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Published by

CMP Books

An imprint of CMP Media LLC

600 Harrison Street, San Francisco, CA 94107

Phone 415-947-6615 and Fax 415-947-6015

email: bookorders@cmp.com

www.cmpbooks.com



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This book is also sold through www.Amazon.com, www.Fatbrain.com,
www.BarnesAndNoble.com and all fine booksellers worldwide.

Distributed to the book trade in the U.S. by

Publishers Group West

1700 Fourth St., Berkeley, CA 94710

ISBN Number 1-57820-315-5

05 06 07 08 09 5 4 3 2

Twenty First Edition

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Cover design: Saul Roldan and Damien Castaneda

Text layout: Brad Greene, Greene Design

containing a 160-gigabyte hard drive that holds 100 movies, which is plugged into the back of a TV set. A charge also is assessed for each movie that is watched. A phone line must be plugged in to the box for billing purposes. In one market Disney will experiment with a \$29.99 activation fee as well.

The Moviebeam box will be regularly refreshed with new digital movies that are delivered to it not via digital cable, satellite or the Internet but through the old-fashioned pipeline of broadcast airwaves. Manufactured by Samsung Electronics, the receiver has a small but powerful antenna that resembles a tiny propeller. Through a process known as datacasting, Moviebeam perpetually transmits movies to the device's hard drive in tiny bits of data that travel alongside the normal broadcast stream of a local ABC or PBS station, without interfering with regular TV broadcasts. While the service currently uses the analog broadcast 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

M1 / Machine Language

the MIB relevant to their offering, and the user is then able to view and manage the entire CT server as a whole. Additionally, M.500 is leading the industry by releasing the first MIB for fax resources.

By using the new M.500 MIB, IT managers can confirm whether or not important resources, such as fax server ports, are active. They can also monitor fax call statistics, such as the number of fax calls placed and connection attempts and failures for a specific fax destination. Data of this type, according to the ECTF, can help IT managers make full use of available fax resources and allow them to make adjustments to imbalances between business requirements and the supporting fax resources. According to the ECTF, M.500 follows the same industry standards as the other industry MIBs that manage hubs, bridges, routers, etc. It can be implemented using Simple Network Management Protocol (SNMP) allowing customers to use off-the-shelf tools, such as HP OpenView (TM) or IBM NetView (TM), to manage their CT systems. M.500 is fully extensible allowing the addition of objects to manage unique aspects of a particular product. M.500 is available for downloading at the ECTF Web Site at www.ectf.org.

M1 1. Multiplexer in the U.S. digital signal hierarchy. See M1, which is listed as if it were M-ONE in this dictionary.

2. Management Interface 1: The management of ATM end devices.

M2 Management Interface 2: The management of Private ATM networks or switches.

M3 Management Interface 3: The management of links between public and private networks.

M4 Management Interface 4: The management of public ATM networks.

M5 Management Interface 5: The management of links between two public networks.

M12 Multiplex 1-to-2. A designation for a multiplexer which takes four DS-1 (T-1) signal inputs at 1.544 Mbps and interleaves them into a single DS-2 (T-2) output at 6.312 Mbps, adding additional signaling and control bits. See also M13, Multiplex, T-1, and T-2.

M13 Multiplex 1-to-3. In the U.S. digital hierarchy, multiplexers are called by the digital signal levels they interface with. For example, a multiplexer, which joins DS-1 (T-1) channels to DS-3 (T-3) is called a M13 Mux. A M13 takes 28 T-1 inputs at 1.544 Mbps and interleaves them into a single T-3 output at 44.736 Mbps, adding additional signaling and control bits. See also M12, Multiplex, T-1, and T-3.

M23 Multiplex 2-to-3. A DS-3 (T-3) signal format that combines seven DS-2s (T-2s) to form a DS-3 (T-3). When T-3 technology first was developed, a M24 multiplexer (MUX) was used to combine 24 DS-0 channels at 64 Kbps into a single T-1 format at a total signaling rate of 1.544 Mbps, adding essential signaling and control bits in the process. Then a M12 combined four T-1s into a T-2 at a total signaling rate of 6.312 Mbps, adding more signaling and control bits. Then a M23 combined seven T-2s into a T-3 at a total signaling rate of 44.736 Mbps, adding even more signaling and control bits. Contemporary multiplexing generally combines these last two stages in a single M13 device. See also DS-0, M13, M24, T-1, and T-3.

M24 A T-1 service that allows a user to multiplex up to 24 voice or data channels into a single T-1 link, compatible with AT&T central office based channel banks (M24 compatibility generally refers to compliance with the channelization and coding techniques specified by AT&T TR62411).

M28 The telephone company multiplexing scheme that multiplexes 28 T-1 data streams onto a single carrier system, the T-3. See also M13.

M34 A designation for a multiplexer which interfaces between six DS-3s (T-3s) and one DS-4 (T-4) circuit.

