

NEWTON's TELECOM DICTIONARY

The Official Dictionary of
Telecommunications & the Internet

**15th Updated, Expanded and Much
Improved Edition**

NEWTON'S TELECOM DICTIONARY

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CPU and bus speeds as well as the hardware that provides the bridge between the host bus and the disk interface.

Disk Duplexing A method of failsafe protection, used on file servers on local area networks. Disk duplexing involves copying data onto two duplicate hard disks, each using a separate controllers and a separate disk channel. Disk duplexing protects data against the failure of a hard disk or of the hard disk channel between the disk and the file server. The hard disk "channel" includes the disk controller and interface cable. If any component on one channel fails, the other channel continues to operate normally. (You hope.) The operating system sends a warning message to the workstations to indicate the failure. It's a good idea then to fix the problem fast. See also DISK MIRRORING.

Disk Mirroring A technique for protecting the information on your hard disk. Disk mirroring writes data simultaneously to two identical hard disks using the same hard disk controller. Here's how it works: You have a special hard disk controller card. That's the card which organizes getting information into and off your hard disk. When you come to write information to your hard disk, your hard disk controller writes first to the first hard disk, called the primary hard disk. The controller retains that information in its memory and then writes it to the second hard disk. This causes a 50% degradation in performance since it now takes twice as long to write to the disk. When the controller comes to read, it reads only from the primary disk. Thus there is no performance degradation in reading. Mirroring is designed to protect against mechanical problems with one of your hard disks. If one of the hard disks break, the other one will take over instantly. You will get a warning message. You will be told to repair the broken disk and you will be told to designate the other disk now as your primary disk (it may already be). That primary disk will now become your bootable disk, the one you boot your computer from. Mirroring does not protect against viruses, or corrupt data or losing data. Any idiocy you can perform on one hard disk you can now happily perform on two. Mirroring does not protect you against a lightning strike which could knock out both your hard disks. Mirroring does not protect against the loss of a controller card since you're only using one. Another protection technique called disk duplexing uses two separate controllers to drive two separate hard disks. See also DISK DUPLEXING.

Disk Operating System See DOS.

Disk Pack A series of disks mounted horizontally and arranged as a single unit. A disk pack contains more space for storing and retrieving information than one single disk.

Disk Sector Magnetic diskettes are typically divided into tracks, each of which contains a number of sectors. A sector typically contains a predetermined amount of data, such as 256 bytes.

Disk Server A device equipped with disks and a program that permits users to create and store files on the disks. Each user has access to their own section of the disk. It gives users disk space which they would not normally have at their own personal computers. The disk server is linked to the PCs via a LAN. The next level of sophistication would be a file server, which would allow users to share files.

Disk Spanning When you want to save a single big file to several floppy disks, it's called disk spanning. Many of the zipping programs allow you to do this. See PKZIP.

Disk Striping Writing data in stripes across a volume that has been created from areas of free space on from 2 to 32 disks. A Windows NT definition.

Disk Subsystem A collection of physical disks and the hardware required to connect them to a host computer or network.

Disk/File Server A mass storage device that can be accessed by several computers, usually through a local area network (LAN).

Diskless PC Just what it says: a PC without a disk drive. Used on a LAN, a diskless PC runs by booting DOS from the file server. It does this via a read-only memory chip on its network interface card called a remote boot ROM. Diskless PCs are cheaper than PCs with disks, they're more compact and they offer better security since users can't make off with floppy disks of important and sensitive data or add their own virus-ridden programs to file servers. Diskless PCs appeal primarily to users interested in security. One system of diskless PCs allow the system operator to disable and physically lock the machine's various ports and the computer case itself. Should something go wrong with the machine, the ports can be restored to operating condition by letting the system allow a technician to attach a laptop computer and run diagnostic programs.

Diskless Workstation See DISKLESS PC.

DISN Defense Information Systems Network.

DISOSS IBM's Distributed Office Support System.

Disparity Control A function of the 8B/10B transmission encoding scheme, in which the two remaining bits are used for error detection and correction. 8B/10B transmits 8 bits as a 10-bit group, thereby leaving two additional bits for disparity control.

