

**E channel**

echo channel. 64-kbps ISDN circuit-switching control channel. The E channel was defined in the 1984 ITU-T ISDN specification but was dropped in the 1988 specification. Compare with *B channel*, *D channel*, and *H channel*.

E&M

recEive and transMit (or ear and mouth).

1. Trunking arrangement generally used for two-way switch-to-switch or switch-to-network connections. Cisco's analog E&M interface is an RJ-48 connector that allows connections to PBX trunk lines (tie lines). E&M also is available on E1 and T1 digital interfaces.

2. A type of signaling traditionally used in the telecommunications industry. Indicates the use of a handset that corresponds to the ear (receiving) and mouth (transmitting) component of a telephone.

E&M signaling

Method of signaling on a DS0 timeslot such that the signaling bits are used to indicate call states, such as on-hook, off-hook, alerting, and dial pulsing. See also *E&M*.

E.164

1. ITU-T recommendation for international telecommunication numbering, especially in ISDN, BISDN, and SMDS. An evolution of standard telephone numbers.

2. Name of the field in an ATM address that contains numbers in E.164 format.

E1

Wide-area digital transmission scheme used predominantly in Europe that carries data at a rate of 2.048 Mbps. E1 lines can be leased for private use from common carriers. Compare with *T1*. See also *DS-1*.

E2A

Legacy protocols for providing OAM&P functions between a network element and an operations support system. See also *OAM&P*.

E3

Wide-area digital transmission scheme used predominantly in Europe that carries data at a rate of 34.368 Mbps. E3 lines can be leased for private use from common carriers. Compare with *T.120*. See also *DS-3*.

EAP

Extensible Authentication Protocol. Framework that supports multiple, optional authentication mechanisms for PPP, including cleartext passwords, challenge-response, and arbitrary dialog sequences.

early packet discard

See *EPD*.

early token release

Technique used in Token Ring networks that allows a station to release a new token onto the ring immediately after transmitting instead of waiting for the first frame to return. This feature can increase the total bandwidth on the ring. See also *Token Ring*.

EARN

European Academic Research Network. European network connecting universities and research institutes. EARN merged with RARE to form TERENA. See also *RARE* and *TERENA*.

EAS

expert agent selection. Mode for the Lucent Definity ECS ACD. In this mode, agents are added automatically to pre-assigned skill groups at login. Calls can be routed either to the agent's physical extension or to the agent's login ID. In non-EAS mode, agents must add themselves manually to hunt groups and calls can be routed only to physical extensions.

EBCDIC

extended binary coded decimal interchange code. Any of a number of coded character sets developed by IBM consisting of 8-bit coded characters. Older IBM systems and telex machines use this character code. Compare with *ASCII*.

EBONE

European Backbone. Pan-European network backbone service.

EBU

European Broadcasting Union. Founded in 1950 and headquartered in Geneva, the European Broadcasting Union (EBU) is an association of national broadcasters that negotiates broadcasting rights for major sports events, operates the Eurovision and Euroradio networks, organizes program exchanges, stimulates and coordinates co-productions, and provides operational, commercial, technical, legal, and strategic services.

EC

European Community.

ECDSA

Elliptic Curve Digital Signature Algorithm. Standard [A9062] that is the elliptic curve cryptography analog of the Digital Signature Algorithm.

echo

Telephony—Audible and unwanted leak-through of one's own voice into one's own receive (return) path. Hence signal from the transmission path is returning to one's ear through the receive path.

echo cancellation

Method for removing unwanted signals from the main transmitted voice telephony signal.

echoplex

Mode in which keyboard characters are echoed on a terminal screen upon return of a signal from the other end of the line indicating that the characters were received correctly.

ECM

Error Correction Mode. An option defined in T.30 and available in many fax machines that allows a fax page to be broken into HDLC-like frames that allow transmission errors to be detected.

ECM disable

Feature that disables ECM capability advertised in a fax DIS signal.

ECMA

European Computer Manufacturers Association. Group of European computer vendors who have done substantial OSI standardization work.

EDFA

erbium-doped fiber amplifier. Optical fibers doped with the rare earth element erbium, which can amplify light in the 1550 nm region when pumped by an external light source.

edge device

1. Physical device that is capable of forwarding packets between legacy interfaces (such as Ethernet and Token Ring) and ATM interfaces based on data-link and network layer information. An edge device does not participate in the running of any network layer routing protocol but it obtains forwarding descriptions using the route distribution protocol.