M44 A T-1 service that allows up to 44 voice channels (48 without signaling) to operate over a single T-1 link by using ADPCM, and is compatible with AT&T central office based equipment. M44 compatibility generally refers to the ability to accept the 44 channel T-1 aggregate and break out one of the channels individually for routing purposes.

MA Abbreviation for Milliamp or Milliampere, unit of electric current.

ma bell A term used to refer affectionately to the old AT&T and the old Bell System. Several Women's Lib organizations objected to it some years ago on the basis that there were no women in the higher corporate structure of AT&T, and that women, as over supervised operators, were the downthrown majority within the Bell System. There was a movement afoot to change it to Pa Bell. But then came Divestiture and the breakup of the Bell System. The term Ma Bell now largely belongs in the history books. And there are now a handful of women in senior management in the Bell operating companies.

MAC 1. Moves, Adds and Changes. When you first install a phone system it will cost money to run wires and install phones all over the building. Very quickly you will notice that you'll need to move people and their phones, add phones for new people and change

phones around. This will cost money, often lots of it. How much it will cost you depends on the arrangement you have negotiated with the vendor of your phone system. It's a good idea to get a good deal on Moves, Adds and Changes later on BEFORE you sign your original deal to buy the phone system.

2. IEEE specifications for the lower half of the data link layer (layer 2) that defines topology dependent access control protocols for IEEE LAN specifications. MAC is a media-specific access control protocol within IEEE 802 specifications. It currently includes variations for the token ring, token bus and CSMA/CD. The lower sublayer of the IEEE's link layer (OSI) which complements the Logical Link Control (LLC).

3. Mobile Advisory Council.

4. Multiply Accumulate. Computing functions accomplished by processors. Computers can multiply values, and can store both the multipliers (the original values) and the products (i.e., the end results of the calculations) in registers (temporary memory) for subsequent use. MAC speed and memory are embedded in silicon chip sets, including DSPs (Digital Signal Processors) used in telecommunications. See also DSP.

4. See also MAC Address.

5. Shortened way of saying Macintosh, a line of computers from Apple Computer.

MAC address Medium Access Control Address. A MAC address (also called MAC name) traditionally is in the form of a 48-bit number, formally known as an EUI-48 (Extended Unique Identifier-48), which is unique to each LAN (Local Area Network) NIC (Network Interface Card). The MAC Address is programmed into the card, usually at the time of manufacture. The IEEE Registration Authority administers the MAC addresses scheme for all LANs that conform to the IEEE Project 802 series of standards, with such LANs including both Ethernet and Token Ring. The MAC address comprises two distinct identifiers (IDs), which typically are programmed into ROM (Read Only Memory) and which, therefore, cannot be changed. The first address is a unique 24-bit Company ID, also known as a Manufacturer's ID, which is assigned by the IEEE to the manufacturer of the NIC. The second address is a 24-bit Extension ID, assigned by the manufacturer. Also known as a Board ID, the Extension ID identifies the specific NIC, which is in the form of a printed circuit board. The Extension ID is intended to be unique, although occasional duplications occur, creating havoc. Unlike Network Layer Addresses, MAC names are location-independent, i.e. they stay with the card, which fits inside the device (e.g., workstation, printer, or server), which can move around. Destination and source MAC names are contained in the header of the LAN packet and are used by various devices (e.g., bridges, hubs, and switches) to filter and forward packets. The IEEE recently has enhanced the addressing scheme, expanding the Extension ID from 24 to 40 bits. This new addressing scheme is known as EUI-64, and is intended to provide NIC a globally unique identifier, which can be encapsulated in an IPv6 address. See also EUI-48, EUI-64, and Network Layer Address.

MAC Bridge See Bridge.

MAC layer That layer of a distributed communications system concerned with the control of access to a medium that is shared between two or more entities.

MAC name A MAC name (also called a MAC address) is a 48-bit number, unique to each local area network card, that is programmed into the card, usually at the time of manufacture. Unlike Network Layer Addresses, MAC names are location-independent. Destination and source MAC names are contained in the LAN packet and are used by bridges to filter and forward packets. See also Network Layer Address.

MAC OS The operating system powering the Macintosh line of computers from Apple Computer, Inc.

MAC protocol The procedures used to control access to a medium that is shared between two or more entities.

MACs Moves, Adds and Changes. See MAC.

machine code Same as Machine Language. See Machine Language.

machine dependent Software which will only run (i.e. is dependent) on a certain computer.

machine directory A Windows 95 definition. For shared installations, the directory that contains the required configuration files for a particular computer. The machine directory contains WIN.COM, the Registry, and startup configuration files.

machine language A computer language composed of machine instructions that can be executed directly by a computer without further compilation. Instructions and data coded in binary code. Machine language is the native language of computer hardware. Machine language is the only language recognized by the microprocessor that controls all the operations in your PC. All programs and all data to be processed by your computer (PC, mini or mainframe) have to be translated into machine language at some stage.