Dispatch A radio communications technique where one communicates to many through short bursts of communication. Users of dispatch services include taxis, trucking companies and service personnel.

Dispersion More correctly known as chromatic dispersion. A term used to describe how an electromagnetic signal is distorted because the various frequency components of that signal have different propagation characteristics. Each frequency is chromatically distinct; i.e., has a different color. Dispersion is the degree of scattering taking place in the light beam as it travels along the fiber optic. Or the overlapping of a light signal on one wavelength to different wavelengths because of reflected rays and the different refractive index of the core fiber material. The problem is that each pulse of light comprises multiple wavelengths, each with different propagation characteristics—i.e., each travels at a slightly different speed. In a high-speed, long-haul fiber optic system, particularly one which employs WDM (Wavelength Division Multiplexing), portions of the pulses can overtake portions of the preceding pulses. Dispersion is a particularly significant problem in high-speed networks, which operate at Gbps speeds, and in long-haul networks which involve links exceeding several hundred kilometers. In order to defeat dispersion, the network must be optimized through the placement of regenerative repeaters at appropriate intervals, or through the use of Dispersion-Shifted Fiber. See also Dispersion-Shifted Single-Mode Fibers, SONET, and WDM.

Dispersion Compensation Grating DCG. DCG overcomes the distortion of optical signals as they are transmitted through a network. Instead of trying to compensate for large amounts of signal dispersion at the end of a network, DCG periodically removes the distortion where needed along the transmission line. See Solitons.

Dispersion-Shifted Single-Mode Fibers These types of fibers have a different internal configuration. This changes the zero total chromatic dispersion point to 1550nm. This is important because the attenuation at this wavelength

spectrum above 890 Megahertz (million cycles per second) and below 20 Gigahertz (billion cycles per second). (Some people say microwave refers to frequencies between 1 GHz and 30 GHz.) Microwave is a common form of transmitting telephone, facsimile, video and data conversations used by common carriers as well as by private networks. Microwave signals only travel in straight lines. In terrestrial microwave systems, they're typically good for 30 miles, at which point you need another repeater tower. Microwave is the frequency for communicating to and from satellites.

Microwave Band Loosely defined as those frequencies from about 1 gigahertz upward. Services that use microwave frequencies for point-to-point and point-to-multipoint communications include common carrier, cable TV operators, broadcasters, and private operational fixed users.

Microwave Multi-Point Distribution System MMDS. Microwave Multi-point Distribution System. A means of distributing cable television signals, through microwave, from a single transmission point to multiple receiving points. Often used as an alternative to cable-based cable TV. According to an April, 1995 press release from Pacific Telesis, which was starting an MMDS service, "in digital form, it will provide more than 100 channels to a radius of approximately 40 miles from the transmitter. The MMDS transmitter delivers video to homes that are in its 'line of sight.' MMDS transmissions are limited by the terrain and foliage of a given market. The microwave signal is received by an antenna on the subscriber's home, then sent down coaxial cable to a box atop the customer's TV set. The box decodes and decompresses the digital signal."

Microwave Pulse Generator MPG. A device that generates pulses at microwave frequencies.

MID An ATM term. Message Identifier: The message identifier is used to associate ATM cells that carry segments from the same higher layer packet.

Mid-air Passenger Exchange Grim air traffic controller speak for a head-on collision. Midair passenger exchanges are quickly followed by "aluminum rain." Definition from Wired Magazine.

Mid-Span A phone service that runs from a pole to a hook attached to a cable strand before it reaches the building.

Mid-span Meet Sonet's ability to mix the terminal, multiplexing and cross-connect equipment from different vendors. A major accomplishment for standardization. Wish more telecom systems could meet mid-span. Sadly, most can't.

Mid-split A broadband cable system in which the cable bandwidth is divided between transmit and receive functions.

Midband Microsoft's word for telecom speeds that are faster than phone lines but slower than broadband networks. ISDN BRI is midband.