2. Any device that is not an ATM switch that can connect to an ATM switch.

Edge LSR

Edge Label Switch Router. The role of an Edge LSR is to turn unlabeled packets into labeled packets, and vice versa. Formerly known as Tag Edge Router (TER).

EDI

electronic data interchange. Electronic communication of operational data, such as orders and invoices, between organizations.

EDIFACT

Electronic Data Interchange for Administration, Commerce, and Transport. Data exchange standard administered by the United Nations to be a multi-industry EDI standard.

EECM

end-to-end call manager.

EEPROM

electrically erasable programmable read-only memory. EPROM that can be erased using electrical signals applied to specific pins. See also *EPROM*.

EFCI

Explicit Forward Congestion Indication. In ATM, one of the congestion feedback modes allowed by ABR service. A network element in an impending congestion state or in a congested state can set the EFCI. The destination end-system can implement a protocol that adaptively lowers the cell rate of the connection based on the value of the EFCI. See also *ABR*.

EFF

Electronic Frontier Foundation. Foundation established to address social and legal issues arising from the impact on society of the increasingly pervasive use of computers as the means of communication and information distribution.

EGP

exterior gateway protocol. Internet protocol for exchanging routing information between autonomous systems. Documented in RFC 904. Not to be confused with the general term *exterior gateway protocol*. EGP is an obsolete protocol that was replaced by BGP. See also *BGP*.

egress

Traffic leaving the network.

EHSA

enhanced high system availability. Processor redundancy scheme that reduces switchover time by requiring that the redundant processor be running in hot standby mode.

EIA

Electronic Industries Alliance. Group that specifies electrical transmission standards. The EIA and the TIA have developed numerous well-known communications standards, including EIA/TIA-232 and EIA/TIA-449. See also *TIA*.

EIA/TIA-232

Common physical layer interface standard, developed by EIA and TIA, that supports unbalanced circuits at signal speeds of up to 64 kbps. Closely resembles the V.24 specification. Formerly called *RS-232*.

EIA/TIA-449

Popular physical layer interface developed by EIA and TIA. Essentially, a faster (up to 2 Mbps) version of EIA/TIA-232 capable of longer cable runs. Formerly called *RS-449*. See also *EIA-530*.

EIA/TIA-586

Standard that describes the characteristics and applications for various grades of UTP cabling. See also *Category 1 cabling*, *Category 2 cabling*, *Category 3 cabling*, *Category 4 cabling*, *Category 5 cabling*, and *UTC*.

EIA-530

Refers to two electrical implementations of EIA/TIA-449: *RS-422* (for balanced transmission) and *RS-423* (for unbalanced transmission). See also *RS-422*, *RS-423*, and *EIA/TIA-449*.

EIGRP

See *EIGRP* in the “Cisco Systems Terms and Acronyms” section.

EIP

See *EIP* in the “Cisco Systems Terms and Acronyms” section.

EIRP

Effective Isotropic Radiated Power. Term for the expression of the performance of an antenna in a given direction relative to the performance of a theoretical (isotropic) antenna and is expressed in watts or dBW. EIRP is the sum of the power sent to the antenna plus antenna gain.

EISA

Extended Industry-Standard Architecture. 32-bit bus interface used in PCs, PC-based servers, and some UNIX workstations and servers. See also *ISA*.

E-ISUP

Extended-ISUP. Originally a subset of Q.761 ISUP. It is expanding in to a superset of ITU and ANSI ISUP. In addition, it supports the delivery of SDP parameters via generic digits. E-ISUP runs over IP and therefore uses IP addresses instead of point codes.

ELAN

emulated LAN. ATM network in which an Ethernet or Token Ring LAN is emulated using a client-server model. ELANs are composed of an LEC, an LES, a BUS, and an LECS. Multiple ELANs can exist simultaneously on a single ATM network. ELANs are defined by the LANE specification. See also *BUS*, *LANE*, *LEC*, *LECS*, and *LES*.

