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**Access Control** A technique used to define or restrict the rights of individuals or application programs to obtain data from, or place data into, a storage device. Similarly, access to system logic is controlled on the basis of appropriate Access Codes. See Access Code.

**Access Control Field** 1. A term specific to Synchronous Multimegabit Data Service (SMDS), the Access Control Field controls access to the shared DQDB (Distributed Queue Dual Bus) which, in turn, provides access to the SMDS network. It consists of a single octet which is a portion of the 5-octet header of an SMDS cell. See also SMDS.

2. A Token Ring term. A field comprising a single octet (eight bits) in the header of a Token Ring LAN frame. Three Priority (P) bits set the priority of the token, a single Token (T) bit denotes either token or a frame, a Monitor (M) bit prevents frames or high-priority tokens from continuously circling the ring, and three Priority Reservation r bits allow a device to reserve the token for network access the next time the token circles the ring. See also Token Ring.

**Access Control List** ACL. Most network security systems operate by allowing selective use of services. An Access Control List is the usual means by which access to, and denial of, services is controlled. It is simply a list of the services available, each with a list of the computers and users permitted to use the service.

**Access Control Message** A message that is a user request, a resource controller response, or a request/response between resource controllers.

**Access Control Method** Set of rules which determine the basis on which devices are afforded access to a shared physical element, such as a circuit or device. In a Local Area Network environment, it regulates each workstation's physical access to the transmission medium (normally cable), directs traffic around the network and determines the order in which nodes gain access so that each device is afforded an appropriate level of access. By way of example, token passing is the technique used by Token Ring, ARCnet, and FDDI. Ethernet makes use of CSMA/CD or CSMA/CA; DDS makes use of a polling technique. See Media Access Control. (MAC).

**Access Control System** A system designed to provide secure access to services, resources, or data; for computers, telephone switches or LANs.

**Access Controls** An electronic messaging term. Controls that enable a system to restrict access to a directory entry or mailbox either inclusively or exclusively.

**Access Coordination** An MCI definition. The process of ordering, installing, and maintaining the local access channel for MCI customers.

**Access Coupler** A device placed between two fiber optic ends to allow signals to be withdrawn from or entered into one of the fibers.

**Access Customer Name Abbreviation** See ACNA.

**Access Device** The hardware component used in the signaling controller system: access server or mux.

**Access Envy** When I surf the web at two million bits per second (download) and you surf it at only 28,800 bits per second, you have a serious case of access envy, namely you envy my high speed.

**Access Event** Telcordia definition for information with a logical content that the functional user and the Network Access FE (Functional Entity) exchange.

**Access Floor** A system consisting of completely removable and interchangeable floor panels that are supported on adjustable pedestals or stringers (or both) to allow access to the area beneath.

**Access Function** An intelligent network term. A set of processes in a network that provide for interaction between the user and a network.

**Access Group** All terminals or phones that have identical rights to use the computer, the network, the phone system, etc.

**Access Level** Used interchangeably with Access Code. "Level" in dialing tends to mean a number.

**Access Line** A telephone line reaching from the telephone company central office to a point usually on your premises. Beyond this point the wire is considered inside wiring. See Local Loop and Access Link.

**Access Link** The local access connection between a customer's premises and a carrier's POP (Point Of Presence), which is the carrier's switching central office or closest point of local termination. That carrier might be a LEC, IXC or CAP/AAV; in a convergence scenario, the carrier might also be a CATV provider.

**Access List** List kept by routers to control access to or from the router for a number of services (for example, to prevent packets with a certain IP address from leaving a particular interface on the router).

**Access Manager** 1. An element in some architecture implementations of a PCS infrastructure that includes functions such as subscriber registration and authentication. It may include the Home Location Register, HLR, and Visitor Location Register, VLR.

2. A means of authorization security which employs scripting.

**Access Method** The technique or the program code in a computer operating system that provides input/output services. By concentrating the control instruction sequences in a common sub-routine, the programmer's task of producing a program is simplified. The access method typically carries with it an implied data and/or file structure with logically similar devices sharing access methods. The term was coined, along with Data Set, by IBM in the 1964 introduction of the System/360 family. It provides a logical, rather than physical, set of references. Early communications access methods were primitive; recently they have gained enough sophistication to be very useful to programmers. Communications access methods have always required large amounts of main memory. In a medium size system supporting a few dozen terminals of dissimilar types, 80K to 100K bytes of storage is not an unusual requirement. The IEEE's 802.x standards for LANs and MANs. See Access Methods.

**Access Methods** Techniques and rules for figuring which of several communications devices — e.g. computers — will be the next to use a shared transmission medium. This term relates especially to Local Area Networks (LANs). Access method is one of the main methods used to distinguish between LAN hardware. How a LAN governs users' physical (electrical or radio) access to the shared medium significantly affects its features and performance. Examples of access methods are token passing (e.g., ARCnet, Token Ring and FDDI) and Carrier Sense Multiple Access with Collision Detection (CSMA/CD) (Ethernet). See Access Method and Media Access Control.

**Access Minutes** The term Access Minutes or Access Minutes of Use is used by NECA (the National Exchange Carrier Association) and the FCC in measuring traffic between LATA service providers (CLECs or ILECs) and IXCs (InterExchange Carriers). The formal definition is "Access Minutes or Access Minutes of Use is that usage of exchange facilities in interstate or foreign service for the purpose of calculating chargeable usage. On the originating end of an interstate or foreign call, usage is to be measured from the time the originating end user's call is delivered by the telephone company and acknowledged as received by the interexchange carrier's facilities connected with the originating exchange. On the terminating end of an interstate or foreign call, usage is to be measured from the time the call is received by the end user in the terminating exchange. Timing of usage at both the originating and terminating end of an interstate or foreign call shall terminate when the calling or called party disconnects, whichever event is recognized first in the originating and terminating end exchanges, as applicable." This comes from the FCC's 69.2 Definitions.

