Glossary of Networking Terms

10 Base2

10-Mbps baseband Ethernet specification using 50-ohm thin coaxial cable. 10Base2, which is part of the IEEE 802.3 specification, has a distance limit of 185 meters per segment.

10 Base5

10-Mbps baseband Ethernet specification using standard (thick) 50-ohm baseband coaxial cable. 10Base5, which is part of the IEEE 802.3 baseband physical layer specification, has a distance limit of 500 meters per segment.

10 BaseF

10-Mbps baseband Ethernet specification that refers to the 10BaseFB, 10BaseFL, and 10BaseFP standards for Ethernet over fiber-optic cabling.

10 BaseFB

10-Mbps baseband Ethernet specification using fiber-optic cabling. 10BaseFB is part of the IEEE 10BaseF specification. It is not used to connect user stations, but instead provides a synchronous signaling backbone that allows additional segments and repeaters to be connected to the network. 10BaseFB segments can be up to 2,000 meters long.

10BaseFL

10-Mbps baseband Ethernet specification using fiber-optic cabling. 10BaseFL is part of the IEEE10BaseF specification and, while able to interoperate with FOIRL, is designed to replace the FOIRL specification. 10BaseFL segments can be up to 1,000 meters long if used with FOIRL, and up to 2,000 meters if 10BaseFL is used exclusively.

10 BaseFP

10-Mbps fiber-passive baseband Ethernet specification using fiber-optic cabling. 10BaseFP ispart of the IEEE 10BaseF specification. It organizes a number of computers into a star topology without the use of repeaters. 10Base FP segments can be up to 500 meters long.

10 BaseT

A specification of the IEEE 802.3 committee for the implementation of 10 Mbit Ethernet on unshielded twisted pair wiring.

10 Broad36

10-Mbps broadband Ethernet specification using broadband coaxial cable. 10Broad36, which is part of the IEEE 802.3 specification, has a distance limit of 3,600 meters per segment.

100 BaseFX

100-Mbps baseband Fast Ethernet specification using two strands of multimode fiber-optic cable per link. To guarantee proper signal timing, a 100BaseFX link exceed 400 meters in length. Based on the IEEE 802.3 standard.

100 BaseT

A 100MB Ethernet specification using Level 5 UTP.

100 BaseT4

100-Mbps baseband Fast Ethernet specification using four pairs of Category 3, 4, or 5UTP wiring. To guarantee proper signal timing, a 100BaseT4 segment cannot exceed 100 meters in length. Based on the IEEE 802.3 standard.

100 BaseTX

100-Mbps baseband Fast Ethernet specification using two pairs of either UTP or STP wiring. The first pair of wires is used to receive data, the second is used to transmit. To guarantee proper signal timing a 100BaseTX segment cannot exceed 100 meters in length. Based on the IEEE 802.3 standard.

100 BaseX

100-Mbps baseband Fast Ethernet specification that refers to the 100BaseFX and 100BaseTX standards for Fast Ethernet over fiber-optic cabling. Based on the IEEE 802.3 standard.

100VG-AnyLAN

100-Mbps Fast Ethernet and Token Ring media technology using four pairs of Category 3, 4, or 5 UTP cabling. This high-speed transport technology, developed by Hewlett-Packard, can be made to operate on existing 10BaseT Ethernet networks. Based on the IEEE 802.12 standard.

4B/5B local fiber

4-byte/5-byte loc 100 Mbps over multimode fiber. See also TAXI 4B/5B.

08/10B local fiber

8-byte/10-byte local fiber. Fiber channel physical media that supports speeds up to 149.76 Mbps over multimode fiber.

A&B bit signaling

Procedure used in T1 transmission facilities in which each of the 24 T1 subchannels devotes one bit of every sixth frame to the carrying of supervisory signaling information. Also called 24th channel signaling.

AAL

ATM adaptation layer. Service-dependent sublayer of the data link layer. The AAL accepts data from different applications and presents it to the ATM layer in the form of 48-byte ATM payload segments. AALs consist of two sublayers, CS and SAR, AALs differ on the basis of the source-destination timing used, whether they use DBR or

VBR, and whether they are used for connection-oriented or connectionless mode data transfer. At present, the four types of AAL recommended by the ITU-T are AAL1, AAL2, AAL3/4, and AAL5.

AAL1

ATM adaptation layer 1. One of four AALs recommended by the ITU-T. AAL1 is used for connection-oriented, delay-sensitive services requiring constant bit rates, such as uncompressed video and other isochronous traffic.

AAL2

ATM adaptation layer 2. One of four AALs recommended by the ITU-T. AAL2 is used for connection-oriented services that support a variable bit rate, such as some isochronous video and voice traffic.

AAL3/4

ATM adaptation layer 3/4. One of four AALs (merger from two initially distinct adaptation layers) recommended by the ITU-T. AAL 3/4 supports both connectionless and connection oriented links, but is primarily used for the transmission of SMDS packets over ATM networks.

AAL5

ATM adaptation layer 5. One of four AALs recommended by the ITU-T. AAL5 supports connection-oriented, VBR services, and is used predominantly for the transfer of classic IP over ATM and LANE traffic. AAL5 uses SEAL and is the least complex of the current AAL recommendations. It offers low bandwidth over head and simpler processing requirements in exchange for reduced bandwidth capacity and error-recovery capability.

AARP

AppleTalk Address Resolution Protocol. Protocol in the AppleTalk protocol stack that maps a data-link address to a network address.

AARP probe packets

Packets transmitted by AARP that determine whether a randomly selected node ID is being used by another node in a nonextended AppleTalk network. If the node ID is not being used, the sending node uses that node ID. If the node ID is being used, the sending node chooses a different ID and sends more AARP probe packets.

ABM

Asynchronous Balanced Mode. An HDLC (and derivative protocol) communication mode supporting peer-oriented, point-to- point communications between two stations, where either station can initiate transmission.

ABR

1. available bit rate. QOS class defined by the ATM Forum for ATM networks. ABR is used for connections that do not require timing relationships between source and destination. ABR provides no guarantees in terms of cell loss or delays, providing only best-effort service. Traffic sources adjust their transmission rate in response to information they receive describing the statue of the network and its capability to successfully deliver data. Compare with CBR, UBR, and VBR. 2. area border router. Router located on the border of one or more OSPF areas that connects those areas to the backbone network. ABRs are considered members of both the OSPF backbone

and the attached areas. They therefore maintain routing tables describing both the backbone topology and the topology of the other areas.

AC

Alternating Current. An electrical power transmission system in which the direction of current flow alternates on a periodic basis.

Accelerator

A hardware addition to an existing computing device that increases the computer's processing speed and capabilities.

Access

Referring to the ability of a computing device to use data or resources beyond its native capabilities.

Access List

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

Access Method

The type of Media Access Control method that a node uses to gain control of a network.

Accounting

One of five categories of network management defined by ISO for

Management

management of OSI networks. Accounting management subsystems are responsible for collecting network data relating to resource usage. See also configuration management, fault management, performance management, and security management.

Accuracy

Referring to how closely a test instrument's measurements compare to a standard value, usually expressed as a percentage of the value measured.

ACF

Advanced Communications Function. A group of SNA products that provides distributed processing and resource sharing.

ACF/NCP

Advanced Communications Function/Network Control Program. The primary SNA NCP. ACF/NCP resides in the communications controller and interfaces with the SNA access method in the host processor to control network communications.

Acknowledgment

Notification sent from one network device to another to acknowledge that some event (for example, receipt of a message) has occurred. Sometimes abbreviated ACK.

ACR

Allows cell rate. Parameter defined by the ATM Forum for ATM traffic management. ACR varies between the MCR and the PCR, and is dynamically controlled using congestion control mechanisms.

ACSE

Association control service element. An OSI convention used to establish, maintain or terminate a connection between two applications.

Active Hub

Multiported device that amplifies LAN transmission signals.

Active Monitor

Device responsible for managing a Token Ring. A network node is selected to be the active monitor if it has the highest MAC address on the ring. The active monitor is responsible for management tasks such as ensuring that tokens are not lost or that frames do not circulate indefinitely.

Adapter

Hardware that allows a computing device physical access to a network.

Adaptive Routing

See dynamic routing.

ADCCP

Advanced Data Communications Control Protocol.

Address

A numerical designation that uniquely refers to a specific communication entity.

Addressed Call

Mode that permits control signals and commands to

Mode

establish and terminate calls in V.25bis.

Address Mapping

Technique that allows different protocols to interoperate by translating addresses from one format to another. For example, when routing IP over X.25, the IP addresses must be mapped to the X.25 addresses so that the IP packets can be transmitted by the X.25 network. See also address resolution.

Address Mask

Bit combination used to describe which portion of anaddress refers to the network or subnet and which partrefers to the host. Sometimes referred to simply as mask.also subnet mask.

Address Resolution

When two addressing systems refer to the same entity, the process of translating or expressing the address of an entity on one system to the equivalent address of the same entity in the second system. For instance, translating an IP address to its given DNS name.

Address Resolution

See ARP

Protocol

Address Space

The range of possible unique addresses allowed by an addressing scheme.

Adjacency

Relationship formed between selected neighboringrouters and end nodes for the propose of exchangingrouting information. Adjacency is based upon the useof a common media segment.

Adjacent Nodes

1. In SNA, nodes that are connected to a given nodewith no intervening nodes. 2. In DECnet and OSI, nodes that share a common network segment (in Ethernet, FDDI, or Token Ring networks).

Administrative Distance

A rate of the trustworthiness of a routing information source. The higher the value, the lower the trustworthiness rating.

Admission Control

See traffic policing.

ADPCM

Adaptive differential pulse code modulation. Process by which analog voice samples are encoded into high-quality digital signals.

ADSU

ATM DSU. Terminal adapter used to access an ATM network via an HSSI-compatible device. See also DSU.

Advertising

Router process in which routing or service updates are sent at specified intervals so that other routers on the network can maintain lists of usable routes.

AEP

AppleTalk Echo Protocol. Used to test connectivity between two AppleTalk nodes. One node sends a packet to another node and receives a duplicate, or echo, of that packet.

AFP

AppleTalk Filing Protocol. The Apple proprietary specification for a network file system.

Agent

1. An active process in a computer that is responsible for a certain type of activity when demanded by an outside entity. 2. In SNMP, the active process in a computing device that is responsible for determining the parameters defined in the MIB (Management Information Base) and reporting them on demand to a Console.

AIS

Alarm indication signal. In a T1 transmission, an all-ones signal transmitted in lieu of the normal signal to maintain transmission continuity and to indicate to the receiving terminal that there is a transmission fault that is located either at, or upstream from, the transmitting terminal.

AIX

IBM's implementation of Unix.

Alarm

Message notifying an operator or administrator of a network problem. See also event and trap.

Alarm Indication Signal

See AIS.

A-law

The ITU-T companding standard used in the conversion between analog and digital signals in PCM systems. A-law is used primarily in European telephone networks and is similar to the North American mu-law standard. See also companding and mu-law.

Algorithm

A set of rules and decision structures for actions in a specifically defined set of circumstances.

Alias

A file whose sole purpose is to represent another file.

Alignment Error

In IEEE 802.3 networks, an error that occurs when the total number of bits of a received frame is not divisible by eight. Alignment errors are usually caused by frame damage due to collisions.

All-rings Explorer Packet

See all-routes explorer packet.

All-routes Explorer Explorer Packet

packet that traverses an entire SRB network, following all possible paths to a specific destination. Sometimes called all-rings explorer packet, See also explorer packet, local explorer packet, and spanning explorer packet.

ALOE

Archaic. AppleTalk Low Overhead Encapsulation. A vendor-developed alternative to AURP, ALOE provides a mechanism to tunnel AppleTalk protocols inside IP packets, typically in WAN links.

Alphanumeric

Referring to a group of printable characters that includes the letters of the alphabet in both upper and lower case, the numerals plus a limited group of additional symbols and punctuation marks.

AM

Amplitude Modulation. Modulation technique whereby information is conveyed through the amplitude of the carrier signal. Compare with FM and PAM. See also modulation.

Ambient

Referring to a set of conditions that exist independently of the system of interest.

AMI

Alternate mark inversion. Line-code type used on T1 and E1 circuits. In AMI, zeros are represented by 01 during each bit cell, and ones are represented by 11 or 00, alternately, during each bit cell. AMI requires that the sending

device maintain ones density. Ones density is not maintained independent of the data stream. Sometimes called binary coded alternate mark inversion. See also ones density.

Amp

Ampere. A standard unit of measurement for electrical current flow.

Amplitude

In the terminology of wave motion, the height of the wave. Amplitude is usually measured from a reference point of 0. In electrical waves, amplitude is typically expressed in volts.

Analog

Referring to a system or component that uses a system of measurement, response or storage in which values are expressed a s a magnitude using a continuous scale of measurement.

Analog Transmission

Signal transmission over wires or through the air in which information is conveyed through variation of some combination of signal amplitude, frequency, and phase.

Anomaly

An unusual instance or circumstance.

ANSI

American National Standards Institute. The principle group in the US. for defining standards.

AOCE

Apple Open Collaboration Environment. A system of higher- level protocols used for the transmission of data and authentication between applications.

APaRT

Automated packet recognition/translation. Technology that allows a server to be attached to CDDI or FDDI without requiring the reconfiguration of applications or network protocols. APaRT recognizes specific data link layer encapsulation packet types and, when these packet types are transferred from one medium to another, translates them into the native format of the destination device.

API

Application Programming Interface. A set of tools and procedures provided by the programmer of an application so that other programmers can control, exchange data with, or extend the functionality of an application.

Apollo Domain

Proprietary network protocol suite developed by Apollo Computer for communication on proprietary Apollo networks.

APPC

Advanced Program-to-Program Communication. IBM SNA system software that allows high-speed communication between programs on different computers in a distributed computing environment. APPC establishes and tears down connections between communicating programs, and consists of two interfaces, a programming interface and a data-exchange interface. The former replies to requests from programs requiring communication; the latter establishes sessions between programs. APPC runs on LU 6.2 devices. See also LU 6.2.

AppleEvent

Apple's primary mechanism for interprocess communication.

AppleScript

A programming language that can call tasks within Macintosh applications.

AppleShare

An application published by Apple that allows a Macintosh to be a file server using the AFP protocol.

AppleTalk

1. Apple's proprietary network architecture. 2. The protocols, applications, networks and services included in Apple's network architecture.

Application

An independently executable set of algorithms and data structures that perform a specific set of functions.

Application Layer

Layer 7 of the OSI reference model. This layer provides services to application processes (such as electronic mail, file transfer, and terminal emulation) that are outside of the OSI model. The application layer identifies and establishes the availability of intended communication partners (and the resources required to connect with them), synchronizes cooperating applications, and agreement on procedures for error recovery and control of data integrity. Corresponds roughly with the transaction services layer in the SNA model. See also data link layer, network layer, physical layer, presentation layer, session layer, and transport layer.

APPN

Advanced Peer-to-Peer Networking. Enhancement to the original IBM SNA architecture. APPN handles session establishment between peer nodes, dynamic transparent route calculation, and traffic prioritization for APPC traffic. Compare with APPN+. See also APPC.

APPN+

Next-generation APPN that replaces the label-swapping routing algorithm with source routing. Also called high-performance routing. See also APPN.

ARA

AppleTalk Remote Access. Protocol that provides Macintosh users direct access to information and resources at a remote AppleTalk site.

Architecture

The sum total of all of the specifications, protocols and implementations that define a particular networking system.

Archive

A storage of infrequently-used or historical data.

ARCnet

Attached Resource Computer Network. A 2.5-Mbps token-bus LAN developed in the late 1970s and early 1980s by Datapoint Corporation.

Area

Logical set of network segments (either CLNS-, DECnet-, OSPF-based) and their attached devices. Areas are usually connected to other areas via routers, making up a single autonomous system. See also autonomous system.

ARM

Asynchronous response mode, HDLC communication mode involving one primary station and at least one secondary station, where either the primary or one of the secondary stations can initiate transmissions. See also primary station and secondary station.

ARP

Address Resolution Protocol. The protocol for mapping IP addresses to physical addresses such as Ethernet or Token Ring.

