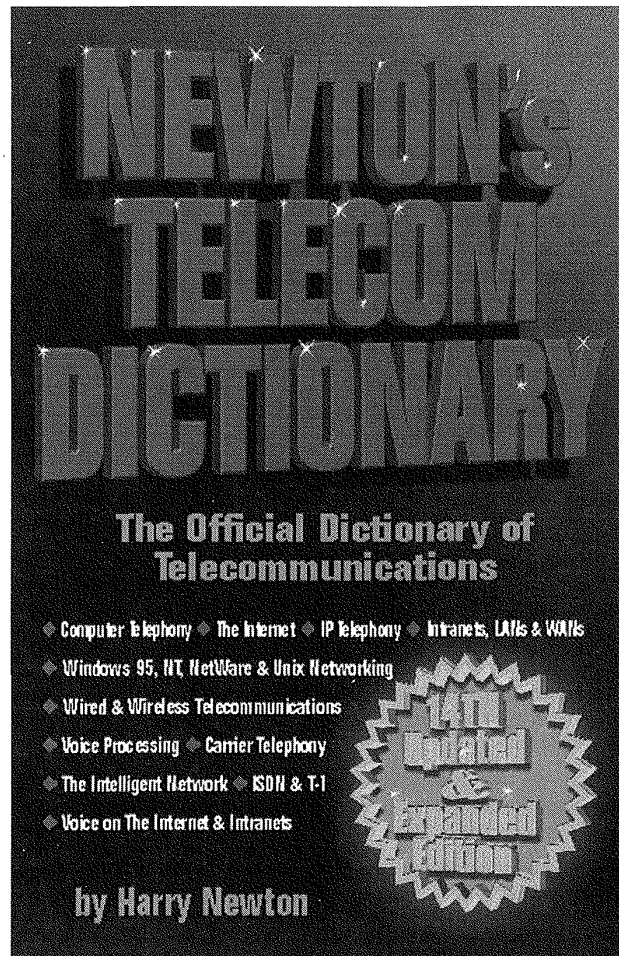
ISBN Number 1-57820-023-7

March, 1998

Manufactured in the United States of America

Fourteenth Expanded and Updated Edition
Cover Design by Saul Roldan
Printed at Command Web, Secaucus, New Jersey
www.commandweb.com

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working on. This holds it in place during machining. In multimode fiber optics, mandrel wrapping is a technique used to modify the modal distribution of a propagating optical signal. Basically you wrap a specified number turns of fiber on a mandrel of specified size, depending on the fiber characteristics and the desired modal distribution. It has application in optical transmission performance tests, to simulate, i.e., establish, equilibrium mode distribution in a launch fiber (a fiber used to inject a test signal in another fiber that is under test). If the launch fiber is fully filled ahead of the mandrel wrap, the higher-order modes will be stripped off, leaving only lower-order modes. If the launch fiber is underfilled, e.g., as a consequence of being energized by a laser diode or edge-emitting LED, there will be a redistribution to higher-order modes until modal equilibrium is reached.

Manual Exclusion A PBX extension user, by entering a certain code, can block all other phones on that line from entering the call. Assures privacy on the line.

Manual Gain Control MGC. There are two electronic ways you can control the recording of something — Manual or Automatic Gain Control (AGC). AGC is an electronic circuit in tape recorders, speakerphones and other voice devices which is used to maintain volume. AGC is not always a brilliant idea since it attempts to produce a constant volume level. This means it will try to equalize all sounds — the volume of your voice and, when you stop talking, the circuit static and/or general room noise which you undoubtedly do not want amplified. Sometimes it's better to have quiet, when you want quiet. Manual Gain Control is preferred in professional applications. Manual Gain Control is simply an elegant way of saying there's a record volume control. Never record a seminar or speech using AGC. The end result will be decidedly amateurish.

Manual Hold The method of placing a line circuit on "hold" by activating a non-locking "hold" button on the phone, usually one colored red.

Manual Intercom A crude, single-path communications link between telephones without the ability to signal the receiving party.

Manual Modem Adapter An external device for the Merlin key system from AT&T. It allows connection of single line accessories to any Merlin telephone. The device, in effect, draws a standard tip and ring line out of the Merlin proprietary cabling/signaling scheme. Some other key systems have similar devices. Comdial calls theirs a "data port" and their phones contain extra RJ-11 jacks.

Manual Originating Line Service The attendant must complete all outgoing calls. All other calls are blocked. This "feature" is used to cut down on long distance phone abuse. There's a wonderful story. When many of the PBXs in Europe went from manual originating line service to automatic dial "9" long distance, the number of long distance calls doubled within two months. Some of these calls were legitimate. Some were not. How much abuse there was varied from company to company. Typically, those companies with employees who were more bored suffered (or enjoyed?) more abuse.