**Access Network** Several wholesale carriers define access network as the fiber connection and associated electronic equipment that link a core network to Points of Presence (POPs) and on to Points of Interconnect (POIs) switch locations.

**Access Node** Access nodes are points on the edge of a network which provide a means for individual subscriber access to a network. At the access node, individual subscriber traffic is concentrated onto a smaller number of feeder trunks for delivery to the core of the network. Additionally, the access nodes may perform various forms of protocol conversion or adaptation (e.g. X.25, Frame Relay, and ATM). Access nodes include ATM Edge Switches, Digital Loop Carrier (DLC) systems concentrating individual voice lines to T-1 trunks, cellular antenna sites, PBXs, and Optical Network Units (ONUs).

**Access Number** The telephone number you use to dial into your local Internet Service Provider (ISP). To connect to the Internet you must first establish an account with an ISP in your area. Usually you will receive a list of telephone numbers you can use to "dial-in" to the service.

**Access Organization** An entity which originates program material for transmission over the access channel capacity of a cable television system. An access organization may be an individual, a non-profit corporation, an unincorporated non-profit association, or a for-profit corporation. However, under most cable franchises, commercial advertising is prohibited on Public, Educational, and Government Access channels.

**Access Phase** In an information-transfer transaction, the phase during which an access attempt is made. The access phase is the first phase of an information-transfer transaction.

**Access Point** 1. A point where connections may be made for testing or using particular communications circuits.

2. A junction point in outside plant consisting of a semipermanent splice at a junction between a branch feeder cable and distribution cables.

## Access Protection / Account Policy

3. AP. A cross-box where telephone cables are cross connected.

4. Network device that interconnects a wireless radio network to a wired LAN (local area network).

**Access Protection** Refers to the process of protecting a local loop from network outages and failures. Access protection can take many forms, such as purchasing two geographically diverse local facilities, adding protection switches to the ends of geographically diverse local loops, or buying service from a local access provider which offers a survivable ring-based architecture to automatically route around network failures.

**Access Protocols** The set of procedures which enable a user to obtain services from a network.

**Access Provider** A company, such as a telephone company, that hooks your computer up to the Internet.

**Access Rate** 1. The maximum data rate of the access channel, typically referring to access to broadband networks and network services.

2. AR. A Frame Relay term which addresses the maximum transmission rate supported by the access link into the network, and the port speed of the device (switch or router) at the edge of the carrier network. The Access Rate defines the maximum rate for data transmission or receipt. See also Committed Information Rate.

**Access Request** A message issued by an access originator to initiate an access attempt.

**Access Response Channel** ARCH. Specified in IS-136, ARCH carries wireless system responses from the cell site to the user terminal equipment. ARCH is a logical sub-channel of SPACH (SMS (Short Message Service) point-to-point messaging, Paging, and Access response Channel), which is a logical channel of the DCCH (Digital Control Channel), a signaling and control channel which is employed in cellular systems based on TDMA (Time Division Multiple Access). The DCCH operates on a set of frequencies separate from those used to support cellular conversations. See also DCCH, IS-136, SPACH and TDMA.

**Access Router** An access device with built-in basic routing-protocol support, specifically designed to allow remote LAN access to corporate backbone networks. An access router is not designed to replace backbone routers or to build backbone networks.

**Access Server** Communications processor that connects asynchronous devices to a LAN or WAN through network and terminal emulation software. Performs both synchronous and asynchronous routing of supported protocols. Sometimes called a network access server.

**Access Service** Switched or Special Access to the network of an IXC for the purpose of originating or terminating communications.

**Access Service Ordering Guidelines** ASOG. Industry guidelines for issuing Access Service Requests (ASRs) as sponsored by the Ordering and Billing Forum (OBF) and the Alliance for Telecommunications Industry Solutions (ATIS). These guidelines outline the forms, data elements and the business rules necessary to create an Access Service Request.

**Access Service Request** ASR. A form used by a CLEC (Competitive Local Exchange Carrier) to request that the ILEC (Incumbent LEC) provide Special Access or Switched Access Services as specified in the various Access Service Tariffs. Some services that can be requested are: Feature Group A, WATS Access Line; Feature Groups B, C, D Forms; special access circuits; multipoint service legs; additional circuits; testing service; and 800 database access. The ASR has been used for many years between the RBOCs (regional Bell operating companies) to order special circuits that extend into other telcos' serving areas.

**Access Signaling** A term which Nortel Networks' Norstar telephones use to indicate their ability to access a remote system (such as a Centrex or a PBX), or dial a number on an alternate carrier by means of Access Signaling (also referred to as "End-to-End" Signaling).

**Access Surcharge** State specific usage charges applied to dedicated lines on the originating end of a circuit.

**Access Switch** Feeder node to Enterprise Network Switches that perform multiprotocol bridge/routing and support a wide range of serial-link (e.g., SDLC BSC, asynchronous) attached devices. Also known as Gateways, such devices currently are known as Routers and Encapsulating Bridges, although the differences between them are most significant.