ELAP

EtherTalk Link Access Protocol. Link-access protocol used in an EtherTalk network. ELAP is built on top of the standard Ethernet data link layer.

electrically erasable programmable read-only memory

See *EECM*.

electromagnetic interference

See *EMI*.

electromagnetic pulse

See *EMP*.

electromagnetic spectrum

Full range of a electromagnetic (same as magnetic) frequencies, the subset of which is used in commercial RF systems. Commercial RF systems typically are classified in ranges that include MF, HF, VHF, SHF, and EHF. Military systems typically include frequencies outside these types.

electronic data interchange

See *EDI*.

Electronic Data Interchange for Administration, Commerce, and Transport

See *EDIFACT*.

Electronic Frontier Foundation

See *EFF*.

Electronic Industries Association

See *EIA*.

electronic mail

See *e-mail*.

Electronic Messaging Association

See *EMA*.

electrostatic discharge

See *ESD*.

ELMI

Enhanced Local Management Interface.

EMA

1. Enterprise Management Architecture. Digital Equipment Corporation network management architecture, based on the OSI network management model.
2. Electronic Messaging Association. Forum devoted to standards and policy work, education, and development of electronic messaging systems, such as e-mail, voice mail, and facsimile.

e-mail

electronic mail. Widely used network application in which text messages are transmitted electronically between end users over various types of networks using various network protocols.

EMI

electromagnetic interference. Interference by electromagnetic signals that can cause reduced data integrity and increased error rates on transmission channels.

EMIF

ESCON Multiple Image Facility. Mainframe I/O software function that allows one ESCON channel to be shared among multiple logical partitions on the same mainframe. See also *ESCON*.

EMP

electromagnetic pulse. Caused by lightning and other high-energy phenomena. Capable of coupling enough energy into unshielded conductors to destroy electronic devices. See also *Tempest*.

EMS

1. Event Management Service. A software module within the ICM that processes use to report events to other processes within the system.
2. Element Management System.

EMTOX

Exchange of Mixed Traffic over X.25. Specification for transmitting airline protocol data over standard X.25 switched virtual circuits (SVCs).

emulated LAN

See *EMA*.

emulation mode

Function of an NCP that enables it to perform activities equivalent to those performed by a transmission control unit.

EN

end node. APPN end system that implements the PU 2.1, provides end-user services, and supports sessions between local and remote CPs. ENs are not capable of routing traffic and rely on an adjacent NN for APPN services. Compare with *NN*. See also *CP*.

encapsulation

Wrapping of data in a particular protocol header. For example, Ethernet data is wrapped in a specific Ethernet header before network transit. Also, when bridging dissimilar networks, the entire frame from one network is simply placed in the header used by the data link layer protocol of the other network. See also *tunneling*.

encapsulation bridging

Carries Ethernet frames from one router to another across disparate media, such as serial and FDDI lines. Contrast with *translational bridging*.

encoder

Device that modifies information into the required transmission format.

encryption

Application of a specific algorithm to data so as to alter the appearance of the data making it incomprehensible to those who are not authorized to see the information. See also *decryption*.

encryption certificate

Public-key certificate that contains a public key that is intended to be used for encrypting data, rather than for verifying digital signatures or performing other cryptographic functions.

end node

See *EN*.

end of transmission

See *EOT*.

end point

Device at which a virtual circuit or virtual path begins or ends.

end system

See *ES*.

End System-to-Intermediate System

See *ES-IS*.

endpoint

H.323 terminal or gateway. An endpoint can call and be called. It generates and terminates the information stream.

end-to-end encryption

Continuous protection of data that flows between two points in a network, provided by encrypting data when it leaves its source, leaving it encrypted while it passes through any intermediate computers (such as routers), and decrypting only when the data arrives at the intended destination.

Energy Sciences Network

See *ESnet*.

Enhanced IGRP

See *EIGRP* in the “Cisco Systems Terms and Acronyms” section.

Enhanced Interior Gateway Routing Protocol

See *EIGRP* in the “Cisco Systems Terms and Acronyms” section.

Enhanced Monitoring Services

See *Enhanced Monitoring Services* in the “Cisco Systems Terms and Acronyms” section.

Enterprise Management Architecture

See *EMA*.

enterprise network

Large and diverse network connecting most major points in a company or other organization. Differs from a WAN in that it is privately owned and maintained.

Enterprise System Connection

See *ESCON*.