ARPA

Advanced Research Projects Agency, Research and development organization that is part of DoD. ARPA is responsible for numerous technological advances in communications and networking. ARPA evolved in DARPA, and then back into ARPA again (in 1994). See also DARPA.

ARPANET

Advanced Research Projects Agency Network. Landmark packet-switching network established in 1969. ARPANET was developed in the 1970s by BBN and funded by ARPA (and later DARPA). It eventually evolved into the Internet. The term ARPANET was officially retired in 1990.

ARQ

Automatic repeat request. Communication technique in which the receiving device detects errors and requests retransmission.

AS

See autonomous system.

ASBR

Autonomous system boundary router. ABR located between an OSPF autonomous system and a non-OSPF network. ASBRs run both OSPF and another routing protocol, such as RIP, ASBRs must reside on a nonstub OSPF area.

ASCII

Referring to a standard 7-bit character system that includes the alphanumeric characters and printer control codes.

ASDSP

AppleTalk Secure Data Stream Protocol. An encrypted version of ADSP used by AOCE.

ASIC

Application-Specific Integrated Circuit. A custom chip for a specific application.

ASLM

Apple Shared Library Manager.

ASN.1

Abstract Syntax Notation One. In SNMP, the language used to describe data managed by the MIB.

Associative Memory

Memory that is accessed based on its contents, not on its memory address. Sometimes called content addressable memory (CAM).

AST

Automatic spanning tree. Function that supports the automatic resolution of spanning trees in SRB networks, providing a single path for spanning explorer frames to traverse from a given node in the network to another. AST is based on the IEEE 802.1 standard.

ASTA

Advanced Software Technology and Algorithms. Component of the HPCC program intended to develop software and algorithms for implementation on high-performance computer and communications systems. See also HPCC.

Asymmetry

In networking, a system in which the relationship between two entities is inherently unequal, with each entity restricted to a set of operations and prerogatives defined by its role in the relationship.

Asynchronous

A system of communication in which each discreet delivery of information establishes its own timing impulse rather than having to conform to the timing impulse of previous deliveries.

Asynchronous

Term describing digital signals that are transmitted without precise clocking. Such signals generally have different frequencies and phase relationships. Asynchronous transmissions usually encapsulate individual characters in control bits (called start and stop bits) that designate the beginning and end of each character. Compare with Isochronous transmission, plesiochronous transmission, and synchronous transmission.

AT commands Transmission

A set of commands that control a modem or alter its characteristics.

ATDM

Asynchronous time-division multiplexing. Method of sending information that resembles normal TDM, except that time slots are allocated as needed rather than preassigned to specific transmitters. Compare with FDM, Statistical multiplexing, and TDM.

ATM

Asynchronous Transfer Mode. A broadband transmission system using 53-octet packets over a cell-switched network at speeds up to 2.2 GBPS.

ATP

AppleTalk Transaction Protocol. Transport-level protocol that allows reliable request-response exchanges between two socket clients.

Attenuation

A loss in the amplitude or strength of a signal due to an interaction with the signal's media. Generally expressed in decibels.

Attribute

Configuration data that defines the characteristics of database objects such as the chassis, cards, ports, or virtual circuits of a particular device. Attributes might be preset or user-configurable. On a LightStream 2020 ATM switch, attributes are set using the configuration program or CLI commands.

AUI

Attachment unit interface. IEEE 802.3 interface between an MAU and a NIC (network interface card). Also called transceiver cable.

AURP

AppleTalk Update-Based Routing Protocol. Apple's WAN protocol.

AURP Tunnel

Connection created in an AURP WAN that functions as a single, virtual data link between AppleTalk internetworks physically separated by a foreign network (a TCP/IP network, for example).

Authority Zone

Associated with DNS, an authority zone is a section of the domain-name tree for which one name server is the authority.

Automatic Call Reconnect

Feature permitting automatic call rerouting away from a failedtrunk line.

Autonomous Confederation

Group of autonomous systems that rely on their own networkreachability and routing information more than they rely on that received from other autonomous systems or confederations.

Autonomous System

Collection of networks under a common administration sharing a common routing strategy. Autonomous systems are subdivided by areas. An autonomous system must be assigned a unique 16-bit number by the IANA. Sometimes abbreviated AS.

Autoreconfiguration

Process performed by nodes within the failure domain of a Token Ring network. Nodes automatically perform diagnostics in an attempt to reconfigure the network around the failed areas.

Average Rate

The average rate, in kilobits per second (kbps), at which a given virtual circuit will transmit.

B8ZS

Binary 8-zero substitution. Line-code type, used on T1 and E1 circuits, in which a special code is substituted whenever 8 consecutive zeros are sent through the link. This code is then interpreted at the remote end of the connection. This technique guarantees ones density independent of the data stream. Sometimes called bipolar 8-zero substitution. Compare with AMI. See also ones density.

Back End

Node or software program that provides services to a front end. See also client, front end, and server.

Back End Processor

A computer running an application that supplies data to other computers on demand, but has no user interface.

Back Pressure

Propagation of network congestion information upstream through an internetwork.

Backbone

Referring to the internet, a central network that provides a pathway for other networks to communicate.

Background Task

A computing task that is executing while another task or application is displaying its user interface.

Backoff

The (usually random) retransmission delay enforced by contentious MAC protocols after a network node with data to transmit determines that the physical medium is already in use.

Backplane

The communication channels of a single device's architecture, such as in a hub or concentrator.

Backup

A copy of a set of files made for replacement purposes in case the original set is damaged or lost.

Backward Compatible

An upgraded component of a computing system that can be usedinterchangeably with its previous version.

Backward Learning

Algorithmic process used for routing traffic that surmises information by assuming symmetrical network conditions. For example, if node A receives a packet from node B through intermediate node C, the backward-learning routing algorithm will assume that A can optimally reach B through C.

Balanced Configuration

In HDLC, a point-to-point network configuration with two combined stations.

Balun

Balanced/Unbalanced. A device that links together dissimilar wire types and attempts to minimize any negative effects to the signal that would normally result from the dissimilarity.

Band

In analog communications, the range of frequencies over which a communication system operates.

Bandwidth

In analog communications, the difference between the highest and lowest frequencies available in the band. In digital communications, bandwidth is loosely used to refer to the information-carrying capacity of a network or component of a network.

Bandwidth Allocation

See Bandwidth reservation.

Bandwidth Reservation

Process of assigning bandwidth to users and applications served by a network. Involves assigning priority to different flows of traffic based on how critical and delay-sensitive they are. This makes the best use of available bandwidth, and if the network becomes congested, lower-priority traffic can be dropped. Sometimes called bandwidth allocation. See also call priority.

BARRNet

Bay Area Regional Research Network. Regional network serving the San Francisco Bay Area. The BARRNet backbone is composed of four University of California campuses (Berkeley, Davis, Santa Cruz, and San Francisco), Stanford University, Lawrence Livermore National Laboratory, and NASA Ames Research Center. BARRNET is now part of BBN Planet.

Base address

The lowest address available in an address range.

Baseband

A communication system in which only one signal is carried at any one time.

Baud

Unit of signaling speed equal to the number of discrete signal elements transmitted per second. Baud is synonymous with bits per second (bps), if each signal element represents exactly 1 bit.

Baud Rate

The number of voltage or frequency transitions per second.

BBN

Bolt, Beranek, and Newman, Inc. High-technology company located in Massachusetts that developed and maintained the ARPANET and later, the Internet, core gateway system.

BBN Planet

Subsidiary company of BBN that operates a nationwide Internet access network composed in part of the former regional networks BARRNET, NEARNET, and SURAnet.

Bc

Committed Burst. Negotiated tariff metric in Frame Relay internetworks. The maximum amount of data (in bits) that a Frame Relay internetwork is committed to accept and transmit at the CIR.

B Channel

Bearer channel. In ISDN, a full-duplex, 64-kbps channel used to send user data. Compare to D channel, E channel, and H channel.

Be

Excess Burst. Negotiated tariff metric in Frame Relay internetworks. The number of bits that a Frame Relay internetwork will attempt to transmit after Bc is accommodated. Be data is, in general, delivered with a lower probability than Bc data because Be data can be marked as DE by the network.

Beacon

Frame from a Token Ring or FDDI device indicating a serious problem with the ring, such as a broken cable. A beacon frame contains the address of the station assumed to be down.

BECN

Backward explicit congestion notification. Bit set by a Frame Relay network in frames traveling in the opposite direction of frames encountering a congested path. DTE receiving frames with the BECN bit set can request that higher-level protocols take flow control action as appropriate. Compare with FECN.

Bellcore

Bell Communications Research. Organization that performs research and development on behalf of the RBOCs.

Bellman-Ford Routing Algorithm

See distance vector routing algorithm.

Benchmark

A test performed t compare a computer process in one set of circumstances to another.

BER

1. Bit error rate. The ratio of received bits that contain errors. 2. Basic encoding rules. Rules for encoding data units described in the ISO ASN.1 standard.

BGP

Border Gateway Protocol. Interdomain routing protocol that replaces EGP. BGP exchanges reachability information with other BGP systems. It is defined by RFC 1163.

BGP4

BGP Version 4. Version 4 of the predominant interdomain routing protocol used on the Internet. BGP4 supports CIDR and uses route aggregation mechanisms to reduce the size of routing tables.

BIGA

Bus Interface Gate Array. Technology that allows the Catalyst 5000 to receive and transmit frames from its packet-switching memory to its MAC local buffer memory without the intervention of the host processor.

Big-endian

Method of storing or transmitting data in which the most significant bit or byte is presented first. Compare with little-endian.

Binary

1. A numerical system using "2" as its base. 2. Data that is encoded or presented in machine-readable form (1's & 0's).

BIND

Berkeley Internet Name Domain. The standard TCP/IP naming service that links network names with IP addresses.

Biphase Coding

Bipolar coding scheme originally developed for use in Ethernet. Clocking information is embedded into and recovered from the synchronous data stream without the need for separate clocking leads. The biphase signal contains no direct current energy.

Bipolar

Electrical characteristic denoting a circuit with both negative and positive polarity. Contrast with unipolar.

BISDN

Broadband ISDN. ITU-T communication standards designed to handle high-bandwidth applications such as video. BISDN currently uses ATM technology over SONET-based transmission circuits to provide data rates from 155 to 622 Mbps and beyond.

Bit

The basic unit of data representation in digital computers. a memory location that can have one of two values.

BITNET

"Because It's Time" Networking Services. Low-cost, low-speed academic network consisting primarily of IBM mainframes and 9600-bps leased lines. BITNET is now a part of CREN. See also CREN.

BITNET III

Dial-up service providing connectivity for members of CREN.

Bit-oriented Protocol

Class of data link layer communication protocols that can transmit frames regardless of frame content. Compared with byte-oriented protocols, bit-oriented protocols provide full-duplex operation and are more efficient and reliable. Compare with byte-oriented protocol.

Bit pattern

A sequence of bits that has a specific purpose or meaning.

Bit rate

The rate at which bits are transmitted or received during communication, expressed as the number bits in a given amount of time, usually one second.

Bitmap

A data structure that uses bits to represent the attributes of an object that is not character-based.

Black Box

A device that performs a function using mechanisms that are unimportant or impossible to understand.

Black Hole

Routing term for an area of the internetwork where packets enter, but do not emerge, due to adverse conditions or poor system configuration within a portion of the network.

Block

The basic unit of storage on a computer disk.

Blocking

In a switching system, a condition in which no paths are available to complete a circuit. The term is also used to describe a situation in which one activity cannot begin until another has been completed.

Block Multiplexer I Channel

BM-style channel that implements the FIPS-60 channel, AUS. Channel standard. This channel is also referred to as OEMI channel and 370 block mux channel.

BNC

Bayonet "N" Connector. 1. The locking connector type used in 10Base2 (Thin Ethernet). 2. Any connector similar to the type used by 10Base2 for CATV, and other electronic uses.

BNN

Boundary network node. In SNA terminology, a subarea node that provides boundary function support for adjacent peripheral nodes. This support includes sequencing, pacing, and address translation.

Board

A printed circuit and the substrate on which it lies.

BOC

Bell operating company. See RBOC.

Boot

A computer's startup operation.

Boot Drive

The disk that contains a computers' startup instructions.

BOOTP

Bootstrap Protocol. An IP protocol used by diskless workstations to receive boot information from a boot server.

Boot PROM

Boot programmable read-only memory. Chip mounted on a printed circuit board used to provide executable boot instruction to a computer device.

Border Gateway

Router that communicates with routers in other autonomous systems.

Boundary Function

Capability of SNA subarea nodes to provide protocol support for attached peripheral nodes. Typically found in IBM 3745 devices.

BPDU

Bridge protocol data unit. Spanning-Tree Protocol hello packet that is sent out at configurable intervals to exchange information among bridges in the network.

BPS

Bits Per Second. A commonly-used measure of the rate of data transmission that specifies the number of bits that are transmitted in one second. May be prefixed with multipliers such as K, M, and G which indicate rates of thousands, millions and billions of bits per second.

BRI

Basic Rate Interface. an ISDN service with two bearer channels at 64 KBPS plus a "Data-Link" or control channel at 16 KBPS.

Bridge

A Data Link Layer device that limits traffic between two network segments by filtering the data between them based on hardware addresses.

Bridge Forwarding

Process that uses entries in a filtering database to determine whether frames with a given MAC destination address can be forwarded to a given port or ports. Described in the IEEE 802.1 standard. See also IEEE 802.1.

Bridge Number

Number that identifies each bridge in an SRB LAN. Parallel bridges must have different bridge numbers.

Bridge Static Filtering

Process in which a bridge maintains a filtering database consisting of static entries. Each static entry equates a MAC destination address with a port that can receive frames with this MAC destination address and a set of ports on which the frames can be transmitted. Defined in the IEEE802.1 standard.

Broadband

A transmission system capable of carrying many channels of communication simultaneously by modulating them on one of several carrier frequencies.

Broadcast

An information transmission that is intended to be interpreted by all entities capable of receiving it.

Broadcast Address

Special address reserved for sending a message to all stations. Generally, a broadcast address is a MAC destination address of all ones. Compare with multicast address and unicast address.

Broadcast Domain

The set of all devices that will receive broadcast frames originating from any device within the set. Broadcast domains are typically bounded by routers because routers do not forward broadcast frames.

Broadcast Search

Propagation of a search request to all network nodes if the location of a resource is unknown to the requester.

Broadcast Storm

Undesirable network event in which many broadcasts are sent simultaneously across all network segments. A broadcast storm uses substantial network bandwidth and, typically, causes network time-outs.

Brouter

A device that incorporates the functionality of a bridge and a router in a single unit.

BSC

Binary synchronous communication. Character-oriented data link layer protocol for half-duplex applications. Often referred to simply as bisync.

BSD

Berkeley Software Distribution. UC Berkeley's distribution of the Unix operating system.

BT

Burst tolerance. Parameter defined by the ATM Forum for ATM traffic management. For VBR connections, BT determines the size of the maximum burst of contiguous cells that can be transmitted.

Buffer

A temporary memory storage area for information.

Bug

A flaw in a software program.

Bundled

Refers to the practice of automatically including an additional application or capability in the sale or delivery of a computing component that is not ordinarily associated with that component.

BUS

Broadcast and unknown server. Multicast server used in ELANs that is used to flood traffic addressed to an unknown destination, and to forward multicast and broadcast traffic to the appropriate clients.

Bus

A type of network topology in which nodes are connected alonga continuous path that is not a closed circuit. Also refers to acommunications channel used by a single computer such asNubus, SCSI, etc.

Bus and Tag Channel

IBM channel, developed in the 1960s, incorporating copper multiwire technology. Replaced by the EXCON channel. See also ESCON channel and parallel channel.

Bus Topology

Linear LAN architecture in which transmissions from network stations propagate the length of the medium and are received by all other stations. Compare with ring topology, star topology, and tree topology.

Bypass Mode

Operating mode on FDDI and Token Ring networks in which an interface has been removed from the ring.

Bypass Relay

Allows a particular Token Ring interface to be shut down and thus effectively removed from the ring.

Byte

A group of 8 bits.

Byte-oriented Protocol

Class of data-link communications protocols that use a specific character from the user character set to delimit frames. These protocols have largely been replaced by bit-oriented protocols. Compare with bit-oriented protocol.