**Access Tandem** A Local Exchange Carrier switching system that provides a concentration and distribution function for originating and/or terminating traffic between a LEC

and office network and IXC POPs. In short, a distinct type of local phone company switching system specifically designed to provide access between the local exchange network and the interexchange networks for long-distance carriers in that area. The Access Tandem provides the interexchange carrier with access to multiple end offices within the LATA. More than one Access Tandem may be needed to provide access to all end offices within any given LATA. Currently, the Access Tandem function may be in the form of a physical and logical partition of a LEC Central Office switch, which also serves end users for purposes of satisfying local calling requirements. Additionally, the IXC may extend the reach of the POP through a high-speed channel extension via dedicated circuits, thereby achieving interconnection with the LEC through collocation of termination facilities in the LEC CO.

In its internal glossary, US West defines Access Tandem as the switching system that provides distribution for originating or terminating traffic between End Offices and the Interexchange Carrier's Point-of-Termination. An Access Tandem is also used to distribute originating or terminating traffic between a CLEC end office and an intralATA toll point or an Interexchange Carrier's Point of Termination.

**Access Time** There are many definitions of access time:

1. In a telecommunications system, the elapsed time between the start of an access attempt and successful access. Note: Access time values are measured only on access attempts that result in successful access.

2. In a computer, the time interval between the instant at which an instruction control unit initiates a call for data and the instant at which delivery of the data is completed.

3. The time interval between the instant at which storage of data is requested and the instant at which storage is started.

4. In magnetic disk devices, the time for the access arm to reach the desired track and for the rotation of the disk to bring the required sector under the read-write mechanism.

5. The amount of time that lapses between a request for information from memory and the delivery of the information, usually stated in nanoseconds (ns). When accessing data from a disk, access time includes only the time the disk heads take to settle down reaching the correct track (seek time) and the time required for the correct sector to move over the head (latency). Disk access times range between 9ms (fast) and 100 ms (slow).

6. A Verizon definition: Access time (usage) is measured from the time that the originating customer's call is delivered by the Telephone Company to, and acknowledged as received by, the receiving customer's equipment when they are connected with the originating exchange. On the terminating end of an interstate or foreign call, access time is measured from the time the call is received by the end user in the terminating exchange. Access ends when the calling or called party disconnects.

**Access Unit** 1. AU. An electronic messaging term, used for implementing value-added services such as fax, Telex, and Physical Delivery via X.400.

2. In the token ring LAN community, an access unit is a wiring concentrator. See Media Access Unit (MAU).

**ACCOLC** Access Overload Class. A term used in the cellular phone business to allow the cellular system some way of choosing which calls to complete based on some sort of priority. Originally, when the Federal government began designing cellular systems, the government intended to give certain emergency vehicles (such as police, ambulances, and fire departments) codes in their cellular phones that would allow them priority over other subscribers to communicate during emergencies. There is no standard in use within the United States at this time.

**Account** On LANs or multiuser operating systems, an account is given to each user for administrative and security reasons. In online services, an account identifies a subscriber.

**Account Code (Voluntary or Enforced)** A code assigned to a customer, a project, a department, a division — whatever. Typically, a person dialing a long distance phone call must enter that code so the Call Accounting system can calculate and report on the cost of that call at the end of the month or designated time period. Many service companies, such as law offices, engineering firms and advertising agencies use account codes to track costs and bill their clients accordingly. Some account codes are very complicated. They include the client's number and the number of the particular project. The Account Code then includes Client and Matter number. These long codes can tax many call accounting systems, even some very sophisticated ones.

**Account Executive** AE. A fancy, schmancy name for a salesperson. The idea is that the customer is an "account," and the salesman is the executive running the account. Telephone companies call their salespeople account executives — especially on the equipment and non-long distance side.

**Account Policy** On networks and multiuser operating systems, account policy is the

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spectrum, it is equipped to take advantage of digital broadcasts when they become more common.

**Database** A collection of data structured and organized in a disciplined fashion so that access is possible quickly to information of interest. There are many ways of organizing databases. Most corporate databases are not one single, huge file. They are multiple databases related to each other by some common thread, e.g. an employee identification number. Databases are made up of two elements, a record and a field. A record is one complete entry in a database, e.g. Harry Newton, 205 West 19 Street, York, NY 10011, 212-206-7140. A field would be the zip code field, namely 10011.

Databases are stored on computers in different ways. Some are comma delineated. They differentiate between their fields with commas — like Gerry's record above. A more common way of storing databases is with fixed length records. Here, all the fields and all the records are of the same length. The computer finds fields by index and by counting. For example, Gerry's first name might occupy the first 15 characters. Gerry's last name might be the next 20 characters, etc. Where Gerry's names are too short to fill the full 15 or 20 characters, their fields are "padded" with specially-chosen characters which the computer recognizes as padded characters to be ignored. The most important thing to remember about databases is that all the common database programs, like dBASE, Paradox, Rbase, etc. don't automatically make backups of their files like word processing programs do. Therefore, before you muck with a database file — sort it, index it, restructure it, etc. Please make sure you make a backup of the main database file.

**Database Administrator** 1. A person who organizes, designs, implements and runs the company's databases. Since I personally believe databases — especially of prospects and customers — are pretty well a company's most important asset, this job of database administrator is very important.

2. DBA. A computer at MCI Worldcom that maintains the master file of Vnet translation information. The master file is created when a customer begins service and can be changed at anytime through CIM. The updated copies of the database are downloaded each night to the DAPs.