Middleware Middleware is software which sits between layers of software to make the layers below and on the side work with each other. On that broad definition, middleware could be almost any software in a layered software stack. And, to be sure, middleware is not a 100% cast-in-concrete term. It is an evolving term, with many people giving the software the name "middleware" — if they see it fashionable that week. In computer telephony, middleware tends to be software that sits right above that part of the operating system dealing with telephony — TSAPI in NetWare or TAPI in Windows — but below the computer telephony application above it which the user sees on their desktop. In short, middleware is software invisible to the user which takes two or more different applications and makes them work seamlessly together.

MIDI Musical Instrument Digital Interface, a standard for connecting musical instruments, synthesizers and computers. The MIDI standard provides a way to translate music into computer data, and vice versa. A file with a MIDI extension means that it's a file containing music. In contrast, a file with the extension WAV typically means it's a sound file, which means it may contain a voice recording.

Midrange System Medium-scale computer that functions as a workstation or as a multiuser system handling several hundred terminals.

Mid Span Repeater A device that amplifies the signal coming or going to the central office. This device is necessary for ISDN service if you are outside the 18,000 foot distance requirement from the central office.

Midsplit A broadband cable system in which the cable bandwidth is divided between transmit and receive frequencies. The bandwidth used to send toward the head-end (reverse direction) is about 5 MHz to 116 Mhz, and the bandwidth used to send away from the head-end (forward direction) is about 168 MHz to 400 Mhz. The guard band between the forward and reverse directions (100 MHz to 160 MHz) provides isolation from interference. Requires a frequency translator.

MIF 1. Management Information File. MIF is a file format for DMI that describes components within a PC. See WFM.

2. Minimum Internetworking Functionality. A general principle within the ISO that calls for minimum local area network station complexity when interconnecting with resources outside the local area network.

Migration An AT&T marketing strategy designed to encourage all phone equipment month-to-month renters into long-term contracts for AT&T's "flagship products", i.e., System 75, 85 and Definity PBXs.

MII See Media Independent Interface.

Mike Microphone.

MIL 1/1000 of an inch.

Mileage See AIRLINE MILEAGE.

Mileage Sensitive rates Mileage sensitive rates (also called "banded rates") are rates that increase with physical distance within the United States. For example, if you live in New York, a call to (or from) New Jersey will cost less than a call to (or from) California. Things are changing, however. Most calls now in the United States are distance insensitive, and are only time sensitive. They charge by time, not far you call.

Millennium Bug The year 2000. The millennium bug. What happens when your computer hits the year 2000. There are three happenings. First, it will move its date to 1900 and stay there. In this case programs that use date calculations — like figuring how much money you have in your insurance policy will screw up. For example, because many mainframe programs used 95, instead of 1995 in the date field. That means that when it hits 00 or 01, the computer won't be able to figure that the difference between 01 and 95 is 6. (Figure it. 2001 minus 1995 = 6). Second, it will move its date to 1900 and you'll be able to manually change it back. Third, it will move its date to 2000 flawlessly. Most PCs manufactured after 1995 will handle the Y2K problem flawlessly. Many mainframe and minicomputers manufactured before that won't. Some phone systems will also mess up. They may stop working altogether. They may work in strange ways, like producing the wrong information on calls being made or being received. For more info: www.ibm.com/IBM/year2000; www.microsoft.com/CIO/articles/YEAR2000faq.htm; www.year2000.com. See 2000.

be a symmetric, or private key, algorithm. It also will be a block cipher supporting key lengths ranging from 128 to 256 bits, and variable-length blocks of data. See also Block Cipher, DES, Encryption, and Private Key.

AET Application Entity Title. The authoritative name of an OSI application entity, usually a Distinguished Name from the Directory.

AF 1. Audio Frequency. The range of frequencies which theoretically are audible to the human ear; i.e., 30 Hz - 20 KHz. Truly high fidelity audio covers the entire range. Full AF is not practical over the PSTN, as too much bandwidth required. Most of us can't hear the full AF range, anyway. As you get older, your hearing deteriorates. See also Bandwidth.

2. Assigned Frame. Motorola definition.

AFAIK As Far As I Know.

AFCEA Armed Forces Communications and Electronics Association. An organization of military communications personnel and suppliers who fulfill the specialized needs of government and military communications. They run an big convention each year in Washington in May-June. www.afcea.org

AFE See Analog Front End.