Byte Reversal

Process of storing numeric data with the least-significant byte first. Used for integers and addresses on devices with Intel microprocessors.

Byte

A group of 8 bits.

Cable

The transmission media of a network.

Cable Range

Range of network numbers that is valid for use by nodes on an extended AppleTalk network. The cable range value can be a single network number or a contiguous sequence of several network numbers. Node addresses are assigned based on the cable range value.

Cache

A group of memory locations set aside for temporary storage ofdata, especially frequently-used data or data needing high speedretrieval by the CPU.

Call Admission Control

Traffic management mechanism used in ATM networks thatdetermines whether the network can offer a path with sufficient bandwidth for a requested VCC.

Call Priority

Priority assigned to each origination port in circuit-switched systems. This priority defines the order in which calls are reconnected. Call priority also defines which calls can or cannot be placed during a bandwidth reservation.

Call Setup Time

The time required to establish a switched call between DTE devices.

CAM

Content-addressable memory. See associative memory.

Card

A circuit board that plugs into a computer's bus to extend the computer's capability.

Carrier

Electromagnetic wave or alternating current of a single frequency, suitable for modulation by another, data-bearing signal.

Case Insensitive

Referring to a system in which upper case letters are not differentiated from their lower case form.

Case Sensitive

Referring to a system in which upper case letters are differentiatedfrom their lower case form.

Category 1 Cabling

One of five grades of UTP cabling described in the EIA/TIA-586 standard. Category 1 cabling is used for telephone communications and is not suitable for transmitting data. Compare with Category 2 cabling, Category 3 cabling, Category 4 cabling, and Category 5 cabling. See also EIA/TIA-586 and UTP.

Category 2 Cabling

One of five grades of UTP cabling described in the EIA/TIA-586 standard. Category 2 cabling is capable of transmitting data at speeds up to 4 Mbps. Compare with Category 1 cabling, Category 3 cabling, Category 4 cabling, and Category 5 cabling. See also EIA/TIA-586 and UTP.

Category 3 cabling

One of five grades of UTP cabling described in the EIA/TIA-586 standard. Category 3 cabling is used in 10Base T networks and can transmit data at speeds up to 10 Mbps. Compare with Category 1 cabling, Category 2 cabling, Category 4 cabling, and Category 5 cabling. See also EIA/TIA-586 and UTP.

Category 4 cabling

One of five grades of UTP cabling described in the EIA/TIA-586 standard. Category 4 cabling is used in Token Ring networks and can transmit data at speeds up to 16 Mbps. Compare with Category 1 cabling, Category 2 cabling, Category 3 cabling, and Category 5 cabling. See also EIA/TIA-586 and UTP.

Category 5 cabling

One of five grades of UTP cabling described in the EIA/TIA-586 standard. Category 5 cabling is used for running CDDI and can transmit data at speeds up to 100 Mbps Compare with Category 1 cabling, Category 2 cabling, Category 3 cabling, and Category 4 cabling. See also EIA/TIA-586 and UTP.

Catenet

Network in which hosts are connected to diverse networks, which themselves are connected with routers. The Internet is a prominent example of a catenet.

CATV

Cable television. Communication system where multiple channels of programming material are transmitted to homes using broadband coaxial cable. Formerly called Community Antenna Television.

CBDS

Connectionless Broadband Data Service. European high-speed, packet-switched, datagram-based WAN networking technology. Similar to SMDS.

CBR

Constant bit rate. QOS class defined by the ATM Forum for ATM networks. CBR is used for connections that depend on precise clocking to ensure undistorted delivery.

CCITT

Consultative Committee for International Telegraph and Television and Telephone. International organization responsible for the development of communications standards. Now called the ITU-T.

CCS

Common Channel Signaling. Signaling system used in telephone networks that separates signaling information from user data. A specified channel is exclusively designated to carry signaling information for all other channels in the system.

CD

Carrier Detect. Signal that indicates whether an interface is active. Also, a signal generated by a modem indicating that a call has been connected.

CDDI

Copper Distributed Data Interface. Implementation of FDDI protocols over STP and UTP cabling. CDDI transmits over relatively short distance (about 100 meters), providing data rates of 100Mbps using a dual-ring architecture to provide redundancy. Based on the ANSI Twisted-Pair Physical Medium Dependent (TPPMD) standard.

CDEV

The designation of a Control Panel Device in Macintosh System 6and earlier (obsolete).

CDPD

Cellular Digital Packet Data. Open standard for two-way wireless data communication over high-frequency cellular telephone channels. Allows data transmissions between a remote cellular link and a NAP. Operates at 19.2 Kbps.

CDVT

Cell delay variation tolerance. Parameter defined by the ATM Forum for ATM traffic management. In CBR transmissions, determines the level of jitter that is tolerable for the data samples taken by the PCR.

CEDI

Cayman Encapsulated DDP in IP. An Apple Talk tunneling protocol developed by Cayman.

Cell

The basic unit for ATM Switching and multiplexing. Cells contain identifiers that specify the data stream to which they belong. Each cell consists of a 5-byte header and 48 bytes of payload. See also cell relay.

Cell Loss Priority

See CLP.

Cell Relay

Network technology based on the use of small, fixed-size packets, or cells. Because cells are fixed-length, they can be processed and switched in hardware at high speeds. Cell relay is the basis for many high-speed network protocols including ATM, IEEE802.6, and SMDS.

Cells Per Second

Abbreviated cps.

Cellular Radio

Technology that uses radio transmissions to access telephone-company networks. Service is provided in a particular area by a low-power transmitter.

Centrex

AT&T PBX that provides direct inward dialing and automatic numbering identification of the calling PBX.

CEPT

Conférence Européenne des Postes et des Télécommunications. Association of the 26 European PTTs that recommends communication specifications to the ITU-T.

CERTnet

California Education and Research Federation Network. TCP/IP network, based in Southern California, that connects hundreds of higher-education centers internationally while also providing Internet access to subscribers. CERFnet was founded in 1988 by the San Diego Supercomputer Center and General Automics and is funded by the NSF.

Chaining

SNA concept in which RUs are grouped together for the propose of error recovery.

Channel

1. A communication path. Multiple channels can be multiplexed over a single cable in certain environments. 2. In IBM, the specific path between large computers (such as mainframes) and attached peripheral devices.

Channel-attached

Pertaining to attachment of devices directly by data channels (input/output channels) to a computer.

Channelized E1

Access link operating at 2.048 Mbps that is subdivided into 30 B-channels and 1 D-channel, Supports DDR, Frame Relay, and X.25. Compare with channelized T1.

Channelized T1

Access link operating at 1.544 Mbps that is subdivided into 24 channels (23 B-channels and 1D-channel) of 64 Kbps each. The individual channels or groups of channels connect to different destinations. Supports DDR, Frame Relay, and X.25. Also referred to as fractional T1. Compare with channelized E1.

Channel Service Unit

See CSU.

CHAP

Challenge Handshake Authentication Protocol. Security feature supported on lines using PPP encapsulation that prevents unauthorized access. CHAP does not itself prevent unauthorized access, it merely identifies the remote end. The router or access server than determines whether that user is allowed access. Compare to PAP.

Character

1. A symbol such as a letter, number or punctuation mark that canbe arranged to represent higher units of meaning, such as wordsand sentences. 2. The group of bits that represents such a symbol.

Chat Script

String of text that defines the login "conversation" that occurs between two systems. Consist of expect-send pairs that define the string that the local system expects to receive from the remote system and what the local system should send as a reply.

Cheapernet

Industry term used to refer to the IEEE 802.3 10Base2 standard or the cable specified in that standard. Compare with Thinnet. See also 10Base2, Ethernet, and IEEE 802.3.

Checksum

The result of a mathematical operation that uses the binary representation of a group of data as its basis, usually to check the integrity of the data.

Choke Packet

Packet sent to a transmitter to tell it that congestion exists and that it should reduce its sending rate.

CIA

See classic IP over ATM.

CICNet

Regional network that connects academic, reserach, nonprofit, and commercial organizations in the Midwestern United States. Founded in 1988, CICNet was a part of the NSF NET and was funded by the NSF until the NSFNET dissolved in 1995. See also NSFNET.

CICS

Customer Information Control System. IBM application subsystem allowing transactions entered at remote terminals to be processed concurrently by user applications.

CIDR

Classless interdomain routing. Technique supported by BGP4 and based on route aggregation. CIDR allows routers to group routes together in order to cut down on the quantity of routing information carried by the core routers. With CIDR, several IP networks appear to networks outside the group as a single, larger entity.

CIR

Committed information rate. The rate at which a Frame Relay network agrees to transfer information under normal conditions, averaged over a minimum increment of time. CIR, measured in bits per second, is one of the key negotiated tariff metrics.

Circuit

1. Any electrical pathway. 2. An arrangement of electrical andelectronic devices and the conductive paths between them.

Circuit Group

Grouping of associated serial lines that link two bridges. If one of the serial links in a circuit group is in the spanning tree for a network, any of the serial links in the circuit group can be used for load balancing. This load-balancing strategy avoids data ordering problems by assigning each destination address to a particular serial link.

Circuit Switching

Switching system in which a dedicated physical circuit path must exist between sender and receiver for the duration of the "call." Used heavily in the telephone company network. Circuit switching can be contrasted with contention and token passing as a channel-access method, and with message switching and packet switching as a switching technique.

Classic IP Over ATM

Specification for running IP over ATM in a manner that takes full advantage of the features of ATM. Defined in RFC 1577. Sometimes called CIA.

CLAW

Common Link Access for Workstations. Data link layer protocol used by channel-attached RISC System/6000 series systems and by IBM 3172 devices running TCP/IP off-load. CLAW improves efficiency of channel use and allows the CIP to provide the functionality of a 3172 in TCP/IP environments and support direct channel attachment. The output from TCP/IP mainframe processing is a series of IP datagrams that the router can switch without modifications.

Clear To Send

See CTS.

Client

Node or software program (front-end device) that requests services from a server. See also back end, front end and server.

Client/Server

A type of relationship between two computers where the two havedifferent roles in the relationship. Typically, the client computerdrives the relationship and uses a resource of the servercomputer.

CLNP

Connectionless Network Protocol. OSI network layer protocol that does not require a circuit to be established before data is transmitted. See also CLNS.

CLNS

Connectionless Network Service. OSI network layer service that does not require a circuit to be established before data is transmitted. CLNS routes messages to their destinations independently of any other messages. See also CLNP.

CLP

Cell loss priority. Field in the ATM cell header that determines the probability of a cell being dropped if the network becomes congested. Cell with CLP = 0 are insured traffic, which is unlikely to be dropped. Cells with CLP = 1 are best-effort traffic, which might be dropped in congested conditions in order to free up resources to handle insured traffic.

Clock

1. A component in a computer that provides a timing pulse forother components. 2. The timing pulse of a network transmission.

Cluster controller

1. Generally, an intelligent device that provides the connections for a cluster of terminals to be data link. 2. In SNA, a programmable device that controls the input/output operations of attached devices. Typically, an IBM 3174 or 3274 device.

CMI

Coded mark inversion. ITU-T line coding technique specified for STS-3c transmissions. Also used in DS-1 systems.

CMIP

Common Management Information Protocol.

CMIS

Common Management Information Services. OSI network management service interface created and standardized by ISO for the monitoring and control of heterogeneous networks. See also CMIP.

CMNS

Connection-Mode Network Service. Extends local X.25 switching to a variety of media (Ethernet, FDDI, Token Ring). See also .

CMT

Connection management. FDDI process that handles the transition of the ring through its various states (off, active, connect, and so on), as defined by the ANSI X3T9.5 specification.

CO

Central office. Local telephone company office to which all local loops in a given area connect and in which circuit switching of subscriber lines occurs.

Coaxial cable

An electrical cable in which the conductors share a common axis.

CODEC

Coder-decoder. Device that typically uses PCM to transform analog signals into a digital bit stream and digital signals back into analog.

Coding

Electrical techniques used to convey binary signals.

Collapsed Backbone

Nondistributed backbone in which all network segments are interconnected by way of an internetworking device. A collapsed backbone might be a virtual network segment existing in a device such as a hub, a router, or a switch.

Collision

In Ethernet, the result of two nodes transmitting simultaneously. The frames from each device impact and are damaged when they meet on the physical media. See also Collision domain.

Collision Avoidance

A Media Access Control (MAC) method in which any node maytake control of the network after taking certain steps to insure thatthe cable is not in use or about to be used by another node.

Collision Detection

A MAC method in which any node may take control of the networkwhen it is not in use by another node. While transmitting, stationscontinue to listen for incoming signals (collisions) and emit a jamming signal to notify all other stations of the collision.

Collision Domain

In Ethernet, the network area within which frames that have collided are propagated. Repeaters and hubs propagate collisions; LAN switches, bridges and routers do not. See also collision.

Common Carrier

Licensed, private utility company that supplies communication services to the public at regulated prices.

Communication

Transmission of information.

Communication Controller

In SNA, a subarea node (such as an IBM 3745 device) thatcontains an NCP.

Communication Server

Communications processor that connects asynchronous devicesto a LAN or WAN through network and terminal emulation software. Performs only asynchronous routing of IP and IPX. Compare with access server.

Communications Line

The physical link (such as wire or a telephone circuit) that connects one or more devices to one or more other devices.

Community

In SNMP, a logical group of managed devices and NMSs in the same administrative domain.

Community String

Text string that acts as a password and is used to authenticate messages sent between a management station and a router containing a SNMP agent. The community string is sent in every packet between the manager and the agent.

Companding

Contraction derived from the opposite processes of compression and expansion. Part of the PCM process whereby analog signal values are logically rounded to discrete scale-step values on a nonlinear scale. The decimal step number is then coded in its binary equivalent prior to transmission. The process is reversed at the receiving terminal using the same nonlinear scale. Compare with compression and expansion. See also a-law and mu-law.

Component

An indivisible unit of functionality, usually embodied in hardware.

Compression

An alteration performed on a unit of information intended to increase it density during storage of transmission.

Concentrator

A synonym for a multi-port repeater that may also perform bridging and routing functions.

Conductor

The current-carrying component of a transmission cable, typicallya copper wire.

Configuration Management

One of five categories of network management of OSI networks. Configuration management subsysems are responsible for detecting and determining the state of a network. See also account management, fault management, performance management, and security management.

Congestion

Traffic in excess of network capacity.

Connectionless

Term used to describe data transfer without the existence of a virtual circuit. Compare with connection-oriented. See also virtual circuit.

Connection-Oriented

In data networks, a type of computer relationship in which the network equipment constructs a circuit between the two devices for the duration of their relationship. Once the circuit is established, the devices pass information back and forth through the circuit without regard to their physical addresses. The circuit may be physical or virtual.

Connectionless

The opposite of connectionless, a type of relationship betweentwo devices where each information packet must contain theaddress of the partner device.

Connectivity

A term referring to the ability of a device to trade data and shareresources with other devices of a similar and dissimilar typethrough electronic means including serial and parallel connections, networking and telecommunications.

Connector

A device that establishes a physical connection between oneconductor or circuit and another.

CONP

Connection-Oriented Network Protocol, OSI protocol providing connection-oriented operation to upper-layer protocols.

Console

In SNMP (Simple Network Management Protocol), a software program that has the capability of interacting with an agent, including examining or changing the values of the data objects in the agent's Management Information Base (MIB).

Contention

A network access method where all the devices on the network have equal changes of gaining control of the network at any time. Includes avoidance (CSMA/CA) access methods.

Control Panel

In the Macintosh, a software application that has the ability to control an aspect of system configuration, such as the pixel depth of the monitor (Monitors), the choice of network type (Network), etc.

Convergence

The speed and ability of a group of internetworking devices running a specific routing protocol to agree on the topology of an internetwork after a change in that topology.

Convergence Sublayer

See CS.

Conversation

In SNA, an LU 6.2 session between two transaction programs.

Copper DistributedData Interface

See CDDI.

Core Gateway

The primary routers in the Internet.

Core Router

In a packet-switched star topology, a router that is part of the backbone and that serves as the single pipe through which all traffic from peripheral networks must pass on its way to other peripheral networks.