**Database Clustering** Database clustering is a technology that allows a bunch of computers connected together to work as one and serve a single relational database. The idea is that together they can create a fault-tolerant, high performance, scalable solution that's a low-cost alternative to large, expensive servers. Database clustering is also called real application clustering (RAC). When I wrote this it was new and relatively unproven. There are two common methods of clustering relational databases, known as "shared-disk" and "shared-nothing" clustering. IBM's DB2 Universal Database (DB2 UDB) uses a shared-nothing approach. In this architecture, each node in the cluster holds only one segment of the database, and the node also handles all of the computational work that corresponds to the data it stores. A master server assesses the task at hand and then parcels it out, distributing a portion of the job to each node that contains data to be processed. The task is then executed by all of the nodes in parallel, and the master server reports the result. Oracle uses shared disk clustering — a design that's structured around a single large data store (for example, a disk array). Each node on the cluster has equal access to all of the information in the data store. Only the processing work is divided amongst them, and not the data itself. The result is particularly fault tolerant database. Even if one or more servers fails, all of the application data remains available to the other nodes. By comparison, if one node on a shared-nothing database crashes, all of the data stored on that node likewise goes offline, until a failover system can recover from the fault.

**Database Dictionary** A specific type of system table that stores information about the structure of a particular database. Primarily used in relational databases to store the names and data types of the tables and columns in a database. Can also be known as a Lookup Table.

**Database Lookup** A software program which allows telephone users to find information on someone calling via the LCD window on their phone. This information comes to the user via CLID (Calling Line Identification) or ANI (Automatic Number Identification). See also Class.

**Database Management System** DBMS. Computer software used to create, store, retrieve, change, manipulate, sort, format and print the information in a database. Database management systems are probably the fastest growing part of the computer industry. Increasingly, databases are being organized so they can be accessible from places remote to the computer they're kept on. The "classic" database management system is probably an airline reservation system.

**Database Mining** You have a database of your customers. You have information

on your customers' buying habits. You slice and dice your database to find out which of your customers might be interested in purchasing new items and which items. For example, let's say you make clothes. 20% of your customers buy in "tall" mens sizes. Next time you make some tall mens' clothes, you may want to tell those customers — with an email or a direct mail catalog. That, in its simplest example, is called database mining or collaborative filtering.

**Database Object** One of the components of a database: a table, view, index, procedure, trigger, column, default, or rule.

**Database Server** A specialized computer that doles out database data to PCs on a LAN the way a file server doles out files. Where a traditional DBMS runs both a database application and the DBMS program on each PC on the LAN, a database server splits up the two processes. The application you wrote with your DBMS runs on your local PC, while the DBMS program runs on the database server computer. With a regular file server setup, all the database data has to be downloaded over the LAN to your PC, so that the DBMS can pick out what information your application wants. With a database server, the server itself does the picking, sending only the data you need over the network to your PC. So a database server means vastly less network traffic in a multi-user database system. It also provides for better data integrity since one computer handles all the record and file locking. See Server.

**Datablade** Datablades are components for particular types of data that plug into a central database, similar to the way razor blades snap into a razor. Informix is rewriting some of its databases so other companies can produce datablades.

**Datagram** A transmission method in which sections of a message are transmitted in scattered order and the correct order is re-established by the receiving workstation. Used on packet-switching networks. The Dow Jones Handbook of Telecommunications defines it as, "A single unacknowledged packet of information that is sent over a network as an individual packet without regard to previous or subsequent packets." Here's another definition I found. A finite-length packet with sufficient information to be independently routed from source to destination. In packet switching, a self-contained packet, independent of other packets, that carries information sufficient for routing from the originating data terminal equipment to the destination data terminal equipment, without relying on earlier exchanges between the equipment and the network. Unlike virtual call service, there are no call establishment or clearing procedures, and the network does not generally provide protection against loss, duplication, or misdelivery. Datagram transmission typically does not involve end-to-end session establishment and may or may not entail delivery confirmation acknowledgment. A datagram is the basic unit of information passed across the Internet. It contains a source and destination address along with data. Large messages are broken down into a sequence of IP datagrams. See Connectionless Mode Transmission.

**Datagram Packet Network** The type of packet-switched network in which each packet is individually routed. This may result in a loss of sequence within a message because of alternate routing, or a loss of portions of a message because of packet elimination for congestion control. See Datagram.

**DATAP** The programmer and system house in Atlanta which provides several long distance carriers with value-added services — what Sprint calls its SCADA system manufacturer.

**Datapak** A packet-switched network run in Denmark, Sweden, Finland and Norway and operated by their respective governments.

**Datapath** A name that once was a data service that provided digital, full-duplex data transmission at speeds of 300 bps through 19.2 Kbps asynchronous and 1,200 through 64 Kbps synchronous. Datapath has built in autobaud and hand-shaking protocols.

**Datascope** A diagnostic tool for monitoring and capturing data transmissions which displays real-time transmissions of raw data in hexadecimal, binary, or character-oriented displays.

**DataSPAN** DataSPAN is generally characterized as a "fast packet" service and is based on frame relay standards recommended by the International Consultative Committee for Telephone & Telegraph (ITU) (now called the ITU-T) and the American National Standards Institute (ANSI). Northern Telecom has introduced DataSPAN as a new DNS SuperNode value-added, data communications service that is targeted toward connecting high-speed local area networks. Northern Telecom asserts that DataSPAN's rapid and efficient data transport assures reliable delivery and substantial performance improvement over current LAN interconnect solutions. DataSPAN switching and transmission delay is less than 3 ms per node; X.25 switching and transmission delay can be up to 50 ms per node. Using Frame Relay, wide-area packet switching can be accomplished with the same level of per-

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both POTS and special services and the computer console operator can select one pair at a time or select thousands for sequential transfer.

**Receipt Notification** A report prepared by a recipient UA (User Agent) or Access Unit (upon request) and sent to the originating UA or Access Unit when a message is received by a recipient.