Enterprise System Connection channel

See *ESCON channel*.

entity

Generally, an individual, manageable network device. Sometimes called an alias.

entity identifier

The unique address of an NVE socket in a node on an AppleTalk network. The specific format of an entity identifier is network-dependent. See also *NVE*.

entity name

Name that an NVE can assign to itself. Although not all NVEs have names, NVEs can possess several names (or aliases). An entity name is made up of three character strings: object, entity type, and zone. For example: Bldg 2 LaserJet 5:LaserWriter@Bldg 2 Zone. See also *NVE*.

entity type

Part of an entity name that describes the entity's class. For example, LaserWriter or AFPServer. See also *entity name*.

EOM

end of message. Indicator that identifies the last ATM cell containing information from a data packet that was segmented.

EOT

end of transmission. Generally, a character that signifies the end of a logical group of characters or bits.

EPD

early packet discard. Mechanism used by some ATM switches for discarding a complete AAL5 frame when a threshold condition, such as imminent congestion, is met. EPD prevents congestion that would otherwise jeopardize the switch's capability to properly support existing connections with a guaranteed service. Compare with *TPD*.

ephemeral key

A public key or a private key that is relatively short-lived.

EPROM

erasable programmable read-only memory. Nonvolatile memory chips that are programmed after they are manufactured, and, if necessary, can be erased by some means and reprogrammed. Compare with *EECM* and *PROM*.

equalization

Technique used to compensate for communications channel distortions.

ER

explicit rate. In ATM, an RM cell used to limit the ACR for a transmission to a specific value. Usually the source sets the ER initially to a requested rate, such as the PCR. Later, any network element in the path can reduce the ER to a value that the element can sustain. See also *ACOM*, *PCR*, and *RLM*.

erasable programmable read-only memory

See *EPROM*.

ERC

Easily Recognizable Code. Part of a North American number (in the NPA position) of the pattern NXX, where N=2...9 and XX = 00, 22, 33, ... 88.

error control

Technique for detecting and correcting errors in data transmissions.

error-correcting code

Code having sufficient intelligence and incorporating sufficient signaling information to enable the detection and the correction of many errors at the receiver.

error-detecting code

Code that can detect transmission errors through analysis of received data based on the adherence of the data to appropriate structural guidelines.

errored second

See *ES*.

ES

1. end system. Nonrouting host or node in an OSI network.

2. errored second. A one-second interval during which one or more errors are detected; a PM parameter, measured on a per-channel basis.

ESCON

Enterprise System Connection. IBM channel architecture that specifies a pair of fiber-optic cables, with either LEDs or lasers as transmitters, and a signaling rate of 200 Mbps.

ESCON channel

IBM channel for attaching mainframes to peripherals, such as storage devices, backup units, and network interfaces. This channel incorporates fiber channel technology. The ESCON channel replaces the bus and tag channel. Compare with *parallel channel*. See also *bus and tag channel*.

ESCON Multiple Image Facility

See *EMIF*.

ESD

electrostatic discharge. Discharge of stored static electricity that can damage electronic equipment and impair electrical circuitry, resulting in complete or intermittent failures.

ESF

Extended Superframe. Framing type used on T1 circuits that consists of 24 frames of 192 bits each, with the 193rd bit providing timing and other functions. ESF is an enhanced version of SF. See also *SF*.

ESI

end system identifier. Identifier that distinguishes multiple nodes at the same level when the lower level peer group is partitioned (usually an IEEE 802 address).

ES-IS

End System-to-Intermediate System. OSI protocol that defines how end systems (hosts) announce themselves to intermediate systems (routers). See also *IS-IS*.

ESMTP

Extended Simple Mail Transfer Protocol. Extended version of the Simple Mail Transfer Protocol (SMTP), which includes additional functionality, such as delivery notification and session delivery. ESMTP is described in RFC 1869, *SMTP Service Extensions*.

ESnet

Energy Sciences Network. Data communications network managed and funded by the U.S. Department of Energy Office of Energy Research (DOE/OER). Interconnects the DOE to educational institutions and other research facilities.

ESP

1. Extended Services Processor.
2. Encapsulating Security Payload. Security protocol that provides data privacy services, optional data authentication, and anti-replay services. ESP encapsulates the data to be protected.

