MAC
Media Access Control. Lower of the two sublayers of the data link layer defined by the IEEE. The MAC sublayer handles access to shared media, such as whether token passing or contention will be used. See also *data link layer* and *LLC*.

MAC address
Standardized data link layer address that is required for every port or device that connects to a LAN. Other devices in the network use these addresses to locate specific ports in the network and to create and update routing tables and data structures. MAC addresses are 6 bytes long and are controlled by the IEEE. Also known as a *hardware address*, a *MAC-layer address*, or a *physical address*. Compare with *network address*.

MAC address learning
Service that characterizes a learning bridge, in which the source MAC address of each received packet is stored so that future packets destined for that address can be forwarded only to the bridge interface on which that address is located. Packets destined for unrecognized addresses are forwarded out every bridge interface. This scheme helps minimize traffic on the attached LANs. MAC address learning is defined in the IEEE 802.1 standard. See also *learning bridge* and *MAC address*.

MacIP
Network layer protocol that encapsulates IP packets in DDS or transmission over AppleTalk. MacIP also provides proxy ARP services.

MAC-layer address
See *MAC address*.

Maintenance Operation Protocol
See *MOP*.

MAN
metropolitan-area network. Network that spans a metropolitan area. Generally, a MAN spans a larger geographic area than a LAN, but a smaller geographic area than a WAN. Compare with *LAN* and *WAN*.

managed object
In network management, a network device that can be managed by a network management protocol.

Management Information Base
See *MIB*.

management services
SNA functions distributed among network components to manage and control an SNA network.

Manchester encoding
Digital coding scheme, used by IEEE 802.3 and Ethernet, in which a mid-bit-time transition is used for clocking, and a 1 is denoted by a high level during the first half of the bit time.

Manufacturing Automation Protocol
See *MAP*.

MAP
Manufacturing Automation Protocol. Network architecture created by General Motors to satisfy the specific needs of the factory floor. MAP specifies a token-passing LAN similar to IEEE 802.4. See also *IEEE 802.4*.

mask
See *address mask* and *subnet mask*.

master management agent
See *MMA*.

MAU
media attachment unit. Device used in Ethernet and IEEE 802.3 networks that provides the interface between the AUI port of a station and the common medium of the Ethernet. The MAU, which can be built into a station or can be a separate device, performs physical layer functions including the conversion of digital data from the Ethernet interface, collision detection, and injection of bits onto the network. Sometimes referred to as a *media access unit*, also abbreviated *MAU*, or as a *transceiver*. In Token Ring, a MAU is known as a *multistation access unit* and is usually abbreviated *MSAU* to avoid confusion. See also *AUI* and *MSAU*.

maximum burst
Specifies the largest burst of data above the insured rate that will be allowed temporarily on an ATM PVC, but will not be dropped at the edge by the traffic policing function, even if it exceeds the maximum rate. This amount of traffic will be allowed only temporarily; on average, the traffic source needs to be within the maximum rate. Specified in bytes or cells. Compare with *insured burst*. See also *maximum rate*.

maximum rate
Maximum total data throughput allowed on a given virtual circuit, equal to the sum of the insured and uninsured traffic from the traffic source. The uninsured data might be dropped if the network becomes congested. The maximum rate, which cannot exceed the media rate, represents the highest data throughput the virtual circuit will ever deliver, measured in bits or cells per second. Compare with *excess rate* and *insured rate*. See also *maximum burst*.

maximum transmission unit
See *MTU*.

MB
megabyte.

Mb
megabit.

MBONE
multicast backbone. The multicast backbone of the Internet. MBONE is a virtual multicast network composed of multicast LANs and the point-to-point tunnels that interconnect them.

Mbps
megabits per second.

MCA
micro channel architecture. Bus interface commonly used in PCs and some UNIX workstations and servers.

MCI
Multiport Communications Interface. Card on the AGS+ that provides two Ethernet interfaces and up to two synchronous serial interfaces. The MCI processes packets rapidly, without the interframe delays typical of other Ethernet interfaces.

MCR
minimum cell rate. Parameter defined by the ATM Forum for ATM traffic management. MCR is defined only for ABR transmissions, and specifies the minimum value for the ACR. See also *ABR (available bit rate)*, *ACR*, and *PCR*.

