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*.

E.164

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

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 *T3*. See also *DS-3*.

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*.

EBCDIC

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

ECC
edge card control. Process on the NP of a LightStream 2020 ATM switch that performs per-card processing for an edge card. Such processing includes protocol management (ATM connection management) and media-specific (Ethernet and FDDI) management tasks, internetworking operations such as packet forwarding and filtering, and network management tasks. See also *edge card*, *LCC*, and *NP card*.

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*.

echo channel
See *E channel*.

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.

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

edge card
Line card on the LightStream 2020 ATM switch that is configured to communicate with devices outside the ATM network. Edge cards offer Ethernet, FDDI, frame forwarding, Frame Relay, OC-3c, and UNI interfaces. See also *trunk card*.

edge card control
See *ECC*.

edge device
Network entity such as a LAN segment, host, or router that connects to a LightStream 2020 ATM switch via an edge card. Edge devices send and receive the data that passes through the ATM network.

EDI
electronic data interchange. The 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.

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

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 has been replaced by BGP. See also *BGP*.

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

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*.

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 known as *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 *UTP*.

EIGRP
See *Enhanced IGRP*.

EIP
Ethernet Interface Processor. Interface processor card on the Cisco 7000 series routers. The EIP provides high-speed (10-Mbps) AUI ports that support Ethernet Version 1 and Ethernet Version 2 or IEEE 802.3 interfaces, and a high-speed data path to other interface processors.

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

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*.

electromagnetic interference
See *EMI*.

electromagnetic pulse
See *EMP*.

electrically erasable programmable read-only memory
See *EEPROM*.

electronic data interchange
See *EDI*.

Electronic Data Interchange for Administration, Commerce, and Transport
See *EDIFACT*.

Electronic Industries Association
See *EIA*.

electronic mail
Widely used network application in which mail messages are transmitted electronically between end users over various types of networks using various network protocols. Often called *e-mail*.

Electronic Messaging Association
See *EMA*.

electrostatic discharge
See *ESD*.

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 electronic mail, voice mail, and facsimile.

e-mail
See *electronic mail*.

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*.

emulated LAN
See *ELAN*.

emulation mode
Function of an NCP that enables it to perform activities equivalent to those performed by a transmission control unit. For example, with CiscoWorks, the NetView PU 2 emulates the IBM 3274.

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
The 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
The 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*.

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*.

Energy Sciences Network
See *ESnet*.

Enhanced IGRP
Enhanced Interior Gateway Routing Protocol. Advanced version of IGRP developed by Cisco. Provides superior convergence properties and operating efficiency, and combines the advantages of link state protocols with those of distance vector protocols. Compare with *IGRP*. See also *IGP*, *OSPF*, and *RIP*.

Enhanced Interior Gateway Routing Protocol
See *Enhanced IGRP*.

Enterprise Management Architecture
See *EMA*.

Enhanced Monitoring Services
Set of analysis tools on the Catalyst 5000 switch, consisting of an integrated RMON agent and the SPAN. These tools provide traffic monitoring, and network segment analysis and management. See also *RMON* and *SPAN*.

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*.

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

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 *EEPROM* and *PROM*.

equalization
Technique used to compensate for communications channel distortions.

erasable programmable read-only memory
See *EPROM*.

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 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.

ES

1. end system. Generally, an end-user device on a network.
2. end system. Nonrouting host or node in an OSI network.

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 Format. 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*.

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*.

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.

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*, and *IEEE 802.3*.

Ethernet Interface Processor
See *EIP*.

EtherTalk
AppleTalk protocols running on Ethernet.

ETSI
European Telecommunication Standards Institute. Organization created by the European PTTs and the European Community (EC) to propose telecommunications standards for Europe.

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

European Academic Research Network
See *EARN*.

European Computer Manufacturers Association
See *ECMA*.

European Telecommunication Standards Institute
See *ETSI*.

European Internet
See *EUnet*.

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*.

Excess Burst
See *Be*.

excess rate
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
The interactive command processor of the Cisco IOS software.

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 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 a SRB environment to determine the optimal route to another networked device.

explorer packet
Generated by an end station trying to find its way through a 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 Superframe Format
See *ESF*.

exterior gateway protocol
Any internetwork protocol used to exchange routing information between autonomous systems. Not to be confused with *Exterior Gateway Protocol (EGP)*, which is a particular instance of an exterior gateway protocol.

Exterior Gateway Protocol
See *EGP*.

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