**Receive Interruption** The interruption of a transmission to a terminal to receive or send a higher priority message from the terminal.

**Receive Only** RO. Describing operation of a device, usually a page printer, that can receive transmissions but cannot transmit.

**Received Line Signal Detector** Modem interface signal defined in RS-232-C EIA interface which indicates to the attached data terminal equipment that it is receiving a signal from the distant modem.

**Received Signal Level** RSL. The strength of a radio signal received at the input to a radio receiver.

**Received Signal Strength Indication** The measured power of a received signal.

**Receiver** 1. Any device which receives a transmission signal.

2. Any portion of a telecommunications device which decodes an encoded signal into its desired form.

3. The earpiece portion of a telephone handset, which converts an alternating electric current into sound waves, usually through an electromagnet moving a diaphragm.

4. An electronic component capable of collecting radio frequency broadcasts and reproducing them in their original audio and/or video form, e.g. a TV or radio receiver.

**Receiver Congestion** A Token Ring error reported by any ring station that receives a frame addressed to itself, but has no room in its buffer to store the frame. The frame is then discarded, and within two seconds the station will report how many times this happened over the reporting period.

**Receiver Multicoupler** A receiver multicoupler is a device that enables several radio receivers to use a single antenna system. Typically a receiver multicoupler will consist of a bandpass preselector (filter) to determine range of receiving frequencies, and a RF amplifier with low noise figure and high gain to overcome multicoupling losses, and a balanced impedance power divider to divide the amplifier's output into the number of receiving channels required. A regulated power supply is also required for the amplifier. A received multicoupler is used extensively for cellular and trunked radio sites. Natalie Duran of the Area Transmission Engineering department of the Los Angeles Department of Water & Power writes "We use it for the simple reason of having to run only one coaxial cable versus three."

**Receiver Off-Hook Tone** The loud tone sent by the central office to tell the telephone user that his/her phone is off the hook.

**Receiver Sensitivity** The magnitude of the received signal necessary to produce objective BER or channel noise performance.

**Receiving Perforator** Reperforator. A telegraph instrument in which the received signals cause the code of the corresponding characters or functions to be punched in a tape.

**Recent Change** Changes to line and trunk translations in a stored program control switching machine that have not been merged with the permanent data base.

**Recession** A recession is defined by economists as two consecutive quarters in which the nation's GDP (gross domestic product) declines.

**Recip Comp** See Reciprocal Compensation.

**Recipient Switch** The switch to which a local number being ported is ported to. Sorry for the mouthful.

**Reciprocal Agreements** Also called Inter-carrier Roaming Agreements. An agreement between two cellular carriers that allows the respective customers of the two carriers to use each others' systems automatically, without the necessity of registering as roamers.

**Reciprocal Compensation** Recip comp. A form of financial compensation that occurs when a local or long distance service provider terminates a call on another provider's facilities. Imagine a phone call from New York to Los Angeles. It may start with the customer of a new phone company, then proceed to a local phone company (let's say New York Telephone, now called Bell Atlantic). Then it may proceed to a long distance company before ending in Los Angeles and going through another one or two local phone companies before reaching the person dialed. Under the existing rules, all the companies carrying these phone calls have to be paid in some way for their transmission and switching

services. There are programs in place such that the company doing the billing and collecting the money pays over some of those monies to the other phone companies in the chain. One such program is called "reciprocal compensation." The opposite of reciprocal compensation is called "Bill and Keep." Under this program, the company billing the call gets to keep all the money. The others in the chain (or most of the others in the chain) get nothing.

**Reciprocal Compensation Call** A telephone exchange service call, completed between the end users of different carriers, which qualifies for reciprocal compensation under the terms of an interconnection agreement and any prevailing regulatory rules that may exist. Reciprocal compensation is the payment by telecommunications providers to one another for terminating each other's local exchange traffic.

**Reciprocal Link** A hyperlink or link placed on one Web site to return the favor of another site putting a link on their page.

**RECO** A line item Profit and Loss description for a typical networking services business signifying the four major cost classifications: Resources (People), Equipment, Circuits and Other. RECO is used by countless IBMers.

**Recognition Assisted Data Entry** Commonly known as Forms Processing.

**Recognized Operating Agency** See ROA.

**Recognized Private Operating Agency** RPOA. The ITU-T term for a packet interexchange carrier. The status granted to a communications entity by its national government after it pledges to abide by mandatory regulations under Article 44 of the ITU (International Telecommunications Union) convention. For example, a publicly recognized VAN (Value Added Network)

**Recognizer** A voice recognition term. A system that attempts to classify speech (input utterances) as words from an active vocabulary.

**Reconfiguration** A fancy word for rearranging equipment, features and options.

**Record** In a database, a record is a group of related data items treated as one unit of information — for example, your name, address and phone number. Each Record is made up of several fields. A field is simply your last name.

**Record Communications** Any form of communication which produces a "written" record of the transmission. Teletypewriter and facsimile are examples of record communications. Companies such as RCA Globecom, ITT Worldcom, TRT and MCI, which provide international telex, are known as international record carriers. Before deregulation, that business was exceptionally profitable.

**Record Head** The electromagnetic device which magnetizes the surface of a magnetic recording — tape, disk, etc. — in proportion to an electrical signal.