MD5
Message Digest 5. Algorithm used for message authentication in SNMP v.2. MD5 verifies the integrity of the communication, authenticates the origin, and checks for timeliness. See also *SNMP2*.

media
Plural of *medium*. The various physical environments through which transmission signals pass. Common network media include twisted-pair, coaxial and fiber-optic cable, and the atmosphere (through which microwave, laser, and infrared transmission occurs). Sometimes called *physical media*.

Media Access Control
See *MAC*.

media access unit
See *MAU*.

media attachment unit
See *MAU*.

media interface connector
See *MIC*.

media rate
Maximum traffic throughput for a particular media type.

medium
See *media*.

medium-speed line card
See *MSC*.

megabit
Abbreviated *Mb*.

megabits per second
Abbreviated *Mbps*.

megabyte
Abbreviated *MB*.

mesh
Network topology in which devices are organized in a manageable, segmented manner with many, often redundant, interconnections strategically placed between network nodes. See also *full mesh* and *partial mesh*.

message
Application layer (Layer 7) logical grouping of information, often composed of a number of lower-layer logical groupings such as packets. The terms *datagram*, *frame*, *packet*, and *segment* are also used to describe logical information groupings at various layers of the OSI reference model and in various technology circles.

message handling system
See *MHS*.

Message Digest 5
See *MD5*.

Message Queuing Interface
See *MQI*.

message switching
Switching technique involving transmission of messages from node to node through a network. The message is stored at each node until such time as a forwarding path is available. Contrast with *circuit switching* and *packet switching*.

message unit
Unit of data processed by any network layer.

metasignaling
Process running at the ATM layer that manages signaling types and virtual circuits.

metering
See *traffic shaping*.

metric
See *routing metric*.

metropolitan-area network
See *MAN*.

MGS
Cisco midrange multiprotocol router designed for medium to small regional and district environments. The MGS is a 4-slot router that can handle up to 11 interfaces of different types.

MHS
message handling system. ITU-T X.400 recommendations that provide message handling services for communications between distributed applications. NetWare MHS is a different (though similar) entity that also provides message-handling services. See also *IFIP*.

MIB
Management Information Base. Database of network management information that is used and maintained by a network management protocol such as SNMP or CMIP. The value of a MIB object can be changed or retrieved using SNMP or CMIP commands. MIB objects are organized in a tree structure that includes public (standard) and private (proprietary) branches.

MIC
media interface connector. FDDI *de facto* standard connector.

micro channel architecture
See *MCA*.

microcode
Translation layer between machine instructions and the elementary operations of a computer. Microcode is stored in ROM and allows the addition of new machine instructions without requiring that they be designed into electronic circuits when new instructions are needed.

microsegmentation
Division of a network into smaller segments, usually with the intention of increasing aggregate bandwidth to network devices.

microwave
Electromagnetic waves in the range 1 to 30 GHz. Microwave-based networks are an evolving technology gaining favor due to high bandwidth and relatively low cost.

midsplit
Broadband cable system in which the available frequencies are split into two groups: one for transmission and one for reception.

Military Network
See *MILNET*.

millions of instructions per second
See *mips*.

MILNET
Military Network. Unclassified portion of the DDN. Operated and maintained by the DISA. See also *DDN* and *DISA*.

minimum cell rate
See *MCR*.

MIP
MultiChannel Interface Processor. Interface processor on the Cisco 7000 series routers that provides up to two channelized T1 or E1 connections via serial cables to a CSU. The two controllers on the MIP can each provide up to 24 T1 or 30 E1 channel-groups, with each channel-group presented to the system as a serial interface that can be configured individually.

mips
millions of instructions per second. Number of instructions executed by a processor per second.