COS

1. Class of service. Indication of how an upper-layer protocol requires that a lower-layer protocol treat its messages. In SNA subarea routing, COS definitions are used by subarea nodes to determine the optimal route to establish to given session. A COS definition comprises a virtual route number and a transmission priority field. Also called TOS (type of service). 2. Corporation for Open Systems. Organization that promulgates the use of OSI protocols through conformance testing, certification, and related activities.

COSINE

Cooperation for Open Systems Interconnection Networking in Europe. European project financed by the European Community (EC) to build a communication network between scientific and industrial entities in Europe. The project ended in 1994.

Cost

Arbitrary value, typically based on hop count, media bandwidth, or other measures, that is assigned by a network administrator and used to compare various paths through an internetwork environment. Cost values are used by routing protocols to determine the most favorable path to a particular destination: the lower the cost, the better the path. Sometimes called path cost. See also routing metric.

Count to Infinity

Problem that can occur in routing algorithms that are slow to converge, in which routers continuously increment the hop count to particular networks. Typically, some arbitrary hop-count limit is imposed to prevent this problem.

CP

Control point. In SNA networks, element that identifies the APPN networking components of a PU 2.1 node, manages device rresources, and can provide services to other devices. In APPN, CPs are able to communicate with logically adjacent CPs by way of CP-to-CP sessions. See also EN and NN.

CPCS

Common part convergence sublayer. One of the two sublayers of any AAL. The CPCS is service-independent and is further divided into the CS and the SAR sublayers. The CPCS is responsible for preparing data for transport across the ATM network, including the creation of the 48-byte payload cells that are passed to the ATM layer. See also AAL, ATM layer, CS, SAR, and SSCS.

CPE

Customer premises equipment. Terminating equipment, such as terminals, telephones, and modems, supplied by the telephone company, installed at customer sites, and connected to the telephone company network.

CPI-C

Common Programming Interface for Communications. Platform-independent API developed by IBM and used to provide portability in APPC applications. See also APPC.

CPS

Cells per second.

CPU

Central Processing Unit. The main processor in the computer'sconfiguration that handles processing tasks or directs auxiliaryprocessors (coprocessors) to perform them.

CPU bound

A computing activity or network interaction whose speed is limitedby the speed at which the CPU can perform the necessary computing tasks.

Crash

An abrupt termination or computing activity caused by an error. Inmany instances, the computer becomes completely unusable andmust be restarted before activity can resume.

CRC

Cyclic Redundancy Check. A method of insuring data integritywhere a calculation is performed using the binary representationof the data itself as the basis of the calculation. The CRC is thenumerical result of this calculation and is held separately from thedata. The integrity of the data is checked by calculating a newCRC. If the two CRC's match, then there is a high degree of confidence that the data has not changed.

CREN

Corporation for Research and Educational Networking. The result of a merger of BITNET and CSNET. CREN is devoted to providing Internet connectivity to its members, which include the alumni, students, faculty, and other affiliates of participating educational and research institutions, via BITNET III. See also BITNET, BITNET III, and CSNET.

Crosstalk

In electronic signaling, an error condition caused when the signal from one circuit causes a disturbance to the signal of thenearby circuit..

CS

Convergence sublayer. One of the two sublayers of the AAL CPCS, responsible for padding and error checking. PDUs passed from the SSCS and appended with a 8-byte trailer (for error checking and other control information) and padded, if necessary, so that the length of the resulting PDU is divisible by 48. These PDUs are then passed to the SAR sublayer of the CPCS for further processing. See also AAL, CPCS, SAR, and SSCS.

CSA

Canadian Standards Association. Agency within Canada that certifies products that conform to Canadian national safety standards.

CSLIP

Compressed Serial Link Internet Protocol. Extension of SLIP that, when appropriate, allows just header information to be sent across a SLIP connection, reducing overhead and increasing packet throughput on SLIP lines. See also SLIP.

CSMA/CD

Carrier sense multiple access collision detect. Media-access mechanism wherein devices ready to transmit data first check the channel for a carrier. If no carrier is sensed for a specific period of time, a device can transmit. If two devices transmit at once, a collision occurs and is detected by all colliding devices. This collision subsequently

delays retransmissions from those devices for some random length of time. CSMA/CD access is used by Ethernet and IEEE 802.3.

CSNET

Computer Science Network. Large internetwork consisting primarily of universities, research institutions, and commercial concerns. CSNET merged with BITNET to form CREN.

CSNP

Complete sequence number PDU. PDU sent by the designated router in an OSPF network to maintain database synchronization.

CSU

Channel service unit. Digital interface device that connects end-user equipment to the local digital telephone loop. Often referred to together with DSU, as CSU/DSU. See also DSU.

CTS

1. Clear To Send. Circuit in the EIA/TIA-232 specification that is activated when DCE is ready to accept data from DTE. 2. Common transport semantic. Cornerstone of the IBM strategy to reduce the number of protocols on networks. CTS provides a single API for developers of network software and enables applications to run over APPN, OSI, or TCP/IP.

CUT

Control Unit Terminal.

Cut-through Packet Switching

Packet switching approach that streams data through a switch so that the leading edge of a packet exits the switch at the output port before the packet finishes entering the input port. A device using cut-through packet switching reads, processes, and forwards packets as soon as the destination address is looked up, and the outgoing port determined. Also known as on-the-fly packet switching. Contrast with store and forward packet switching.

DAC

Dual-attached concentrator. FDDI or CDDI concentrator capable of attaching to both rings of an FDDI or CDDI network. It can also be dual-homed from the master ports of other FDDI or CDDi concentrators.

Daemon

In the UNIX operating system, a computing process that, oncestarted, is not under user control, but continues to run in the background. Daemons usually perform a particular purpose on demand, such as supplying information to another processor. An example in AppleTalk networking is the atalkad daemon, which supplies AppleTalk tunneling information to routers on request.

Daisy Chain

In LocalTalk, a daisy chain is made by linking LocalTalkconnectors together with patch cord. In telephony, a daisy chainrefers to the method of linking a series of wall outlets togetherwith twisted pair cabling rather than the normal practice of connecting the wall outlets to a central location (home run). In telephony, "daisy chaining" is equivalent to the "backbone" method of LocalTalk construction.

DAL

Data Access Language. A data base metalanguage designed byApple. A superset of SQL.

DARPA

Defense Advanced Research Projects Agency. US. government agency that funded research for and experimentation with the Internet. Evolved from ARPA, and then, from 1994, back to ARPA.

DARPA Internet

Obsolete term referring to the Internet. See Internet.

DAS

Dual attachment station. Device attached to both the primary and the secondary FDDI rings. Dual attachment provides redundancy for the FDDI ring; if the primary ring fails, the station can wrap the primary ring to the secondary ring, isolating the failure and retaining ring integrity. Also known as a Class A station.

DAT

Digital Audio Tape. A type of storage media used for the backupof computing data.

Data

Information represented in a format readable by a computer.

Data Base

A collection of data that can be selectively retrieved by a type ofapplication knows as a Data Base Management System.

Data Flow Control Layer

Layer 5 of the SNA architectural model. This layer determines and manages interactions between session partners, particularly data flow. Corresponds to the session layer of the OSI model. See also data link control layer, path control layer, physical control llayer, presentation services layer, transaction services layer, and transmission control layer.

Datagram

Logical grouping of information sent as a network layer unit over a transmission medium without prior establishment of a virtual circuit. IP datagrams are the primary information units in the Internet. The terms frame, message, packet, and segment are also used to describe logical information grouping at various layers of the OSI reference model and in various technology circles.

Data Link

The physical connection between two devices such as Ethernet,LocalTalk or Token Ring that is capable of carrying information inthe service or networking protocols such as AppleTalk, TCP/IP orXNS.

Data Link Layer

Layer 2 of the OSI reference model. This layer provides reliable transit of data across a physical link. The data link layer is concerned with physical addressing, network topology, line discipline, error notification, ordered delivery of frames, and flow control. The IEEE has divided this layer into two sublayers: The MAC sublayer and the LLC sublayer. Sometimes simply called link layer. Roughly corresponds to the data link control layer of the SNA model. See also application layer, LLC, MAC, network layer, physical layer, presentation layer, session layer, and transport layer.

Data Link Protocol

The protocol that controls the network signaling and receivinghardware, performing data integrity checks and formatting information according to the rules of the data link.

Data Sink

Network equipment that accepts data transmissions.

Data Stream

All data transmitted through a communications line in a single read or write operation.

dB

Decibels.

DB Connector

Database bus connector. Type of connector used to connect serial and parallel cables to a data bus. DB connector names are of the format DB-x, where x represents the number of (wires) within the connector. Each line is connected to a pin on the connector, but in many cases, not all pins are assigned a function. DB connectors are defined by various EIA/TIA standards.

DCA

Defense Communications Agency. US. government organization responsible for DDN networks such as MILNET. Now called DISA.

DCC

Data Country Code. One of two ATM Address formats developed by the ATM Forum for use by private networks. Adapted from the subnetwork model of addressing in which the ATM layer is responsible for mapping network layer addresses to ATM Addresses. See also ICD.

DCE

Distributed Computing Environment.

D Channel

1. Data channel. Full-duplex, 16-kbps (BRI) or 64-kbps (PRI) ISDN channel. Compare to B channel, E channel, and H channel. 2. In SNA, a device that connects a processor and main storage with peripherals.

DDM

Distributed Data Management. Software in an IBM SNA environment that provides peer-to-peer communication and file sharing. One of three SNA transaction services. See also DIA and SNADS.

DDN

Defense Data Network. US. military network composed of an unclassified network (MILNET) and various secret and top-secret networks. DDN is operated and maintained by DISA. See also DISA and MILNET.

DDP

Datagram Delivery Protocol. Apple Computer network layer protocol that is responsible for the socket-to-socket delivery of datagrams over an AppleTalk internetwork.

DDR

Dial-on-demand routing. Technique whereby a Cisco router can automatically initiate and close a circuit-switched session as transmitting stations demand. The router spoofs keepalives so that end stations treat the session as active. DDR permits routing over ISDN or telephone lines using an external ISDN terminal adapter or modem.

DE

Discard eligible. See tagged traffic.

Deadlock

1. Unresolved contention for the use of a resource. 2. In APPN, when two elements of a process each wait for action by or a response from the other before they resume the process.

Decay

A loss in the clarity or readability of an electronic signal caused bythe interaction of the signal with its carrier and electrical environment.

Decibel

A measurement that refers to the ratio of the strength of one signalto another. Decibels are commonly used to express signal lossor the relationship of the signal strength to ambient noise.

DECnet

Group of communications products (including a protocol suite) developed and supported by Digital Equipment Corporation. DECnet/OSI (also called DECnet Phase V) is the most recent iteration and supports both OSI protocols and proprietary Digital protocols. Phase IV Prime supports inherent MAC addresses that allow DECnet nodes to coexist with systems running other that have MAC address restrictions. See also DNA.

DECnet Routing

Proprietary routing scheme introduced by Digital Equipment Corporation in DECnet Phase III. In DECnet Phase V, DECnet completed its transition to OSI routing protocols (ES-IS and IS-IS).

Decryption

The reverse application of an encryption algorithm to encrypted data, thereby restoring that data to its original, unencrypted state. See also encryption.

Dedicated LAN

Network segment allocated to a single device. Used in LAN switched network topologies.

Dedicated Line

Communications line that is indefinitely reserved for transmissions, rather than switched as transmission is required. See also leased line.

De Facto Standard

Standard that exists by nature of its widespread use. Compare with de jure standard. See also standard.

Default Route

Routing table entry that is used to direct frames for which a next hop is not explicitly listed in the routing table.

De Jure Standard

Standard that exist because of its approval by an official standards body. Compare with de facto standard. See also standard.

Delay

The time between the initiation of a transaction by a sender and the first response received by the sender. Also, the time required to move a packet from source to destination over a given path.

Demand Priority

Media access method used in 100VG-AnyLAN that uses a hub that can handle multiple transmission requests and can process traffic according to priority, making it useful for servicing time-sensitive traffic such as multimedia and video. Demand priority eliminates the overhead of packet collisions, collision recovery, and broadcast traffic typical in Ethernet networks. See also 100VG-AnyLAN.

Demarc

Demarcation point between carrier equipment and CPE.

Demodulation

Process of returning a modulated signal to its original form. Modems perform demodulation by taking an analog signal and returning it to its original (digital) form. See also modulation.

Demultiplexing

The separating of multiple input streams that have been multiplexed into a common physical signal back into multiple output streams. See also multiplexing.

Dense Mode PIM

See PIM dense mode.

DES

Data Encryption Standard. Standard cryptographic algorithm developed by the US.

Designated Bridge

The bridge that incurs the lowest path cost when forwarding a frame from a segment to the route bridge.

Designated Router

OSPF router that generates LSAs for a multiaccess network and has other special responsibilities in running OSPF. Each multiaccess OSPF network that has at least two attached routers has a designated router that is elected by the OSPF Hello protocol. The designated router enables a reduction in the number of adjacencies required on a multiaccess network, which in turn reduces the amount or routing protocol traffic and the size of the topological database.

Desktop

In the Macintosh user interface, the background image of theFinder on which the icons for applications, directories and datafiles are displayed.

Destination Address

Address of a network device that is receiving data. See also source address.

Deterministic Load Distribution

Technique for distributing traffic between two bridges across a circuit group. Guarantees packet ordering between source-destination pairs and always forwards traffic for a source-destination pair on the same segment in a circuit group for a given circuit-group configuration.

Device

See node.

Device Driver

Software that acts as an intermediary between a CPU and aperipheral device. The CPU sends a command to the devicedriver, which translates that command into a command meaningful to the peripheral device.

DFT

Distributed Function Terminal.

DIA

Document Interchange Architecture. Defines the protocols and data formats needed for the transparent interchange of documents in an SNA network. One of three SNA transaction services. See also DDM and SNADS.

Diagnostic

A test or the data from a test which indicates the condition of thestate of a computer or network's health.

Dial-up Line

Communications circuit that is established by a switched-circuit connection using the telephone company network.

Differential Encoding

Digital encoding technique whereby a binary value is denoted by a signal change rather than a particular signal level.

Differential Manchester Encoding

Digital coding scheme where a mid-bit-time transition is used for clocking, and a transition at the beginning of each bit time denotes a zero. The coding scheme used by IEEE802.5 and Token Ring networks.

Dijkstra's algorithm

See SPF.

DIN

Deutsche Industrie Norm. German national standards organization.

DIN Connector

Deutsche Industrie Norm connector. Multipin connector used in some Macintosh and IBM PC-compatible computers, and on some network processor panels.

Directed Search

Search request sent to a specific node known to contain a resource. A directed search is used to determine the continued existence of the resource and to obtain routing information specific to the node. See also broadcast search.

Direct Memory Access

See DMA.

Directory Services

Services that help network devices locate service providers.

DISA

Defense Information Systems Agency. US. military organization responsible for implementing and operating military information systems, including the DDN. See also DDN.

Discovery Architecture

APPN software that enables a machine configured as an APPN EN to automatically fine primary and backup NNs when the machine is brought onto an APPN network.

Discovery Mode

Method by which an AppleTalk interface acquires information about an attached network from an operational node and then uses this information to configure itself. Also called dynamic configuration.

Distance Vector Routing Algorithm

Class of routing algorithms that iterate on the number of hops in a route to find a shortest-path spanning tree. Distance vector routing algorithms call for each router to send its entire routing table in each update, but only to its neighbors. Distance vector routing algorithms can be prone to routing loops, but are computationally simpler than link state routing algorithms. Also called Bellman-Ford routing algorithm. See also link state routing algorithm and SPF.

Distortion

A change in a electronic signal that occurs when different frequen-cy components of the signal decay at different rates. In a signalmade up of many frequency components (such as a squarewave), the higher frequency components of a signal typicallydecay faster than the lower frequency components.

Distortion Delay

Problem with a communication signal resulting from nonuniform transmission speeds of the components of a signal through a transmission medium. Also called group delay.

DLCI

Data-link connection identifier. Value that specifies a PVC or SVC in a Frame Relay network. In the basic Frame Relay specification, DLCIs are locally significant (connected devices might use different values to specify the same

connection). In the LMI extended specification, DLCIs are globally significant (DLCIs specify individual end devices). See also LMI.