**Record Length** The number of bytes in a record. See Record.

**Record Locking** Think about an airline reservation. You call up. You want to change your reservation. While the airline has your record open, your travel agent calls up to change it. You change your reservation. Your travel agent changes it. Which one ends up in the "permanent" record? Confusion reigns. Clearly it makes sense to only allow one person to access one record at once and lock everyone else out. Record locking is the most common and most sophisticated means for multi-user LAN applications to maintain data integrity. In a record locking system, users are prevented from working on the same data record at the same time. That way, users don't overwrite other users' changes and data integrity is maintained. But though it doesn't allow users into the same record at the same time, record locking does allow multiple users to work on the same file simultaneously. So multi-user access is maximized. Contrast with file locking, which only allows a single user to work on a file at a time.

**Recorded Announcement Intercept** Provides a recorded message to an intercepted call indicating why the call cannot be completed, as an alternative to attendant intercept or intercept one for DID and CCSA calls to restricted or unassigned numbers.

**Recorded Announcement Service** A special type of central office trunk which when dialed, will connect the caller to a prerecorded message.

**Recorded Answering Device** See RAD.

**Recorded Telephone Dictation** Phone users can dial into centralized telephone dictation equipment. The dictation equipment is usually handled as a trunk connection or it can be wired on an extension level.

**Recorded Voice Announcement** See RVA.

**Recorder** A device many large phone users use to record conversations with their callers. Recording truck dispatches can help a company gain the upper hand in customer service. Purchasing departments may use the recorder to remind vendors of their promises.

R



Baud rate is the signal modulation rate, or the speed at which a signal changes. Since most modems or serial printers attached to personal computers send only one bit per signaling event, baud can be thought of as bits per second. However, higher-speed modems may transfer several bits per signal change. Typical baud rates are 300, 1200, 2400, 4800, 9600 and 19,200. The higher the number, the greater the number of signal changes and, therefore, the faster the transmission.

Character length specifies the number of bits used to form a character. The standard ASCII character set (including letters, numbers, and punctuation) consists of 128 characters and requires a character length of 7 bits for transmissions. Extended character sets (containing line drawings or the foreign characters used in IBM's extended character set) contain an additional 128 characters and require a character length of 8 bits. Parity error checking can only be used with character lengths of 7 bits.

Parity is a method of checking for errors in transmitted data. You can set parity to odd or even, or not use parity at all. When the character length is set to 8, parity checking cannot be done because there are no "spare" bits in the byte. When the character length is 7, the eighth bit in each byte is set to 0 or 1 so that the sum of bits (0s and 1s) in the byte is odd or even (according to the parity setting). When each character is received, its parity is checked again. If it is incorrect (because a bit was changed during transmission), the communications software determines that a transmission error has occurred and can request that the data be retransmitted.

Stop bit is a special signal that indicates the end of that character. Today's modems are fast enough that the stop bit is always set to one. Slower modems used to require two stop bits.

XON/XOFF is one of many methods used to prevent the sending system from transmitting data faster than the receiving system can accept the information. See also EIA/TIA-232-E, RS-232-C and serial data transmission.

**Serial Data Transmission** Serial data transmission is the most common method of sending data from one DTE to another. Data is sent out in a stream, one bit at a time over one channel. When a computer is instructed to send data to another DTE, the data within the computer must pass through a serial interface to exit as serial data. Then passes through ports, cables, and connectors that link the various devices. The boundaries (physical, functional, and electrical) shared by these devices are called interfaces. See serial communications.

**Serial Digital** Digital information that is transmitted in serial form. Often used informally to refer to serial digital television signals.

**Serial Interface** The "lowest common denominator" of data communications. A mechanism for changing the parallel arrangement of data within computers to the serial one bit after the other form used on data transmission lines and vice versa. At least one serial interface is usually provided on all computers for the connection of a terminal, a modem or a printer. Sometimes also called a serial port. See EIA/TIA-232-E, RS-232-C, Serial Interface Card and the Appendix.

**Serial Interface Card** A printed circuit card which drops into one of the expansion slots of your computer and changes the parallel internal communications of your computer into the one-bit-at-a-time serial transmission for sending information to your modem or a serial printer.

**Serial Line Internet Protocol** See SLIP.

**Serial Memory** Memory medium to which access is in a set sequence and not at random.

**Serial Peripheral Interface.** See SPI.

**Serial Port** An input/output port (plug) that transmits data out one bit at a time, as opposed to the parallel port which transmits data out eight bits, or one byte at a time. Most personal computers (PCs) have at least one serial and one parallel port. In a typical connection, the serial port is used for a modem while the parallel port is used for a printer. See a diagram of a typical 25-pin RS-232-C serial port, see the Appendix at the back of this book.

**Serial Processing** Method of data processing in which only one bit is handled at a time.

**Serial Transmission** Sending pulses one after another rather than several at the same time (parallel). When transmitting data over a telephone line there is only one set of wires. Therefore, the only logical way to transmit it is to send the data in serial mode. It is possible to use eight different frequencies to transmit a character all at once (parallel), but these modems are ridiculously expensive. See Parallel, Parallel Port and Serial Port.

**Serialize** To change from parallel-by-byte to serial-by-bit.

**Series** A connection of electrical apparatus or circuits in which all of the current passes through each of the devices in succession or on after another. See also Parallel.

**Series 11000** An AT&T private line long distance tariff created in the 1970s and designed expressly to reduce MCI's chances of selling any private lines and thus of surviving. It was thrown out by the FCC and the tariff figured in MCI's and the Federal Government's antitrust against AT&T.

**Series Circuits** In a series circuit, the electric current has only one path to follow. All of the electric current flows through all the components of the circuit. To calculate the resistance of a series circuit add up the resistance of each of the components in the circuit. In contrast, see parallel circuits.