MMA
master management agent. SNMP agent that runs on the NP of a LightStream 2020 ATM switch. MMA translates between an external network manager using SNMP and the internal switch management mechanisms.

modem
modulator-demodulator. Device that converts digital and analog signals. At the source, a modem converts digital signals to a form suitable for transmission over analog communication facilities. At the destination, the analog signals are returned to their digital form. Modems allow data to be transmitted over voice-grade telephone lines.

modem eliminator
Device allowing connection of two DTE devices without modems.

modulation
Process by which the characteristics of electrical signals are transformed to represent information. Types of modulation include AM, FM, and PAM. See also *AM*, *FM*, and *PAM*.

modulator-demodulator
See *modem*.

monitor
Management tool on the LightStream 2020 ATM switch that allows a user to examine individual nodes in the network and learn the status of interface modules and power supplies. The monitor is an HP OpenView-based application that runs on an NMS.

monomode fiber
See *single-mode fiber*.

MOP
Maintenance Operation Protocol. Digital Equipment Corporation protocol, a subset of which is supported by Cisco, that provides a way to perform primitive maintenance operations on DECnet systems. For example, MOP can be used to download a system image to a diskless station.

Mosaic
Public-domain WWW browser, developed at the National Center for Supercomputing Applications (NCSA). See also *WWW browser*.

MOSPF
Multicast OSPF. Intradomain multicast routing protocol used in OSPF networks. Extensions are applied to the base OSPF unicast protocol to support IP multicast routing.

MQI
Message Queuing Interface. International standard API that provides functionality similar to that of the RPC interface. In contrast to RPC, MQI is implemented strictly at the application layer. See also *RPC*.

MSAU
multistation access unit. Wiring concentrator to which all end stations in a Token Ring network connect. The MSAU provides an interface between these devices and the Token Ring interface of, for example, a Cisco 7000 TRIP. Sometimes abbreviated *MAU*.

MSC
medium-speed line card. Card on the LightStream 2020 ATM switch that can be configured as an edge or a trunk card. The MSC, in conjunction with an access card, supports two trunk or edge (UNI) ports at data rates up to T3 or E3.

MTU
maximum transmission unit. Maximum packet size, in bytes, that a particular interface can handle.

mu-law
North American companding standard used in conversion between analog and digital signals in PCM systems. Similar to the European a-law. See also *a-law* and *companding*.

multiaccess network
Network that allows multiple devices to connect and communicate simultaneously.

multicast
Single packets copied by the network and sent to a specific subset of network addresses. These addresses are specified in the destination address field. Compare with *broadcast* and *unicast*.

multicast address
Single address that refers to multiple network devices. Synonymous with *group address*. Compare with *broadcast address* and *unicast address*. See also *multicast*.

multicast backbone
See *MBONE*.

multicast group
Dynamically determined group of IP hosts identified by a single IP multicast address.

Multicast OSPF
See *MOSPF*.

multicast router
Router used to send IGMP query messages on their attached local networks. Host members of a multicast group respond to a query by sending IGMP reports noting the multicast groups to which they belong. The multicast router takes responsibility for forwarding multicast datagrams from one multicast group to all other networks that have members in the group. See also *IGMP*.

multicast server
Establishes a one-to-many connection to each device in a VLAN, thus establishing a broadcast domain for each VLAN segment. The multicast server forwards incoming broadcasts only to the multicast address that maps to the broadcast address.

MultiChannel Interface Processor
See *MIP*.

multidrop line
Communications line having multiple cable access points. Sometimes called a *multipoint line*.

multihomed host
Host attached to multiple physical network segments in an OSI CLNS network.

multihoming
Addressing scheme in IS-IS routing that supports assignment of multiple area addresses.

multilayer switch
Switch that filters and forwards packets based on MAC addresses and network addresses. A subset of LAN switch. The Catalyst 5000 is an example of a multilayer switch. Compare with *LAN switch*.

multimode fiber
Optical fiber supporting propagation of multiple frequencies of light. See also *single-mode fiber*.

multiple domain network
SNA network with multiple SSCPs. See also *SSCP*.

multiplexing
Scheme that allows multiple logical signals to be transmitted simultaneously across a single physical channel. Compare with *demultiplexing*.

multipoint line
See *multidrop line*.

Multiport Communications Interface
See *MCI*.

multistation access unit
See *MSAU*.

multivendor network
Network using equipment from more than one vendor. Multivendor networks pose many more compatibility problems than single-vendor networks. Compare with *single-vendor network*.