DLL

Dynamically Linked Libraries. A component of Microsoft's OLE.

DLSw

Data-link switching. Interoperability standard, described in RFC 1434, that provides a method for forwarding SNA and NetBIOS traffic over TCP/IP networks using data link layer switching and encapsulation. DLSw uses SSP (Switch-to-Switch Protocol) instead of SRB, eliminating the major limitations of SRB, including hop-count limits, broadcast and unnecessary traffic, timeouts, lack of flow control, and lack of prioritization schemes. See also SRB, and SSP (Switch-to-Switch Protocol).

DLU

Dependent LU. An LU that depends on the SSCP to provide services for establishing session with other LUs. See also LU and SSCP.

DLUR

Dependent LU Requester. The client half of the Dependent LU Requester/Server enhancement to APPN. The DLUR component resides in APPN ENs and NNs that support adjacent DLUs by securing services from the DLUS. See also APPN, DLU, and DLUS.

DLUR Node

In APPN networks, an EN or NN that implements the DLUR component. See also DLUR.

DLUS

Dependent LU Server. The server half of the Dependent LU Requester/Server enhancement to APPN. The DLUS component provides SSCP services to DLUR nodes over an APPN network. See also APPN, DLU, And DLUR.

DLUS Node

In APPN networks, an NN that implements the DLUS component. See also DLUS.

DMA

Direct memory access. The transfer of data from a peripheral device, such as a hard disk drive, into memory without that data passing through the microprocessor. DMA transfers data into memory at high speeds with no processor overhead.

DMAC

Destination MAC. The MAC address specified in the Destination Address field of a packet. Compare with SMAC. See also MAC address.

DNA

Digital Network Architecture. Network architecture developed by Digital Equipment Corporation. The products that embody DNA (including communications protocols) are collectively referred to as DECnet. See also DECnet.

DNIC

Data Network Identification Code. Part of an X.121 address. DNICs are divided into two parts: the first specifying the country in which the addressed PSN is located and the second specifying the PSN itself. See also X.121.

DNS

Domain Name Service

DNSIX

Department of Defense Intelligence Information System Network Security for Information Exchange. Collection of security requirements for networking defined by the US. Defense Intelligence Agency.

DoD

Department of Defense. US. government organization that is responsible for national defense. The DoD has frequently funded communication protocol development.

domain

1. In the Internet, a portion of the spanning hierarchy tree that refers to general groupings of networks based on organization type or geography. 2. In SNA, an SSCP and the resources it controls. 3. In IS-IS, a logical set of networks.

Domain

Networking system developed by Apollo Computer (now part of Hewlett-Packard) for use in its engineering workstations.

DOS

The operating system of IBM-compatible personal computers.

Dot Address

Refers to the common notation for IP addresses in the form <n.n.n.n> where each number n represents, in decimal, 1 byte of the 4-byte IP address. Also called dotted notation or four-part dotted notation.

Dotted Notation

See dot address.

Downlink Station

See ground station.

Download

The transfer of a file from a remote computer to a local computer.

Downsizing

The transfer of computing tasks previously performed by main frame or minicomputers to personal computers.

Downtime

1. A temporary interruption in the usability of a computer system.2. A work stoppage caused by the temporary lack of usability of acomputer system.

DQDB

Distributed Queue Dual Bus. Data link layer communication protocol, specified in the IEEE802.6 standard, designed for use in MANs. DQDB, which permits multiple systems to interconnect using two unidirectional logical buses, is an open standard that is designed for compatibility with carrier transmission standards and is aligned with emerging standards for BISDN. SIP (SMDS Interface Protocol) is based on DQDB. See also MAN.

DRAM

Dynamic random-access memory. RAM that stores information in capacitors that must be periodically refreshed. Delays can occur because DRAMs are inaccessible to the processor when refreshing their contents. However, DRAMs are less complex and have greater capacity than SRAMs. See also SRAM.

Drive

A data storage device.

Drop

Point on a multipoint channel where a connection to a networked device is made.

Drop Cable

Generally, a cable that connects a network device (such as a computer) to a physical medium. A type of AUI. See also AUI.

DS-0

Digital signal level 0. Framing specification used in transmitting digital signals over a single channel at 64-kbps on a T1 facility. Compare with DS-1 and DS-3.

DS-1

Digital signal level 1. Framing specification used in transmitting digital signals at 1.544-Mbps on a T1 facility (in the United States) or at 2.108-Mbps on an E1 facility (in Europe). Compare with DS-0 and DS-3.

DS-1/DTI

DS-1 domestic trunk interface. Interface circuit used for DS-1 applications with 24 trunks.

DS-3

Digital signal level 3. Framing specification used for transmitting digital signals at 44.736-Mbps on a T3 facility. Compare with DS-0 and DS-1. See also E3 and T3.

DSAP

Destination service access point. The SAP of the network node designated in the Destination field of a packet. Compare to SSAP. See also SAP (service access point).

DSP

Domain specific part. The part of a CLNS address that contains an area identifier, a station identifier, and a selector byte.

DSPU

Downstream physical unit. In SNA, a PU that is located downstream from the host.

DSPU Concentration

See DSPU and PU.

DSR

Data set ready. EIA/TIA-232 interface circuit that is activated when DCE is powered up and ready for use.

DSU

Data service unit. Device used in digital transmission that adapts the physical interface on a DTE device to a transmission facility such as T1 or E1. The DSU is also responsible for functions such as signal timing. Often referred to together with CSU, as CSU/DSU. See also CSU.

DSX-1

Cross-connection point for DS-1 signals.

DTE

Data Terminal Equipment. The X.25 term for an end node. Device at the user end of a user-network interface that serves as a data source, destination, or both. DTE connects to a data network through a DCE device (for example, a modem) and typically uses clocking signals generated by the DCE. CTE includes devices such as computers, protocol translators, and multiplexers. Compare with DCE.

DTMF

Dual tone multifrequency. Use of two simultaneous voice-band tones for dialing (such as touch tone).

DTR

Data terminal ready. EIA/TIA 232 circuit that is activated to let the DCE know when the DTE is ready to send and receive data.

DTS

Distributed Time Service.

DUAL

Diffusing Update Algorithm. Convergence algorithm used in Enhanced IGRP that provides loop-free operation at every instant throughout a route computation. Allows routers involved in a topology change to synchronize at the same time, while not involving routers that are unaffected by the change. See also Enhanced IGRP.

Dual Counter-rotation Ring

Network topology in which two signal paths, whose directions are opposite one another, exist in a token-passing network. FDDI and CDDI are based on this concept.

Dual-homed Station

Device attached to multiple FDDI rings to provide redundancy.

Dual Homing

Network topology in which a device is connected to the network by way of two independent access points (points of attachment). One access point is the primary connection, and the other is a standby connection that is activated in the event of a failure of the primary connection.

Dual IS-IS

See Integrated IS-IS.

DVMRP

Distance Vector Multicast Routing Protocol. Internetwork gateway protocol, largely based on RIP, that implements a typical dense mode IP multicast scheme. DVMRP uses IGMP to exchange routing datagrams with its neighbors. See also IGMP.

DXI

Data Exchange Interface. ATM Forum specification, described in RFC 1483, that defines how a network device such as a bridge, router, or hub can effectively act as an FEP to an ATM network by interfacing with a special DSU that performs packet segmentation and reassembly.

Dynamic Address Resolution

Use of an address resolution protocol to determine and store address information on demand.

Dynamic Addressing

A system of addressing in which the computer selects it s own address without the user's intervention.

Dynamic Configuration

See discovery mode.

Dynamic Routing

Routing that adjusts automatically to network topology or traffic changes. Also called adaptive routing.

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 station 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 carrier. Compare with T3. See also DS-3.

Email

Electronic Mail. A network application that can deliver messagesfrom one computer user to another.

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 code 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.

E Channel

Echo channel. 64-Kbps ISDN circuit-switching control channel. The E channel was defined in the 1984 ITU-TISDN specification, but was dropped in the 1988 specification. Compare with B channel, D channel, and H channel.

Echo

1. In electronic signaling, the reflection of a signal caused by asudden change in the impedance of the carrier. 2. A networkcontinuity test where packets are sent to a distant node that isobligated to immediately send the packets back.

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.

Echo Protocol

In the AppleTalk protocol family, a protocol that allows a computer to return test packets. The purpose of Echo Protocol is t testthe delivery conditions to a remote node, including reachability,reliability and round trip time.

Echo Test

A diagnostic test in which packets are sent by one node to another node, which immediately returns them to the original node. Thedata recorded by the echo test includes the success rate of thereturn as well as the time needed to complete the round trip.

ECMA

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

EDI

Electronic Document (or Data) Interchange. The term EDI usuallyconnotes a system where authentication and security methodsguarantee the integrity and origin of the information.

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 -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 2Mbps) 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.

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 in the integrity of a signal caused by radiation. An

Interference (EMI)

example is the radiation from a fluorescent light, which emits abroad spectrum of electromagnetic radiation, including radiationthat may be harmful to a signal not protected by either shielding oradequate twisting.

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 email.

EMA

1. Enterprise Management Architecture. Digital Equipment Corporation network management architecture, based on the OSI network management model.

Email

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

A network activity in which a computer acts as if it is another kindof computer or terminal. An example is when a Macintosh useropens a remote terminal session to a VAX, it may run a programthat emulates a DEC VT240 terminal.

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

The process of placing one protocol inside of another. Usuallyimplies that the encapsulated protocol was not originally intendedby its designers to be carried by the encapsulating protocol.

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.

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.

Enterprise network

A networking system that allows communication and resourcesharing among all of a company's business functions andworkers. In some circles, this would even include the company'sbusiness including its suppliers and distributors.

Entity

A hardware (or firmware) device or software process capable ofinitiating or responding to communication. Entities typicallypossess a unique address.

Entropy

1. A measure of the disorder of a system. 2. The thermodynamictendency of a system to reduce its overall energy state by increasing its disorder. Theoretically, an equilibrium is reached where the energy reduction that can be gained by a further increase in entropy is offset by the energy necessary to contain that increase.

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.

Error checking

In data transmission, an action where the integrity of data isverified.

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.

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

A specification for a transmission system including Layers 1 and2 of the OSI 7-layer model using the CSMA/CD access method.In common usage, "Ethernet" refers to both the DIX (DEC - Intel - Xerox) version of this specification or to the IEEE version, moreformally known as "802.3". The DIX version is distinguished bythe reference "Ethernet V.2".

EtherTalk

1. EtherTalk Link Access Protocol (ELAP), the protocol that placesAppleTalk's DDP formatted packets in Ethernet frames. 2. Theimplementation of AppleTalk using Ethernet as a delivery system.In AppleTalk Phase 1, Ethernet V.2 is used; in Phase 2, 802.3 isused.

Extension

A system software addition to the Macintosh OS that extends itfunctionality.

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.

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 traps.

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.

EXEC

The interactive command process 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 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.

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 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.

Failure Domain

Area in which a failure has occurred in a Token Ring, defined by the information contained in a beacon. When a station detects a serious problem with the network (such as a cable break), it sends a beacon frame that includes

the station reporting the failure, its NAUN, and everything in between. Beaconing in turn intitiates a process called autoreconfiguration. See also autoreconfiguration, beacon, and NAUN.

Fan-out Unit

Device that allows multiple devices on a network to communicate using a single network attachment.

Fast Ethernet

A 100 MB network using 4 twisted pairs.

Fast Switching

Cisco feature whereby a route cache is used to expedite packet switching through a router. Contrast with slow switching.

Fault Management

One of five categories of network management defined by ISO for management of OSI networks. Fault management attempts to ensure that network faults are detected and controlled. See also accounting management, configuration management, performance, and security management.

FCC

Federal Communications Commission. The United States government agency that regulates electronic communications and the domestic manufacture and importation of communication equipment.

FDDI

Fiber Data Distributed Interface. A specification (ANSI X 3T9.5)for 100 MBits/sec. on dual counter-rotating token passing ringimplemented on fiber optic cabling.

FDDI II

ANSI standard that enhances FDDI. FDDI II provides isochronous transmission for connectionless data circuits and connection-oriented voice and video circuits. Compare with FDDI.

FDM

Frequency-division multiplexing. Technique whereby information from multiple channels can be allocated bandwidth on a single wire based on frequency. Compare with ATDM, statistical multiplexing, and TDM.

FECN

Forward explicit congestion notification. Bit set by a Frame Relay network to inform DTE receiving the frame that congestion was experienced in the path from source to destination. DTE-receiving frames with the FENC bit set can request that higher-level protocols take flow-control action as appropriate. Compare with BECN.

Female connector

Also called "jack". A connector which joins with a male con-nector by providing recesses into which the male connector inserts its contact points or pins.

FEP

Front-end processor. Device or board that provides network interface capabilities for a networked device. In SNA, typically an IBM 3745 device.

Fiber optic

A transmission media that uses a light wave for signaling.

Fiber-optic Cable

Physical medium capable of conducting modulated light transmission. Compared with other transmission media, fiber-optic cable is more expensive, but is not susceptible to electromagnetic interference and is capable of higher data rates. Sometimes called optical fiber.

FID0

Format indicator 0. One of several formats that an SNA TH can use. An FID0 TH is used for communication between an SNA node and a non-SNA node. See also TH.

FID1

Format indicator 1. One of several formats that an SNA TH can use. An FID1 TH encapsulated messages between two subarea nodes that do not support virtual and explicit routes. See also TH.

FID2

Format indicator 2. One of several formats that an SNA TH can use. An FID2 TH is used for transferring messages between a subarea node and a PU 2 , using local addresses. See also TH.

FID3

Format indicator 3. One of several formats that an SNA TH can use. An FID3 TH is used for transferring messages between a subarea node and a PU 1, using local addresses. See also TH.

FID4

Format indicator 4. One of several formats that an SNA TH can use. An FID4 TH encapsulates messages between two subarea nodes that are capable of supporting virtual and explicit routes. See also TH.

Field

In an information packet, a group of one or more bytes that performs a specific function, such as designating the recipient of the packet, the length of the packet or the type of protocol encoded in the packet.

File system

Refers to the collection of system software routines that managesand accesses files located on a computer's storage volumes.

File Transfer

Popular network application that allows files to be moved from one network device to another.

Filter

A network manager-defined conditional test placed on incomingpackets in a network bridge or protocol analyzer. Generally, if the packet meets the conditions defined in the filter criteria, it under goes further processing. If the packet does not meet the filtercriteria, it is rejected.

Finder

A software application included with Macintosh system softwarethat allows users to perform basic file access and management functions using icons and pull-down menus.

Finger

A collection of software routines used by computers running theIP protocol stack, which allows a user to read public informationabout a user on the same, or a remote machine, often including:full name, telephone number and extension, snail-mail address,time and place of last login, whether user has any pending un-read mail, and witticisms selected by the user.

Firewall

Router or access server, or several routers or access servers, designated as a buffer between any connected public networks and a private network. A firewall router uses access lists and other methods to ensure the security of the private network.

FireWire

High-speed external data bus intended to replace the SCSI busin the Macintosh system architecture, as the bus of choice for theconnection of storage devices, external video and image I/O, etc.

Firmware

A collection of programmed routines and instructions that is implemented in a computer chip or similar hardware form insteadof a software form.

Flag

In a packet, a bit (or sometimes a group of bits) that indicates acondition. For example, the ZIP GetNetInfo Reply includes a 1-bitflag that indicates whether the zone name specified either is or isnot a valid home zone name for the node that requested the information.

Flag Byte

In LocalTalk signaling, the bit pattern "01111110", which signalsthe beginning and ending of a LLAP frame. The Flag Bytes preceding the packets establish the synchronization of the framesimilar to the function of an Ethernet preamble.

Flapping

Routing problem where an advertised route between two nodes alternates (flaps) back and forth between two paths due to a network problem that causes intermittent interface failures.

Flash memory

Technology developed by Intel and licensed to other semiconductor companies. Flash memory is nonvolatile storage that can be electrically erased and reprogrammed. Allows software images to be stored, booted, and rewritten as necessary.

Flash Update

Routing update sent synchronously in response to a change in the network topology. Compare with routing update.

Flooding

Traffic-passing technique used by switches and bridges in which traffic received on an interface is sent out all of the interfaces of that device except the interface on which the information was originally received.