**Series Connection** A connection of electrical apparatus or circuits in which all of the current passes through each of the devices in succession or on after another. See also Parallel.

**Series RF Tap** A bugging device. It is a radio transmitter which is installed in series with one wire of the telephone circuit. Normally a parasite (i.e. takes power from the phone line). Transmits both sides of the conversation. It transmits only when the phone is off-hook. See also Series.

**Serve Shield** A type of shield used in coaxial cable systems, a serve shield, or spiral shield, is simply wound around the inner conductor. See also Coaxial Cable.

**Server 1.** Hardware definition of server: A server is a shared computer on the local area network that can be as simple as a regular PC set aside to handle print requests to a single printer. Or, more usually, it is the fastest and browniest PC around. It may be used as a repository and distributor of oodles of data. It may also be the gatekeeper controlling access to voice mail, electronic-mail, facsimile services. At one stage, a local area network had only one server. These days networks have multiple servers. Servers these days have multiple brains, large arrays of big disk drives (often in redundant arrays) and other powerful features. New powerful servers are called superservers. A \$35,000 superserver today can match the performance of a \$2 million mainframe of ten years ago. Then again, according to Peter Lewis of the New York Times, the lowliest client today has more computing power than was available to the entire Allied Army in World War II. See Downsizing for some of the benefits of running servers as against mainframes.

2. Software definition of server: A server is a program which provides some service to other (client) programs. The connection between a client program and the server program is traditionally by message passing, often over a local area or wide area network, and uses some protocol to encode the client's requests and the server's responses. Any given program may be capable of acting as both a client and a server, perhaps switching its role based on the nature of the connection. The terms "client" and "server" simply refer to the role that the software program performs during a specific connection. Similarly, any given server may function as an origin server, a proxy server, a gateway server, or a tunnel, modifying its behavior based on the specific nature of a given request from a client.

**Server API** A SCSA term. A communications protocol that allows a call processing application running on one computer to control SCSA hardware residing in another computer.

**Server Appliances** Little servers designed for small businesses or workgroups without supervision by a central IT department. See Server.

**Server Application** A Windows NT application that can create objects for linking or embedding into other documents.

**Server Certificate** A unique digital identification that forms the basis of a Web server's SSL security features. Server certificates are obtained from a mutually trusted, third-party organization, and provide a way for users to authenticate the identity of a Web site.

**Server Cluster** A group of server computers that are networked together both physically and with software, in order to provide cluster features such as fault tolerance or load balancing. See also Fault Tolerance and Load Balancing.

**Server Colocation** An ISP/web hoster service in which a client places their server on the Internet at an ISP's office for a monthly fee. In return, the server is, theoretically, always connected via multiple redundant high speed connections to the Internet. See also Web Hosting.

**Server Farm** Imagine a room stuffed with PCs, ranged in racks along walls, ranged in racks in lines like a library's back room. The PCs are really servers — powerful PCs containing databases and other information they are dispensing to the thousands of PCs dialing into them from afar. A server farm may be owned by one company and used by one company, or it may be owned by one company and each of the machines leased to other



**Whiteboard** A device which lets you share images, text and data simultaneously as you speak on the phone with someone else. That someone might be in the next office. Or that someone might be 3,000 miles away. The transport mechanism might be a local area network or an analog phone line running a special modem designed for whiteboarding or it might be an ISDN digital line running special PC software and hardware. The concept of whiteboarding is new; there are no standards. As a result to do whiteboarding successfully, you typically need the same equipment (hardware and software) on either end. Whiteboarding has the potential to be one of the most successful "multimedia" applications around. Whiteboarding is a document-conferencing function that lets multiple users simultaneously view and annotate a document with pens, highlighters, and drawing tools. More advanced whiteboard programs handle multi-page documents and provide tools for delivering them as presentations.

**Who-Are-You Code** WRU. A control character which operates the answerback unit in a terminal (typically a telex terminal) for identification of sending and receiving stations in a network.

**Whodunit** None of the kids who live in your house.

**Whois** 1. A command on some systems that reveals the user's name, based on that person's network username.

2. Whois is a way of looking up names in a remote database. Used initially as an aid for finding e-mail addresses for people at large institutions or companies. It is now a tool of the InterNIC DNS (Domain Name Server). Whois allows anyone to query a database of people and other Internet entities, such as domains, network, and hosts. The data includes company/individual name, address, phone number and electronic mail address. If you have your own domain and thought your personal information was hidden from view, you are in for a shock. Don't believe me, check out [www.internic.net](http://www.internic.net). See also InterNIC and RWhois.

**Whole Nine Yards** The term "the whole 9 yards" came from World War fighter pilots in the Pacific. When arming their airplanes on the ground, the .50 caliber machine gun ammo belts measured exactly 27 feet, before being loaded into the fuselage. If the pilots fired all their ammo at a target, it got "the whole 9 yards."

**Whole Person Paradigm** This is one of the more fascinating telecom concepts in a while. General Magic created it as some sort of psychological basis for the product/s it is producing. Here's General Magic's definition:

A psychological or behavior model of needs that all people experience. This paradigm is the design center for General Magic's personal intelligent communication products and services. It consists of three elements. 1. Remember - managing your internal agenda, such as things to do and people to see. 2. Communicate - maintaining relationships with your friends, family, and associates. 3. Know - getting information about the world.

**Wholesale Access Lines** End-user access lines owned by the ILEC but served by another local carrier. Total service resale, UNE-P, and UNE-L are examples of wholesale access lines.

**Wholesale Customer** A Verizon definition. A wholesale customer purchases products and services under Verizon Wholesale Tariffs.