ESS

Electronic Switching System. AT&T's term for an electronic central office switch. A 5ESS is AT&T's digital central office for end office applications. A 4ESS is its digital central office for toll center application.

ETH unit

ethernet unit. Unit that provides interfaces to the Management Bus Concentrator and the network management system (NMS).

EtherChannel

Developed and copyrighted by Cisco Systems. Logical aggregation of multiple Ethernet interfaces used to form a single higher bandwidth routing or bridging endpoint.

Ethernet

Baseband LAN specification invented by Xerox Corporation and developed jointly by Xerox, Intel, and Digital Equipment Corporation. Ethernet networks use CSMA/CD and run over a variety of cable types at 10 Mbps. Ethernet is similar to the IEEE 802.3 series of standards. See also *10Base2*, *10Base5*, *10BaseF*, *10BaseT*, *10Broad36*, *Fast Ethernet*, and *IEEE 802.3*.

Ethernet Interface Processor

See *EIP* in the “Cisco Systems Terms and Acronyms” section.

ethernet meltdown

Event that causes saturation, or near saturation, on an Ethernet. It usually results from illegal or misrouted packets and typically lasts only a short time.

EtherTalk

Apple Computer’s data-link product that allows an AppleTalk network to be connected by Ethernet cable.

EtherTalk Link Access Protocol

See *ELAP*.

ETSI

European Telecommunications Standards Institute. ETSI is a non-profit organization producing voluntary telecommunications standards used throughout Europe, some of which have been adopted by the EC as the technical base for Directives or Regulations.

EUnet

European Internet. European commercial Internet service provider. EUnet is designed to provide e-mail, news, and other Internet services to European markets.

European Academic Research Network

See *EARN*.

European Computer Manufacturers Association

See *ECMA*.

European Internet

See *EUnet*.

European Telecommunication Standards Institute

See *ETSI*.

event

Network message indicating operational irregularities in physical elements of a network or a response to the occurrence of a significant task, typically the completion of a request for information. See also *alarm* and *trap*.

Event Detection Point

Intelligent Network terminology.

EWOS

European Workshop for Open Systems. The OSI Implementors Workshop for Europe.

excess burst

See *Be*.

excess rate

In ATM, traffic in excess of the insured rate for a given connection. Specifically, the excess rate equals the maximum rate minus the insured rate. Excess traffic is delivered only if network resources are available and can be discarded during periods of congestion. Compare with *insured rate* and *maximum rate*.

exchange identification

See *XID*.

EXEC

See *EXEC* in the “Cisco Systems Terms and Acronyms” section.

expansion

The process of running a compressed data set through an algorithm that restores the data set to its original size. Compare with *companding* and *compression*.

expedited delivery

Option set by a specific protocol layer telling other protocol layers (or the same protocol layer in another network device) to handle specific data more rapidly.

explicit forward congestion indication

See *EFICI*.

explicit rate

See *ER*.

explicit route

In SNA, a route from a source subarea to a destination subarea, as specified by a list of subarea nodes and transmission groups that connect the two.

explorer frame

Frame sent out by a networked device in an SRB environment to determine the optimal route to another networked device.

explorer packet

Generated by an end station trying to find its way through an SRB network. Gathers a hop-by-hop description of a path through the network by being marked (updated) by each bridge that it traverses, thereby creating a complete topological map. See also *all-routes explorer packet*, *local explorer packet*, and *spanning explorer packet*.

Extended Binary Coded Decimal Interchange Code

See *EBCDIC*.

Extended Industry-Standard Architecture

See *EISA*.

extended label ATM interface

Type of interface supported by the remote ATM switch driver and a particular switch-specific driver that supports MPLS over an ATM interface on a remotely controlled switch.

Extended Services Processor

See *ESP* in the “Cisco Systems Terms and Acronyms” section.

Extended Superframe Format

See *ESF*.

exterior gateway protocol

See *EGP*.

exterior router

Router connected to an AURP tunnel, responsible for the encapsulation and the deencapsulation of AppleTalk packets in a foreign protocol header (for example, IP). See also *AURP* and *AURP tunnel*.

external ATM interface

One of the interfaces on the controlled ATM switch other than the switch control port. Also known as an exposed ATM interface because it is available for connections outside the label controlled switch.

EXZ

excessive zeros.