Flow

Stream of data traveling between two endpoints across a network (for example, from one LAN station to another). Multiple flows can be transmitted on a single circuit.

Flow Control

Technique for ensuring that a transmitting entity, such as a modem, does not overwhelm a receiving entity with data. When the buffers on the receiving device are full, a message is sent to the sending device to suspend the transmission until the data in the buffers has been processed. In IBM networks, this technique is called pacing.

FM

Frequency Modulation. In data transmission, a system of signaling in which the data is encoded by varying the frequency of the signal.

FNC

Federal Networking Council. Group responsible for assessing and coordinating U.S. federal agency networking policies and needs.

FOIRL

Fiber Optic Inter Repeater Link. An asynchronous fiber optic connection that links two Ethernet repeaters (hubs) with a maximum transmission distance of 2 kilometers when used at 10MBits/sec.

Format

A specification for the arrangement of information. Examples include the format of disk, file or packet.

Format Indicator 0

See FID0.

Format Indicator 1

See FID1.

Format Indicator 2

See FID2.

Format Indicator 3

See FID3.

Format Indicator 4

See FID4.

Forward Channel

Communications path carrying information from the call initiator to the called party.

Forward Delay Interval

Amount of time an interface spends listening for topology change information after that interface has been activated for bridging and before forwarding actually begins.

Forwarding

Process of sending a frame toward its ultimate destination by way of an internetworking device.

Fourier Transform

Technique used to evaluate the importance of various frequency cycles in a time series pattern.

Four-part Dotted Notation

See dot address.

FQDN

Fully Qualified Domain Name. Includes host name, as well as allenclosing domains, and is often distinguished by the use of aterminating dot: (host.subdomain.domain.).

Fractional T1

See channelized T1.

FRAD

Frame Relay access device. Any network device that provides a connection between a LAN and a Frame Relay WAN.

Fragment

Piece of a larger packet that has been broken down to smaller units.

Fragmentation

Process of breaking a packet into smaller units when transmitting over a network medium that cannot support a packet of the original size. See also reassembly.

Frame

In data networks, the information packet and all of the precedingand succeeding signals necessary (flag bytes, preambles, framechecks, abort sequences, etc.) to convey it along the data link.

Frame Check Sequence

See FCS.

Frame Relay

Industry-standard, switched data link layer protocol that handles multiple virtual circuits using HDLC encapsulation between connected devices. Frame relay is more efficient than X.25, the protocol for which it is generally considered a replacement. See also X.25.

Frame Relay Bridging

Bridging technique, described in RFC 1490, that uses the same spanning-tree algorithm as other bridging functions, but allows packets to be encapsulated for transmission across a Frame Relay network.

Frame Switch

See LAN switch.

Free-trade Zone

Part of an AppleTalk internetwork that is accessible by two other parts of the internetwork that are unable to directly access one another.

Frequency

1. A measure of the rate of change of a signal. 2. In a periodic signal, the reciprocal of the time necessary to complete oneperiod.

Front End

Node or software program that requests services of a back end. See also back end, client, and server.

FST

Fast Sequenced Transport. Connectionless, sequenced transport protocol that runs on top of the IP protocol. SRB traffic is encapsulated inside of IP datagrams and is passed over an FST connection between two network devices (such as routers). Speeds up data delivery, reduces overhead, and improves the response time of SRB traffic.

FTAM

The OSI standard for File Transfer, Access and Management.

FTP

File Transfer Protocol. Lowest-common-denominator protocolfor the point-to-point transfer of text and binary files between IP connected hosts.

Full-duplex

A communication system between two entities in which eitherentity can transmit simultaneously.

Full Mesh

Term describing a network in which devices are organized in a mesh topology, with each network node having either a physical circuit or a virtual circuit connecting it to every other network node. A full mesh provides a great deal of redundancy, but because it can be prohibitively expensive to implement, it is usually reserved for network backbones. See also mesh and partial mesh.

Fuzzball

Digital Equipment Corporation LSI-11 computer system running IP gateway software. The NSFnet used these systems as backbone packet switches.

G.703/G.704

ITU-T electrical and mechanical specifications for connections between telephone company equipment and DTE using BNC connectors and operating at E1 data rates.

G.804

ITU-T framing standard that defines the mapping of ATM cells into the physical medium.

Gateway

1. A device that performs a protocol translation at the SessionLayer or higher. 2. Archaic. A TCP/IP router that routes packetsbetween different network numbers.

Gateway Host

In SNA, a host node that contains a gateway SSCP.

Gateway NCP

NCP that connects two or more SNA networks and performs address translation to allow cross-network session traffic.

Gateway-to-Gateway Protocol

See DDP.

GB

Gigabyte

GBps

Gigabytes per second.

Gb

Gigabit.

Gbps

Gigabits per second.

GDP

Gateway Discovery Protocol. Cisco protocol that allows hosts to dynamically detect the arrival of new routers as well as determine when a router goes down. Based on UDP. See also UDP.

Generic Routing Encapsulation

See GRE.

Get

In SNMP, a command given by the Console to retrieve a single data structure from a MIB.

Get Nearest Server

See GNS.

GGP

Gateway-to-Gateway Protocol. MILNET protocol specifying how core routers (gateways) should exchange reachability and routing information. GGP uses a distributed shortest-path algorithm.

GHz

Gigahertz.

Giga

A prefix denoting a billion.

GNS

Get Nearest Server. Request packet sent by a client on an IPX network to locate the nearest active server of a particular type. An IPX network client issues a GNS request to solicit either a direct response from a connected server or a response from a router that tells it where on the internetwork the service can be located. GNS is part of the IPX SAP. See also IPX and SAP (Service Advertisement Protocol).

GOSIP

Government OSI Profile. US Government procurement standard that specified interoperability standards for computing equipmentand software purchased.

Grade

Also Level or Category. In the specification of wiring for data networks, a standard designation used to describe the electricalquality of the wiring with regard to its suitability to carry high-speed signals.

Grade of Service

Measure of telephone service quality based on the probability that a call will encounter a busy signal during the busier hours of the day.

GRE

Generic Routing Encapsulation. Tunneling protocol developed by Cisco that can encapsulate a wide variety of protocol packet types inside IP tunnels, creating a virtual point-to-point link to Cisco routers at remote points over an IP internetwork. By connecting multiprotocol subnetworks in a single-protocol backbone environment, IP tunneling using GRE allows network expansion across a single-protocol backbone environment.

Ground

An electrical conductor that is neither negatively or positively charged.

Ground Station

Collection of communications equipment designed to receive signals from (and usually transmit signals to) satellites. Also called a downlink station.

Group Address

See multicast address.

Group Delay

See distortion delay.

Guard Band

Unused frequency band between two communications channels that provides separation of the channels to prevent mutual interference.

GUI

Graphical User Interface. User environment that uses pictorial as well as textual representations of the input and output of applications and the hierarchical or other data structure in which information is stored. Conventions such as buttons, icons, and windows are typical, and many actions are performed using a pointing device (such as a mouse).

Hacker

1. An expert computer programmer. 2. A knowledgeable but disruptive computer user.

Half Duplex

Capability for data transmission in only one direction at a time between a sending station and a receiving station. Compare with full duplex and simplex.

Handshake

Sequence of messages exchanged between two or more network devices to ensure transmission synchronization.

Hardware Address

An address, fixed at the time of manufacturing, that identifies a network adapter such as an Ethernet card.

HBD3

Line code type used on E1 circuits.

H Channel

High-speed channel. Full-duplex ISDN primary rate channel operating at 384 Kbps. Compare with B channel, D channel, and E channel.

HDLC

High-level Data Link Control. An ISO standard for encapsulation of data on synchronous links.

Headend

The end point of a broadband network. All stations transmit toward the headend; the headend then transmits toward the destination station.

Header

In a network packet or frame, a section of data that describes the data that immediately follows.

Heap

The RAM memory allocated by system software and system extensions to hold frequently used instructions and data not contained in ROM or firmware.

Heartbeat

See SQE.

HELLO

Interior routing protocol used principally by NSF net nodes. HELLO allows particular packet switches to discover minimal delay routes. Not to be confused with the Hello protocol.

Hello Packet

Multicast packet that is used by routers for neighbor discovery and recovery. Hello packets also indicate that a client is still operating and network-ready.

Hello Protocol

Protocol used by OSPF systems for establishing and maintaining neighbor relationships. Not to be confused with HELLO.

Helper Address

Address configured on an interface to which broadcasts received on that interface will be sent.

HEPnet

High-Energy Physics Network. Research network that originated in the United States, but that has spread to most places involved in high-energy physics. Well-known sites include Argonne National Laboratory, Brookhaven National Laboratory, and the Stanford Linear Accelerator Center (SLAC).

Hertz (HZ)

A unit of measure of the frequency of cyclic wave form, equal to one cycle or period per second.

Heterogeneous Network

Network consisting of dissimilar devices that run dissimilar protocols and in many cases support dissimilar functions or applications.

Hexadecimal

A numerical system with a base of 16 that is useful for expressing digital data. One hexadecimal digit represents for bits.

HFS

Hierarchical File System.

Hierarchical Routing

Routing based on a hierarchical addressing system. For example, IP routing algorithms use IP addresses, which contain network numbers, subnet numbers, and host numbers.

Hint

In dynamic addressing, an address that a node will test for uniqueness first. The hint is either the last successful address the node used previously (the Macintosh keeps such a hint in PRAM) or a particular address that is specific to a particular model of device (the GatorBox always tries 128 first or LocalTalk networks).

HIPPI

High-Performance Parallel Interface. High-performance interface standard defined by ANSI. HIPPI is typically used to connect supercomputers to peripherals and other devices.

Holddown

State into which a route is placed so that routers will neither advertise the route nor accept advertisements about the route for a specific length of time (the holddown period). Holddown is used to flush bad information about a route from all routers in the network. A route is typically placed in holddown when a link in that route fails.

Homologation

Conformity of a product or specification to international standards, such as ITU-t, CSA, TUV, UL, or VCCI. Enables portability across company and international boundaries.

Hop

In routed networks, the passage of a packet through a router on the way to its destination.

Hop Count

In AppleTalk packets, a 4-bit counter in the DDP header that is incremented each time a packet passes through a router on the way to its destination.

Hop Distance

A unit of measure used to express the number or routers that a packet must pass through its way to its destination.

Host

In terminal emulation, the remote computer that is being controlled by the terminal emulation software.

Host Address

See host number.

Host Node

SNA subarea node that contains an SSCP.

Host Number

Part of an IP address that designates which node on the subnetwork is being addressed. Also called a host address.

Hot Standby Router Protocol

See HSRP.

HPCC

High Performance Computing and Communications. U.S. government funded program advocating advances in computing, communications, and related fields. The HPCC is designed to ensure US. leadership in these fields through education, research and development, industry collaboration, and implementation of high-performance technology. The five components of the HPCC are ASTA, BRHR, HPCS, IITA, and NREN.

HPCS

High Performance Computing Systems. Component of the HPCC program designed to ensure US. technological leadership in high-performance computing through research and development of computing systems and related software. See also HPCC.

HPR

High Performance Routing. Second-generation routing algorithm for APPN. HPR provides a connectionless layer with nondisruptive routing of sessions around link failures, and a connection-oriented layer with end-to-end flow control, error control, and sequencing. Compare to ISR. See also APPN.

HSRP

Hot Standby Router Protocol. Provides high network availability and transparent network topology changes. HSRP creates a Hot Standby router group with a lead router that services all packets sent to the Hot Standby address. The lead router is monitored by other routers in the group, and if it fails, one of the standby routers inherits the lead position and the Hot Standby group address.

HSSI

High-Speed Serial Interface. Network standard for high-speed (up to 52 Mbps) serial connections over WAN links.

HTML

Hypertext markup language. Simple hypertext document formatting language that uses tags to indicate how a given part of a document should be interpreted by a viewing application, such as a WWW browser. See also hypertext and WWW browser.

Hub

1. Generally, a term used to describe a device that serves as the center of a star-topology network. 2. Hardware of software devices that contains multiple independent but connected modules of network and internetwork equipment. Hubs can be active (where they repeat signals sent through them) or passive (where they do not repeat, but merely split, signals sent through them). 3. In Ethernet and IEEE 802.3, an Ethernet multiport repeater, sometimes referred to as a concentrator.

Hybrid Network

Internetwork made up of more than one type of network technology, including LANs and WANs.

Hypertext

Electronically-stored text that allows direct access to other texts by way of encoded links. Hypertext documents can be created using HTML, and often integrate images, sound, and other media that are commonly viewed using a WWW browser. See also HTML and WWW browser.

Hypertext Markup Language

See HTML.

I/O

Input/Output. A computer activity where data is either loaded into (input) or extracted from (output) RAM.

I/O Bound

A computer or network activity whose speed is limited by the time necessary to perform I/O functions.

IAB

Internet Architecture Board. Board of internetwork researchers who discuss issues pertinent to Internet architecture. Responsible for appointing a variety of Internet-related groups such as the IANA, IESG, and IRSG. The IAB is appointed by the trustees of the ISOC. See also IANA, IESG, IRSG, and ISOC.

IANA

Internet Assigned Numbers Authority. Organization operated under the auspices of the ISOC as a part of the IAB. IANA delegates authority for IP address-space allocation and domain-name assignment to the NIC and other organizations. IANA also maintains a database of assigned protocol identifiers used in the TCP/IP stack, including autonomous system numbers. See also IAB, ISOC, and NIC.

ICD

International Code Designator. One of two ATM address formats developed by the ATM forum for use by private networks. Adapted from the subnetwork model of addressing in which the ATM layer is responsible for mapping network layer addresses to ATM addresses. See also DCC.

ICMP

Internet Control Message Protocol. Network layer Internet protocol that reports errors and provides other information relevant to IP packet processing. Documented in RFC 792.

ICMP Router Discovery Protocol

See IRDP.

Icon

A pictographic symbol used to represent a computer concept or operation.

IDI

Initial domain identifier. In OSI, the portion of the NSAP that specifies the domain.

IDN

International Data Number. See X.121.

IDP

Initial domain part. The part of a CLNS address that contains an authority and format identifier and a domain identifier.

IDPR

Interdomain Policy Routing. Interdomain routing protocol that dynamically exchanges policies between autonomous systems. IDPR encapsulates interautonomous system traffic and routes it according to the policies of each autonomous system along the path. IDPR is currently an IETF proposal. See also policy routing.

IDRP

IS-IS Interdomain Routing Protocol. OSI protocol that specifies how routers communicate with routers in different domains.

IEC

International Electrotechnical Commission. Industry group that writes and distributes standards for electrical products and components.

IEEE

The Institute or Electrical and Electronic Engineers, a non-profit organization that, among many other activities, endeavors to coordinate, synthesize and promote data networking standards.

IEEE 802.1

IEEE specification that describes an algorithm that prevents bridging loops by creating a spanning tree. The algorithm was invented by Digital Equipment Corporation. The Digital algorithm and the IEEE 802.1 algorithm are not exactly the same, nor are they compatible. See also spanning tree, spanning-tree algorithm, and Spanning-Tree Protocol.

IEEE 802.12

IEEE LAN standard that specifies the physical layer and the MAC sublayer of the data link layer. IEEE 802.12 uses the demand priority media-access scheme at 100 Mbps over a variety of physical media. See also 100VG-AnyLAN.

IEEE 802.2

The committee of the IEEE charged with the responsibility of coordinating standards at the Data Link Layer. The committee also oversees the work of many sub-committees that govern individual Data Link standards such as the 802.3 standard.

IEEE 802.3

IEEE LAN protocol that specifies an implementation of the physical layer and the MAC sublayer of the data link layer. IEEE 802.3 uses CSMA/CD access at a variety of speeds over a variety of physical media. Extensions to the IEEE 802.3 standard specify implementations for Fast Ethernet. Physical variations of the original IEEE 802.3 specifications include 10Base2, 10Base5, 10BaseF, 10BaseT, and 10Broad36. Physical variations for fast ethernet include 100BaseT, 100BaseT4, and 100BaseX.

IEEE 802.4

IEEE LAN protocol that specifies an implementation of the physical layer and the MAC sublayer of the data link layer. IEEE 802.4 uses token-passing access over a bus topology and is based on the token bus LAN architecture. See also token bus.