Manual PBXs Refers to PBXs which are not automatic and which require that all calls, including intercom calls, be placed through the attendant. Such PBXs are still used today, though in limited applications. You can still find manual PBXs in vacation hotels, nursing homes and in the data communications departments of some firms, who use manual PBXs as manual dataPBXs. These are especially useful in places where long data calls and sold metal-to-metal connections are an advantage.

Manual Ringdown Tie Trunk A direct talk path between two distant phones. Signaling must be done manually from either phone. Contrast this with Automatic Ringdown Tie Trunk, in which the signaling occurs the moment one of the phones is lifted off hook.

Manual Signaling Pushing a button on a telephone sends an audible signal to a predetermined phone. Manual signaling can be used for secretary/boss communications.

Manual Telephone A telephone without a dial. Taking the receiver off hook automatically rings a predetermined number. A courtesy phone.

Manual Terminating Line Service Provides extension lines that require all calls be completed by the attendant. For a better explanation see MANUAL ORIGINATING LINE SERVICE.

Manufacturing And Automation Protocol MAP. A protocol initially developed as an internal specification for its own factory floor equipment and now championed by General Motors as the industry standard to facilitate communications among the diverse automation devices found in production environments. AT&T, IBM and DEC have endorsed this standard and have already or will introduce MAP-compatible products. TOP (Technical and Office Protocol) was initiated by Boeing Computer Services (one of the nine companies that helped form the MAP Users Group in 1984) and is designed for use in the engineering and office environment and to move information from the factory floor to other parts of the company. Implementation of these protocols would lead to GM's factory of the future concept.

Manufacturing Message Format Standard An Application Layer protocol developed as a part of MAP to provide a syntax for exchanging messages in the manufacturing environment.

Manufacturing Message Specification MMS. An International Standards Organization (ISO) application layer protocol that defines the framework for distributing manufacturing messages within a network. This specification is used in MAP 3.n.

MAP 1. A new term for multiplexing, implying more visibility inside the resultant multiplexed bit stream than available with conventional asynchronous techniques.

2. Mobile Application Part. As defined by IS-41 (Interim Standard 41) a User Part of the SS7 protocol used in wireless mobile telephony. MAP standards address registration of roamers and intersystem hand-off procedures. As a query-and-response procedure, MAP makes use of TCAP (Transaction Capabilities Application Part) over the SS7 network. See also IS-41, SS7 and TCAP.

3. Maintenance and Administration Position. See MAP/MAAP below.

4. Manufacturing Automation Protocol. A protocol initially developed as an internal specification for its own factory floor equipment and now championed by General Motors as the industry standard to facilitate communications among the diverse automation devices found in production environments. AT&T, IBM and DEC have endorsed this standard and have already or will introduce MAP-compatible products. TOP (Technical and Office Protocol) was initiated by Boeing Computer Services (one of the nine companies that helped form the MAP Users Group in 1984) and is designed for use in the engineering and office environment and to move information from the factory floor to other parts of the company. Implementation of these protocols would lead to GM's factory of the future concept.

MAP/MAAP Maintenance and Administration Panel. A

device attached to a PBX to allow you to maintain and administer the system — to change phone features, etc.

MAP/TOP Manufacturing Automation Protocol/Technical Office Protocol.

MAPI Microsoft's Windows Messaging Application Programming Interface, which is part of WOSA (Windows Open Services Architecture). MAPI is a set of API functions and as OLE interface that lets messaging clients, such as Microsoft Exchange, interact with various message service providers, such as Microsoft Mail, Microsoft Exchange Server, Microsoft Fax and various computer telephony servers running under Windows NT server. Overall, MAPI helps Exchange manage stored messages and defines the purpose and content of messages — with the objective that most end users will never know or care about it. A friend of mine, who's a great programmer, Pete MacLean, explained MAPI as: MAPI is Microsoft's new foundation for a modular mail system. You can pick and choose among various email clients, address books, message stores (foldering systems), and transports (the message-service specific pieces) and build your own custom mail system. See also AT WORK, MICROSOFT EXCHANGE, WINDOWS 95, WINDOWS TELEPHONY and WOSA. The biggest explanation of MAPI is in the definition for WINDOWS 95.

Mapping 1. In network operations, the logical association of one set of values, such as addresses on one network, with quantities or values of another set, such as devices on another network (e.g. name-address mapping, internetwork-route mapping).