AFI An ATM term. Authority and Format Identifier: This identifier is part of the network level address header.

Affiliate 1. This definition from the Telecommunications Act of 1996. The term 'affiliate' means a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent. See the Telecommunications Act Of 1996.

2. A broadcast TV station not owned by a network, but one which includes the network's programs and commercials in its programming schedule.

Affiliated Sales Agency ASA. A term for a company which resells the service of a phone company. Typically, the phone company pays the ASA a commission. Sometimes the commission is so large that it blurs the thinking of the ASA into recommending to its customers telecom products and services they would be better without.

AFI Authority and Format Identifier. The portion of an NSAP format ATM address that identifies the type and format of the IDI portion of an ATM address. See also IDI and NSAP.

AFIPS American Federation of Information Processing Societies. A national, highly-respected organization formed by data processing societies to keep abreast of advances in the field. AFIPS organizes one of the biggest trade shows in the data processing industry — the NCC (National Computer Conference).

AFNOR Acronym for Association Francais Normal. France's national standards-setting organization.

AFP AppleTalk File Protocol. Apple's network protocol, used to provide access between file servers and clients in an AppleShare network. AFP is also used by Novell's products for the Macintosh.

AFT Automatic Fine Tuning; SEE AFC.

After-call Wrap-up The time an employee spends completing a transaction after the call has been disconnected. Sometimes it's a few seconds. Sometimes it can be minutes. Depends on what the caller wants.

AGC Automatic Gain Control. 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 will attempt to produce a constant volume level, that is,

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 do not want amplified. Never record a seminar or speech using AGC. The recording will be decidedly amateurish. Manual Gain Control means there is record volume control and is thus, preferred in professional applications.

AGCOMNET US Department of Agriculture's voice and data communications network.

Aged Packet A data packet which has exceeded its maximum predefined node visit count or time in the network.

Agent 1. The classic definition of an agent is an entity acting on behalf of another.

2. This term comes from the huge telephone call-in reservation centers which the airlines, hotels and car rental services run. An agent is the person who answers your call, takes your order or answers your question. Agents are also called Telephone Sales Representatives or Communicators. The term "agent" was first used in the airline business. It came from gate or counter ticket agent.

3. An "Agent" is the person or persons you have legally authorized to order your telephone service and equipment from telephone companies.

4. In the computer programming sense of the word, an agent acts on behalf of another person or thing, with delegated authority. The agent's goals are those of the entity that created it. An agent is an active object with a mission, but agents are abstractions that can be implemented in any way, whereas an object has a formal definition.

Business Week in its February 14, 1994 issue wrote, "It's what computer scientists call an 'agent' — a kind of software program that's powerful and autonomous enough to do what all goods robots should: help the harried humans by carrying out tedious, time-consuming, and complex tasks. Software agents just now emerging from the research labs can scan data banks by the dozen, schedule meetings, tidy up electronic in-boxes, and handle a growing list of clerical jobs."

4. Windows 95 Resource Kit defined agent slightly differently. It said that an agent was software that runs on a client computer for use by administrative software running on a server. Agents are typically used to support administrative actions, such as detecting system information or running services.

Agent Logon/Logoff A call center term. The agent begins their day by punching some buttons on their phone. This indicates to the automatic call distributor that they are now ready to take calls. Later in the day, they punch some other buttons and indicate to the ACD that they are now ready to stop working. This is called logoff.

Agent Sign On/Sign Off A feature which allows any ACD agent to occupy any position in the ACD without losing his or her personal identity. Statistics are collected and consolidated about this agent and calls are routed to this agent no matter where he sits or how many positions he may occupy at one time.

Aggregate AMA Record A telephone company AIN term. An AMA record generated to record multiple instances of service usage within a specified aggregation interval. It is created by formatting peg counts of AMA events.

Aggregate Bandwidth The total bandwidth of channel carrying a multiplexed bit stream. It includes the payload and the overhead. For example, a T-1 line has an aggregate full duplex bandwidth of 1.544 million bits per second.

Aggregate Rate The sum of the channel data rates for a given application.

Aggregation 1. An AMA (Automatic Message Accounting) function that accumulates AMA data, resulting in a less than