IEEE 802.5

IEEE LAN protocol that specifies an implementation of the physical layer and MAC sublayer of the data link layer. IEEE 802.5 uses token passing access at 4 or 16 Mbps over STP cabling and is similar to IBM Token Ring. See also Token Ring.

IEEE 802.6

IEEE MAN specification based on DQDB technology. IEEE 802.6 supports data rates of 1.5 to 155 Mbps. See also DQDB.

IESG

Internet Engineering Steering Group. Organization, appointed by the IAB, that manages the operation of the IETF. See also IAB and IETF.

IETF

Internet Engineering Task Force. Task force consisting of over 80 working groups responsible for developing Internet standards. The IETF operates under the auspices of ISOC. See also ISOC.

IGP

Interior Gateway Protocol. Internet protocol used to exchange routing information within an autonomous system. Examples of common Internet IGPs include IGRP, OSPF, and RIP. See also IGRP, OSPF, and RIP.

IGMP

Internet Group Management Protocol. Used by IP hosts to report their multicast group memberships to an adjacent multicast router.

IGRP

Interior Gateway Routing Protocol. IGP developed by Cisco to address the problems associated with routing in large, heterogeneous networks. Compare with Enhanced IGRP. See also IGP, OSPF, and RIP.

IIH

IS-IS Hello. Message sent by all IS-IS systems to maintain adjacencies. See also IS-IS.

IITA

Information Infrastructure Technology and Applications. Component of the HPCC program intended to ensure U.S. leadership in the development of advanced information technologies. See also HPCC.

ILMI

Interim Local Management Interface. Specification developed by the ATM Forum for incorporating network-management capabilities in the ATM UNI.

IMP

Interface message processor. Old name for ARPANET packet switches. An IMP is now referred to as a PSN (packet-switch node). See also PSN (packet-switch node).

Impedance

A measure of the opposition to the flow of an alternating signal by its media.

Implementation

The physical manifestation of a network standard or design.

In-band signaling

Transmission within a frequency range normally used for information transmission. Compare with out-of-band signaling.

Infrared

1. A portion of electromagnetic spectrum situated between visible light and microwaves. 2. A means of short distance wireless networking that depends on an unobstructed line of sight path.

INIT

Archaic. A Macintosh System Extension.

Initialization

The entry of a set of process parameters (performed by a human or automatically loaded from a file) that are necessary to begin a software process.

INOC

Internet Network Operations Center. BBN group that in the early days of the Internet monitored and controlled the Internet core gateways (routers). INOC no longer exists in this form.

Input/output

See I/O.

Instance

In statistical analysis, the single occurrence of a phenomena or event.

Insulator

A material that is highly resistant to electrical and/or thermal conduction.

Insured Burst

The largest burst of data above the insured rate that will be temporarily allowed on a PVC and not tagged by the traffic policing function for dropping in the case of network congestion. The insured burst is specified in bytes or cells. Compare with maximum burst. See also insured rate.

Insured Rate

The long-term data throughput, in bits or cells per second, that an ATM network commits to support under normal network conditions. The insured rate is 100 percent allocated; the entire amount is deducted from the total trunk bandwidth along the path of the circuit. Compare with excess rate and maximum rate. See also insured burst.

Insured Traffic

Traffic within the insured rate specified for the PVC. This traffic should not be dropped by the network under normal network conditions. See also CLP and insured rate.

Integrated IS-IS

Routing protocol based on the OSI routing protocol IS-IS but with support for IP and other protocols. Integrated IS-IS implementations send only one set of routing updates, making it more efficient than two separate implementations. Formerly referred to as Dual IS-IS. Compare IS-IS.

Integrated Service Digital Network

See ISDN.

Integrity

In networking, a desirable condition where the information received is exactly equal to the information sent.

Intelligence

The ability of a system to use general information to respond appropriately to specific events.

Interarea Routing

Term used to describe routing between two or more logical areas. Compare with intra-area routing.

Interdomain Policy Routing

See IDPR.

Interface

1. Connection between two systems or devices. 2. In routing terminology, a network connection. 3. In telephony, a shared boundary defined by common physical interconnection characteristics, signal characteristics, and meanings of interchanged signals. 4. The boundary between adjacent layers of the OSI model.

Interface Message Processor

See IMP.

Interference

Unwanted communication channel noise.

Interim Local Management Interface

See ILMI.

Interior Gateway Protocol

See IGP.

Interior Gateway Routing Protocol

See IGRP.

Intermediate Routing Node

See IRN.

Intermediate Session Routing

See IRS.

Intermediate System

See IS.

Intermediate System-to-Intermediate System

See IS-IS.

International Code Designator

See ICD.

International Data Number

See X.121.

Internet

1. The worldwide system of linked networks that is capable of exchanging mail and data through a common addressing and naming system based on TCP/IP protocols. 2. Any group of linked networks capable of exchanging electronic mail and data using a common protocol.

Internet Address

An address that identifies a communication entity on an internet.

Internet Node

In AppleTalk, the combination of network and node address that

Address

uniquely defines an AppleTalk protocol running in a device that is currently active.

Internet Protocol

See IP.

Internet protocol

Any protocol that is part of the TCP/IP protocol stack. See TCP/IP.

Internet Research Steering Group

See IRSG.

Internet Research Task Force

See IRTF.

Internet Router

A router that uses the rules of one or more Network Layer protocols to forward packets between networks.

Internet Society

See ISOC.

Internet Socket

In AppleTalk, the combination of network, node and socket

Address

address that uniquely identifies a software process that is using AppleTalk protocols to communicate.

Internetwork

Collection of networks interconnected by routers and other devices that functions generally) as a single network. Sometimes called an internet, which is not to be confused with the Internet.

Internetworking

General term used to refer to the industry that has arisen around the problem of connecting networks together. The term can refer to products, procedures, and technologies.

Internetwork Packet Exchange

See IPX.

Interoperability

Ability of computing equipment manufactured by different vendors to communicate with one another successfully over the network.

Inter-Switching System Interface

See ISSI.

Intra-area Routing

Term used to describe routing within a logical area. Compare with interarea routing.

Inverse ARP

Inverse Address Resolution Protocol. Method of building dynamic routes in a network. Allows an access server to discover the network address of a device associated with a virtual circuit.

I/O

input/output.

IP

Internet Protocol. The Network Layer protocol in the TCP/IP stack offering a connectionless internetwork service. IP provides features for addressing, type-of-service. IP provides features for addressing, type-of-service specification, fragmentation and reassembly, and security. Documented in RFC 791.

IP Address

32-bit address assigned to hosts using TCP/IP. An IP address belongs to one of five classes (A, B, C, D, or E) and is written as 4 octets separated with periods (dotted decimal format). Each address consists of a network number, an optional subnet work number, and a host number. The network and subnetwork numbers together are used for routing, while the host number is used to address an individual host within the network or subnetwork. A subnet mask is used to extract network and subnetwork information from the IP address. Also called an Internet address. See also IP and subnet mask.

IP Multicast

Routing technique that allows IP traffic to be propagated from one source to a number of destinations or from many sources to many destinations. Rather than sending one packet to each destination, one packet is sent to a multicast group identified by a single IP destination group address.

IP Security Option

See IPSO.

IPSO

IP Security Option. US. government specification that defines an optional field in the IP packet header that defines hierarchical packet security levels on a per interface basis.

IPX

Internetwork Packet Exchange. A protocol family that is proprietary to the Novell Netware system.

IPXWAN

Protocol that negotiates end-to-end options for new links. When a link comes up, the first IPX packets sent across are IPXWAN packets negotiating the options for the link. When the IPXWAN options have been successfully determined, normal IPX transmission begins. Defined by RFC 1362.

IRDP

ICMP Router Discover Protocol. Enables a host to determine the address of a router that it can use as a default gateway. Similar to ES-IS, but used with IP. See also ES-IS.

IRN

Intermediate routing node. In SNA, a subarea node with intermediate routing capability.

IRSG

Internet Research Steering Group. Group that is part of the IAB and oversees the activities of the IRTF. See also IAB and IRTF.

IRTF

Internet Research Task Force. Community of network experts that consider Internet-related research topics. The IRTF is governed by the IRSG and is considered a subsidiary of the IAB. See also IAB and IRSG.

IS

Intermediate system. Routing node in an OSI network.

ISA

Industry-Standard Architecture. 16-bit bus used for Intel-based personal computers. See also EISA.

Isarithmic Flow Control

Flow control technique in which permits travel through the network. Possession of these permits grants the right to transmit. Isarithmic flow control is not commonly implemented.

ISDN

Integrated Services Digital Network. Communication protocol, offered by telephone companies, that permits telephone networks to carry data, voice, and other source traffic. See also BISDN, BRI, N-ISDN, and PRI.

IS-IS

Intermediate System to Intermediate System. A dynamic routing protocol for IP.

ISO

International organization that is responsible for a wide range of standards, including those relevant to networking. ISO developed the OSI reference model, a popular networking reference model.

ISO 3309

HDLC procedures developed by ISO. ISO 3309:1979 specifies the HDLC frame structure for use in synchronous environments. ISO 3309:1984 specifies proposed modifications to allow the use of HDLC in asynchronous environments as well.

ISO 9000

Set of international quality-management standards defined by ISO. The standards, which are not specific to any country, industry, or product, allow companies to demonstrate that they have specific processes in place to maintain an efficient quality system.

ISOC

Internet Society. International nonprofit organization, founded in 1992, that coordinates the evolution and use of the Internet. In addition, ISOC delegates authority to other groups related to the Internet, such as the IAB. ISOC is headquartered in Reston, Virginia, U.S.A. See also IAB.

Isochronous Transmission

Asynchronous transmission over a synchronous data link. Isochronous signals require a constant bit rate for reliable transport. Compare with asynchronous transmission, plesiochronous transmission, and synchronous transmission.

ISODE

ISO development environment. Large set of libraries and utilities used to develop upper-layer OSI protocols and applications.

ISO Development Environment

See ISODE.

ISR

Intermediate Session Routing. Initial routing algorithm used in APPN. ISR provides node-to-node connection-oriented routing. Network outages cause sessions to fail because ISR cannot provide nondisruptive rerouting around a failure. ISR has been replaced by HPR. Compare with HPR. See also APPN.

ISSI

Inter-Switching System Interface. Standard interface between SMDS switches.

ITU-T

International Telecommunication Union Telecommunication Standardization Sector. International body that develops worldwide standards for telecommunications technologies. The ITU-T carries out the functions of the former CCITT. See also CCITT.

Jabber

1. Error condition in which a network device continually transmits random, meaningless data onto the network. 2. In IEEE 802.3, a data packet whose length exceeds that prescribed in the standard.

Jack

The female connector.

Jacket

The protective outer covering of a computer or network cable.

JANET

Joint Academic Network. X.25 WAN connecting university and research institutions in the United Kingdom.

Japan UNIX Network

See JUNET.

Jitter

The difference between a real signal and its ideal due to distortion.

John von Neumann Computer Network

See JvNCnet.

Jumper

Electrical switch consisting of a number of pins and a connector that can be attached to the pins in a variety of different ways. Different circuits are created by attaching the connector to different pins.

JUNET

Japan UNIX Network. Nationwide, noncommercial network in Japan, designed to promote communication between Japanese and other researchers.

JvNCnet

John von Neumann Computer Network. Regional network, owned and operated by Global Enterprise Services, Inc., composed of T1 and slower serial links providing midlevel networking services to sites in the Northeastern United States.

Karn's Algorithm

Algorithm that improves round-trip time estimations by helping transport layer protocols distinguish between good and bad round-trip time samples.

KB

Kilobyte.

Kb

Kilobit.

KBPS

A unit of measure used to describe the rate of data transmission equal to 1000 bits per second.

KByte

A unit of measure used to describe an amount of information equal to 1024 (210) bytes.

Keepalive Interval

Period of time between each keepalive message sent by a network device.

Keepalive Message

Message sent by one network device to inform another network device that the virtual circuit between the two is still alive.

Kermit

Very slow telecom data-transfer protocol developed at Columbia, and used primarily in VAX environments, although widely ported. Like any other telecom data-transfer protocol it's purpose is to break a data stream into blocks, and provide flow-control, error detection, and re-transmission on the transfer of the blocks. Much less efficient than Xmodem, Ymodem, or Zmodem.

Kludge

A word used to describe a solution to a problem that lacks elegance or that contains components for a purpose significantly different that their original design purpose.

Label Swapping

Routing algorithm used by APPN in which each router that a message passes through on its way to its destination independently determines the best path to the next router.

LAN

A communication infrastructure that supports data and resource sharing within a small area (<2 km diameter) that is completely contained on the premises of a single owner.

LANE

LAN emulation. Technology that allows an ATM network to function as a LAN backbone. The ATM network must provide multicast and broadcast support, address mapping (MAC-to-ATM), SVC management, and a usable packet format. LANE also defines Ethernet and Token Ring ELANs. See also ELAN.

LAN Emulation

See LANE.

LAN Emulation Client

See LEC.

LAN Manager

Distributed NOS, developed by Microsoft, that supports a variety of protocols and platforms.

LAN Server

A general term used to describe a device that manages and allows the use of more than one kind of resource such as storage or file services, print services, communication services, data base services, etc.

LAN Switch

High-speed switch that forwards packets between data-link segments. Most LAN switches forward traffic based on MAC addresses. This variety of LAN switch is sometimes called a frame switch. LAN switches are often categorized according to the method they use to forward traffic: cut-through packet switching or store-and-forward packet switching. Multilayer switches are an intelligent subset of LAN switches. Compare with multilayer switch. See also cut-through packet switching and store and forward packet switching.

LAP

Link Access Protocol. Any protocol of the Data Link Layer, such as EtherTalk.

LAPB

Link Access Procedure, Balanced. Data link layer protocol in the X.25 protocol stack. LAPB is a bit-oriented protocol derived from HDLC. See also HDLC and X.25.

LAPD

Link Access Procedure on the D channel. ISDN data link layer protocol for the D channel. LAPD was derived from the LAPB protocol and is designed primarily to satisfy the signaling requirements of ISDN basic access. Defined by ITU-T Recommendations Q.920 and Q.921.

LAPM

Link Access Procedure for Modems. ARQ used by modems implementing the V.42 protocol for error correction. See also ARQ and V.42.

Laser

Light amplification by simulated emission of radiation. Analog transmission device in which a suitable active material is excited by an external stimulus to produce a narrow beam of coherent light that can be modulated into pulses to carry data. Networks based on laser technology are sometimes run over SONET.

LaserWriter

Any of a group of laser printers that uses PostScript as an imaging language and can communicate using AppleTalk protocols.

LAT

Local Area Transport. DECnet's method for communication between terminals and terminal servers. LAT cannot be routed.

Latency

In data transmission, the delay in transmission time that occurs while information remains in a device's buffered memory (such as a bridge or router) before it can be sent along its path.

Layer

A term used to describe a group of communication functions and the protocols implemented to perform them as defined by a network standards organization, most often referring to a group of functions as described by the OSI 7-Layer Model designated by the ISO.

LCI

Logical channel identifier. See VCN.

LCN

Logical channel number. See VCN.

Leaf Internetwork

In a star topology, an internetwork whose sole access to other internetworks in the star is through a core router.

Learning Bridge

Bridge that performs MAC address learning to reduce traffic on the network. Learning bridges manage a database of MAC addresses and the interfaces associated with each address. See also MAC address learning.

Leased Line

Transmission line reserved by a communications carrier for the private use of a customer. A leased line is a type of dedicated line. See also dedicated line.

LEC

1. LAN Emulation Client. Entity in an end system that performs data forwarding, address resolution, and other control functions for a single ES within a single ELAN. A LEC also provides a standard LAN service interface to any higher-layer entity that interfaces to the LEC. Each LEC is identified by a unique ATM address, and is associated with one or more MAC addresses reachable through that ATM address. See also ELAN and LES.

LECS

LAN Emulation Configuration Server. Entity that assigns individual LANE clients to particular ELANs by directing them to the LES that corresponds to the ELAN. There is logically one LECS per administrative domain, and this serves all ELANs within that domain. See also ELAN.

LED

Light emitting diode. Semiconductor device that emits light produced by converting electrical energy. Status lights on hardware devices are typically LEDs.