**Wi-Fi** Wireless Fidelity, Another name for a wireless network running under the 802.11b standard. My research shows that Wi-Fi and WiFi are used pretty well equally. I personally prefer Wi-Fi. Wi-Fi 5 is the term used for 802.11a systems operating in the 5 MHz band. See also 802.11a, 802.11b and WiFi.

**Wi-Fi 5** A new version of Wi-Fi that's even faster, with a maximum speed of 54 megabits per second. Also called 802.11a. See also Wi-Fi and WiFi.

**WIA** Wireless Institute of Australia. The peak body representing the amateur radiocommunications community in Australia. It is the organization to which the Australian Communications Authority (ACA) has delegated responsibility for conducting examinations for amateur radio operators.

**WIC** WAN Interface Card.

**WID** Wireless Integration/Interface Device. Also referred to as a "Proctor" box (name of the vendor), Cell Trace Box (US West's name for it), and protocol converter. One of its functions is helping convert older cellular phone systems which support only old-style 911 service (i.e. no location transmitting) to the newer E911 service which will transmit the cellphone user's location to the correct public safety people. [www.proctorinc.com](http://www.proctorinc.com)

**Wide Area Network** See WAN.

**Wide Area Service Identifier** WASI. Unique identifier for a business grouping of licensed facilities-based cellular service providers of Cellular Digital Packet Data (CDPD). It is used within CDPD for access control decisions.

**Wide Area Telecommunications Service** WATS. WATS permits customers to make (OUTWATS) or receive (INWATS) long-distance calls and to have them billed on a bulk rather than individual call basis. The service is provided within selected service areas, or bands, originally by means of dedicated WATS Access Lines (WAL) directly connected to the public telephone network at WATS-billing equipped central offices. The dedicated access line operation permits inward or outward service, but not both. Recent evolution permits WATS connection via regular user local PSTN dial lines.

**Wide Area Telephone Service** 1. A service provided by telephone companies in the United States that permits a customer to make calls to or from telephones in specific zones, with a discounted monthly charge based upon call volume.

2. See WATS and 800 Service.

**Wide Band** See Wideband.

**Wide Band Frequency Hopping** See WBFH.

**Wide Center** The local company's serving central office for a customer or an interexchange carrier.

**Wide Characters** 16-bit characters. See Unicode.

**Wide Frequency Tolerant Power Plant** PBX power facilities are provided that will operate from AC energy sources which are not as closely regulated as commercial AC power. The wide tolerant plant will tolerate average frequency deviations of up to plus or minus 3 Hz or voltage variations of -15% to +10% as long as both of the conditions do not occur simultaneously. This feature permits operation with customer provided emergency power generating equipment.

**Wide SCSI** A type of SCSI that uses a 16- or 32-bit bus. It can transmit twice as much information as narrow SCSI.

**Wide Wavelength Division Multiplexing** See WWDM.

**Wideband** The original definition for a channel wider in bandwidth than a voice-grade channel. Then it became a channel wider than 12 voice channels. Now, it means a transmission facility providing capacity greater than narrowband (T-1 at 1.544 Mbps), e.g. T-3 at 45 Mbps. Many rich folks in Silicon Valley now have T-1 circuits into their home. This makes surfing the Internet and accessing the Web more pleasurable. But George Lucas, the renowned filmmaker, has a T-3 in his house. He clearly is wideband. See also Bandwidth. Contrast with Narrowband and Broadband.

**Wideband Modem** A modem whose modulated output signal can have an essential frequency spectrum that is broader than that which can be wholly contained within a voice channel with a nominal 4-kHz bandwidth. A modem whose bandwidth capability is greater than that of a narrow band modem.

**Wideband Packet Transport** Transmission of addressed, digitized message fragments (packets) interleaved among the addressed fragments of other messages at a rate high enough to support general purpose telecommunications services.

**Wideband Switch** Switch capable of handling channels wider in bandwidth than voice-grade lines. Radio and TV switches are examples of wideband switches.

**Wi-Fi** See WiFi.

**WiFi** Wireless Fidelity, much like the term Hi-Fi (High Fidelity) used to describe audio equipment. Wi-Fi is another name for a wireless local area network (LAN) running under the 802.11b standard in the 2.4-GHz range. See also 802.11b and Wi-Fi5.

**WiFi Switching** WiFi switching is a new architecture for wireless local area networks that combines gigabit Ethernet switching, Wi-Fi and smart antenna design. Wi-Fi switches send and receive multiple transmissions simultaneously and extend the range of Wi-Fi from meters to kilometers.

**Wi-Fi5** Wireless Fidelity 5, much like the term Hi-Fi (High Fidelity) is used to describe audio equipment. Wi-Fi5 is another name for a wireless local area network (LAN) running under the 802.11a standard in the 5-GHz range. See also 802.11 and Wi-Fi.

**WiFi-x** A generic name for 802.11a and 802.11b. When you see WiFi-x chipset, you know it means a chipset that will handle both the slower and faster WiFi connections. See also 802.11a and 802.11b.

**Wig** Queen Elizabeth I of England was completely bald. She lost her hair after suffering from smallpox at the age of 29. To disguise her loss she always wore a wig, thus creating a vogue for wigs in Europe that lasted several hundred years and giving new meaning to that incredibly bad pun about hair today, gone tomorrow.

**Wild Line** Any incoming copper loop that is running outside of the PBX. Typically a wild line is an alarm, fax or modem line that you don't want running through the telephone switch. Many installers like to differentiate between these "wild lines" and the stuff that gets punched down and run to the phone switch.

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