2. A Novell NetWare term. To assign a drive letter to a chosen directory path on a particular volume of a particular file server. For example, if you map drive F to the directory SYS:ACCTSRECEIVE, you will access that directory every time you enter "F:" at the DOS prompt. See also DRIVE MAPPINGS.

3. In EDI (Electronic Data Interchange), mapping defines the translation between a company's unique data layout and an EDI formal structure.

Marathon A family of products that are combination fast packet multiplexer, data compression, voice compression and fax de-modulation devices that fit many, voice, data, fax and LAN "conversations" onto one leased circuit — analog or digital. The idea of Marathon is to save money on long distance telecommunications charges. The Marathon family of products is made by Micom Communications Corporation, Simi Valley CA, now a subsidiary of Northern Telecom (Nortel).

Marconi, Guglielmo Guglielmo Marconi, born in Bologna, Italy in 1874, was on a holiday when he read of the electromagnetic wave experiments of Hertz. This article established the thought in Guglielmo's mind that electromagnetic waves could free telegraphy from the wires and submarine cables, which at that time constrained its use. Finding out if electromagnetic waves could be used to communicate at a distance became an obsession for Marconi. His mother allowed him to use two large rooms on the top floor of their house as a laboratory. She also helped persuade Guglielmo's father to provide (albeit grudgingly) the money necessary for the batteries, wire and other equipment Guglielmo needed. Marconi started by repeating Hertz's experiments. His oscillator was an induction coil equipped with four spheres for the spark discharge. The frequency of the oscillations was in what we, today, call the VHF range. The detector he used with his receiving coil was a Branly coherer, similar to that used by Oliver Lodge. The coherer provided much greater sensitivity than the spark-gap equipped loop of wire Hertz had used.

Marconi placed a curved metal detector behind his oscillator to direct the waves toward the detecting circuit. Soon, Marconi was able to cause a bell, located thirty feet away, to ring when the oscillator was keyed. Through trial-and-error experimentation, he was able to increase the sensitivity of the coherer significantly over what others had achieved. The following spring, Marconi took his experiments outdoors. Connecting metal plates to the oscillator's spark gap lowered the frequency and strengthened the intensity of the oscillations produced. Similar plates were connected to each side of the coherer. By chance, Marconi found that if one of the metal plates was elevated high in the air and the other was laid on the ground, the range at which oscillations could be detected increased to over one-half mile. Soon, the elevated plates at the oscillator and detector were replaced by long vertical wires. The plates which had lain on top of the ground now were buried. This arrangement increased the distance at which signals could be received to one and one-quarter miles. An intervening hill was found to be no barrier to the reception of the signals. The combination of using lower-frequency oscillations and using the Earth as an element in his antenna system were crucially important achievements. Another demonstration was held in March of 1897. This time longer wavelengths were used in conjunction with wire antennas raised some 120 feet above the ground by means of kites and balloons. This arrangement resulted in signals being received over a distance of four and one-half miles. In May of 1887, Marconi demonstrated that wireless signals could span significant lengths across water by sending signals between the shore and an island in the Bristol Channel, a distance of 8.7 miles. This was a crucial test because the submarine cable that normally provided communications to the island had failed several times in recent months. Repairing the cable was costly both in time and in money so Marconi's system must have appeared as an excellent alternative. Marconi established the Wireless Telegraph and Signa. Ltd. in July of 1897. In 1899, he changed the name of his company to The Marconi Wireless Telegraph Co. Ltd. A major goal Marconi had in mind was to show the value of wireless for communicating with ships. In 1897, he returned home to Italy to convincingly demonstrate that wireless could communicate between naval warships. The Italian Navy soon adopted the Marconi wireless system. In 1896, in England, Marconi obtained the first patent on the wireless. In 1901 he succeeded in transmitting signals across the Atlantic. In 1909 he received jointly with C. F. Braun the Nobel Prize in Physics. Marconi was made a Marchese and a member of the Italian senate. He died in Rome on July 20, 1937. See also TESLA, Nikola.

Marginal Cost. The cost of supplying an extra unit of output. The telecommunications transport business is the only one in the world where the marginal cost of providing an extra unit of product (i.e. a phone call) is zero. This makes for wonderful economics once your network is in place.

Marine Telephone Marine telephones operate on assigned radiotelephone frequencies much as a radio broadcast does. Marine telephones can be used to contact other marine telephones or to reach land-based telephones through an operator.

MARISAT A satellite for marine use. Conversations on MARISAT are crystal clear. Call Comsat and ask them for a demo call to a ship somewhere in the world. It's very exciting.

Marine Broadcast Station A coast station which makes scheduled broadcasts of time, meteorological, and hydrographic information.

Marine Utility Station A station in the maritime mobile