LEN node

Low-entry networking node. In SNA, a PU 2.1 the supports LU protocols, but whose CP cannot communicate with other nodes. Because there is no CP-to-CP session between a LEN node and its NN, the LEN node must have a statically defined image of the APPN network.

LES

LAN Emulation Server. Entity that implements the control function for a particular ELAN. There is only one logical LES per ELAN, and it is identified by a unique ATM address. See also ELAN.

Level 1 Router

Device that routes traffic within a single DECnet or OSI area.

Level 2 Router

Device that routes traffic between DECnet or OSI areas. All Level 2 routers must form a contiguous network.

Light Emitting Diode

See LED.

Limited Resource Resource Link

defined by a device operator to remain active only when being used.

Limited-route Explorer Packet

See spanning explorer packet.

Line

1. In SNA, a connection to the network. 2. See link.

Line Code Type

One of a number of coding schemes used on serial lines to maintain data integrity and reliability. The line code type used is determined by the carrier service provider. See also AMI and HBD3.

Line Conditioning

Use of equipment on leased voice-grade channels to improve analog characteristics, thereby allowing higher transmission rates.

Line Driver

Inexpensive amplifier and signal converter that conditions digital signals to ensure reliable transmissions over extended distances.

Line of Sight

Characteristic of certain transmission systems, such as laser, microwave, and infrared systems, in which no obstructions in a direct path between transmitter and receiver can exist.

Line Printer Daemon

See LPD.

Line Turnaround

Time required to change data transmission direction on a telephone line.

Link

Network communications channel consisting of a circuit or transmission path and all related equipment between a sender and a receiver. Most often used to refer to a WAN connection. Sometimes referred to as a line or a transmission link.

Link Layer

See data link layer.

Link-Layer Address

See MAC address.

Link-state Advertisement

See LSA.

Link State Routing

A routing protocol that takes link loading and bandwidth when selecting between alternate routes. Example: OSPF.

Link State Routing Algorithm Algorithm

Routing algorithm in which each router broadcasts or multicasts information regarding the cost of reaching each of its neighbors to all nodes in the internetwork. Link state algorithms create a consistent view of the network and are therefore not prone to routing loops, but they achieve this at the cost of relatively greater computational difficulty and more widespread traffic (compared with distance vector routing algorithms). Compare with distance vector routing algorithm. See also Dijkstra's algorithm.

Little-endian

Method of storing or transmitting data in which the least significant bit or byte is presented first. Compare with big-endian.

LLC

Logical Link Control.

LLC2

Logical Link Control, type2. Connection-oriented OSI LLC-sublayer protocol. See also LLC.

LMI

Local Management Interface. Set of enhancements to the basic Frame Relay specification. LMI includes support for a keepalive mechanism, which verifies that data is flowing; a multicast mechanism, which provides the network server with its local DLCI and the multicast DLCI; global addressing, which gives DLCIs global rather than local significance in Frame Relay networks; and a status mechanism, which provides an on-going status report on the 'DLC Is known to the switch. Known as LMT in ANSI terminology.

LMT

See LMI.

LM/X

LAN Manager for INIX. Monitors LAN devices in UNIX environments.

LNM

LAN Network Manager. SRB and Token Ring management package provided by IBM. Typically running on a PC, it monitors SRB and Token Ring devices and can pass alerts up in NetView.

Load Balancing

In routing, the ability of a router to distribute traffic over all its network ports that are the same distance from the destination address. Good load-balancing algorithms use both line speed and reliability information. Load balancing increases the utilization of network segments, thus increasing effective network bandwidth.

Local Access and Transport Area

See LATA.

Local Acknowledgment

Method whereby an intermediate network node, such as a router, responds to acknowledgments for a remote end host. Use of local acknowledgments reduces network overhead and, therefore, the risk of time-outs. Also known as local termination.

Local-area Network

See LAN.

Local-area Transport

See LAT.

Local Bridge

Bridge that directly interconnects networks in the same geographic area.

Local Exchange Carrier

See LEC.

Local Explorer Packet

Generated by an end system in an SRB network to find a host connected to the local ring. If the local explorer packet fails to find a local host, the end system produces either a spanning explorer packet or an all-routes explorer packet. See also all-routes explorer packet, explorer packet, and spanning explorer packet.

Local Loop

Line from the premises of a telephone subscriber to the telephone company CO.

Local Management Interface

See LMI.

LocalTalk

A Data Link Layer protocol defined in Inside AppleTalk by Apple Computer that covers the transmission of data on twisted pair wire using CSMA/CA at 230.4 Kilobits per second.

Local Termination

See local acknowledgment.

Local Traffic

Filtering Process by which a bridge filters out (drops) frames whose source and destination MAC addresses are located on the same interface on the bridge, thus preventing unnecessary traffic from being forwarded across the bridge. Defined in the IEEE 802.1 standard. See also IEEE 802.1.

Logical Address

See network address.

Logical Channel

Nondedicated, packet-switched communications path between two or more network nodes. Packet switching allows many logical channels to exist simultaneously on a single physical channel.

Logical Channel Identifier

See LCI.

Logical Channel Number

See LCN.

Logical Link Control

See LLC.

Logical Link Control, type 2

See LLC2.

Logical Unit

See LU.

Logical Unit 6.2

See LU 6.2.

Login

A formal procedure where a computing device initiates a sustained connection to another computing device for the purpose of using a resource managed by the computer.

Logout

A Formal procedure where a computing device severs its connection to another computing device.

Loop

Route where packets never reach their destination, but simply cycle repeatedly through a constant series of network nodes.

Loopback packet

A test packet sent by a network adapter with a destination address equal to the adapter's own hardware address. The purpose of this test is typically to establish that the adapter is connected to a network that is functional enough to support a data transmission.

Loopback test

A test packet sent by a network adapter with a destination address equal to the adapter's own hardware address. The purpose of this test is typically to establish that the adapter is connected to a network that is functional enough to support a data transmission.

Loss

The aggregate attenuation of a signal due to interaction with its environment.

LSP

Link State Packet. A packet broadcast by a link state router listing the router's neighbors.

Lossy

Characteristic of a network that is prone to lose packets when it becomes highly loaded.

Low-entry Networking Node

See LEN node.

LPD

Line printer daemon. Protocol used to send print jobs between UNIX systems.

LSA

Link-state Advertisement. Broadcast packet used by link-state protocols that contains information about neighbors and path costs. LSAs are used by the receiving routers to maintain their routing tables. Sometimes called a link-state packet (LSP).

LSP

Link State Packet. A packet broadcast by a link state router listing the router's neighbors.

LU

Logical Unit.

LU6.2

An SNA communications protocol that establishes a peer-to-peer session between two processes.

MAC

Media Access Control. The method whereby a computing device takes control of the transmission media for the purpose of sending an information packet.

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.

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.

MacIP

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

Magnetic field

The area surrounding an electrically charged body in which an electromagnetic force can be detected.

Mainframe

An expensive, general purpose computer with the ability to be used by many users simultaneously.

Male connector

A connector whose points of electrical contact are exposed.

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 that a WAN.

Managed Object

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

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.

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.

MAPI

Microsoft Application Programming Interface. A programming library for Windows developers that provides messaging services to their applications.

Mask

See address mask and subnet mask.

MAU

Media Access Unit. The component of a network adapter that directly attaches to the Transmission media.

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.

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.

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

A unit of measure used to describe the rate of data transmission equal to one millions bits per second.

MByte

A unit of measure used to describe an amount of information equal to 1,048,576 (220) bytes.

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.

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 timelines.

Media

The environment in which the transmission signal is carried.

Media Rate

Maximum traffic throughput for a particular media type.

Memory

In computing, a system where data is stored for direct, highspeed access by a microprocessor.

Memory Allocation

The amount of memory, usually RAM, that an process reserves for itself.

Mesh

Network topology in which devices are organized in a manageable, segmented manner with many, often redundant, interconnections strategically placed between network nodes.

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.

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.

Message Unit

Unit of data processed by any network layer.

Metalanguage

A language that represents another language.

Metasignaling

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

MHS

1. Message Handling Service. A synonym of X.400 store and forward messaging. 2. Message Handling System. A Novell protocol for mail handling.

MIB

Management Information Base. In SNMP, a specification of the data objects and data structures that the Agent is responsible for knowing and reporting to the Console on demand.

MIC

Media interface connector. FDDI de facto standard connector.

Micro

1. A prefix that denotes a one millionth part of a unit of measure, such as a microsecond or microampere. 2. A prefix that denotes something small. 3. A slang term for any personal computer.

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

1. Any electromagnetic radiation with a wavelength between 1 millimeter and 1 meter. 2. A point-to-point data transmission system employing electromagnetic radiation using a carrier frequency in the microwave region.

MIDI

Musical Instrument Digital Interface.

Midsplit

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

Milli

A prefix denoting a one thousandth part of a unit of measure, such as a millisecond or millimeter.

MILNET

Military Network. Unclassified portion of the DDN. Operated and maintained by the DISA.

Minicomputer

Archaic. A multi-user computer capable of supporting 4 - 16 simultaneous users.

Mips

Millions of instructions per second. Number of instructions executed by a processor per second.

MIS

Management Information System. Used to describe the set of computing resources that hold and allow access to the information owned by an organization.

Mode

1. One particular method or way of accomplishing a goal. 2. In fiber optic transmission, a particular path between a light source and a receiver. 3. In statistics, the result with the highest frequency within the sample group.

Modem

A device that can covert data signals between analog and digital signaling systems.

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.

Modulator-demodulator

See Modem.

MOP

Maintenance Operation Protocol. Digital Equipment Corporation protocol that provides a way to perform primitive maintenance operations on DECnet systems.

Mosaic

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

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.

MOV

Metal Oxide Varister. A device that acts as a surge suppresser by forcing transient high voltages to ground.

MQI

Message Queueing Interface. International standard APO that provides functionality similar to that of the RPC interface. In contrast to RPC, MQI is implemented strictly at the application layer.

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.

MSL

Maximum Segment Lifetime.

MSS

Maximum Segment Size.

MTA

Message Transfer Agent. In x.400, a process that is responsible for storing and forwarding messages.

MTU

Maximum Transmission Unit. A specification in a data link protocol that defines the maximum number of bytes that can be carried in any one packet on that link.

Mu-law

North American companding standard used in conversion between analog and digital signals in PCM systems.

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.

Multicast Group

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

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.

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.

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.

Multimode Fiber

Optical fiber supporting propagation of multiple frequencies of light.

Multiple Domain Network

SNA network with multiple SSCPs.

Multiplexing

Scheme that allows multiple logical signals to be transmitted simultaneously across a single physical channel.

Multi-user

A term used to describe a computing process that can handle the requirements of several users simultaneously.

Multitasking

A descriptive term for a computing device whose operating system can handle several tasks concurrently. In monoprocessors, each active task is given short periods of time to use the CPU in a rotational fashion.

Multivendor network

Network using equipment from more than one vendor.

MVS

Multiple Virtual Storage. The primary operating systems for IBM mainframes.

Nagel's Algorithm

Actually two separate congestion control algorithms that can be used in TCP-based networks. One algorithm reduces the sending window; the other limits small datagrams.

NAK

Negative acknowledgment. Response sent from a receiving device to a sending device indicating that the information received contained errors.

Name Caching

Method by which remotely discovered host names are stored by a router for use in future packet-forwarding decisions to allow quick access.

Name Server

Server connected to a network that resolves network names into network addresses.

Name Service

In AppleTalk, a computing process that has used Name Binding Protocol to register a process so that it may be located using a network resource management like the Chooser.

Nano

A prefix that denotes a 1 billionth portion of a unit of measure, as in nanosecond or nanometer.

NAP

Network access point. Location for interconnection of internet service providers in the United States for the exchange of packets.

Native

Something is a standard component of a computer system, such as a native file system or a native protocol.

NAU

Network addressable unit. SNA term for an addressable entity. Examples include LUs, PUs, and SSCPs. NAUs generally provide upper-level network services.

NAUN

Nearest active upstream neighbor. In Token Ring or IEEE 802.5 networks, the closest upstream network device from any given device that is still active.

NBMA

Nonbroadcast multiaccess. Term describing a multiaccess network that either does not support broadcasting (such as X.25) or in which broadcasting is not feasible (for example, an SMDS broadcast group or an extended Ethernet that is too large).

NBP

Name Binding Protocol. The AppleTalk protocol that associates the name, type and zone of a process with its Internet Socket Address.

NCP

Network Control Protocol.

NEARNET

Regional network in New England (United States) that links Boston University, Harvard University, and MIT.

Neighboring Routers

In OSPF, two routers that have interfaces to a common network. On multiaccess networks, neighbors are dynamically discovered by the OSPF Hello protocol.

NET

Network entity title. Network addresses, defined by the ISO network architecture, and used in CLNS-based networks.

Net

Short for network.

NetBIOS

Network Basic Input/Output System. API used by applications on an IBM LAN to request services from lower-level network processes. These services might include session establishment and termination, and information transfer.

NetView

A network and device management system developed by IBM.

NetWare

A trademark of Novell that includes network operating systems and LAN server processes that run on and/or serve many computing platforms, operating systems and protocols.

Network

The infrastructure that supports electronic data exchange.

Network Adapter

A hardware device that translates electronic signals between a computing device's native network hardware and the transmission media. A network adapter may also include memory or additional hardware or firmware to aid or perform the computing device's network operations.

Network Address

Network layer address referring to a logical, rather than a physical, network device. Also called a protocol address.

Network Administrator

A person who is charged with the responsibility of caring for a network and the communication abilities of its users.

Network Analyzer

Hardware or software device offering various network troubleshooting features, including protocol-specific packet decodes, specific preprogrammed troubleshooting tests, packet filtering, and packet transmission.

Network Architecture

A set of specifications that defines every aspect of a data network's communication system, including but not limited to the types of user interfaces employed, the networking protocols used and the structure and types of network cabling that may be used.

Network Interface

Boundary between a carrier network and a privately-owned installation

Network Layer

Layer 3 of the OSI reference model. This layer provides connectivity and path selection between two end systems. The network layer is the layer at which routing occurs. Corresponds roughly with the path control layer of the SNA model.

Network Management

A set of activities and duties whose goal is to provide high-quality,reliable communication among a group of networked computerusers. Typical activities may include resource planning, network design, providing user assistance and training, reconfiguration ofthe network due to a change in user requirements, assessing userneeds and designing appropriate solutions and troubleshootingand remedying network problems as they arise.

Network Node Server

SNA NN that provides resource location and route selection services for ENs, LEN nodes, and LUs that are in its domain.

Network Number

Part of an IP address that specifies the network to which the host belongs.

Network Operating

A term mostly used in DOS networking systems to refer

System

collectively to the proprietary protocols and network file systemsthat computers use to exchange data with their LAN Servers.

Network Operator

Person who routinely monitors and controls a network, performing tasks such as reviewing and responding to traps, monitoring throughput, configuring new circuits, and resolving problems.

NFS

Network File System. A file metalanguage and set of procedurecalls to access and manage files that is standard issue on nearlyevery computer that uses TCP/IP protocols as its standard network protocols. Designed by Sun Microsystems, NFS is now astandard feature of nearly all Unix systems.

NHRP

Next Hop Resolution Protocol. Protocol used by routers to dynamically discover the MAC address of other routers and hosts connected to a NBMA network. These systems can then directly communicate without requiring traffic to use an intermediate hop, increasing performance in ATM, Frame Relay, SMDS, and X.25 environments.

Nibble

One-half of a byte, which can be represented by a single hexadecimal digit.

NIC

1. Network Information Center. The group responsible for theassignment of IP addresses. 2. Network Interface Card. A network adapter on a circuit board that plugs into a computerinternal bus architecture. 3. A 16-bit Ethernet chip designed by Texas Instruments.

NIS

Network Information System. Protocol developed by Sun Microsystems for the administration of network-wide databases. the service essentially uses two programs: one for finding a NIS server and one for accessing the NIS databases.

N-ISDN

Narrowband ISDN. Communication standards developed by the ITU-T for baseband networks. Based on 64-kbps B channels and 16- or 64-kbps D channels.

NIST

National institute of Standards and Technology. Formerly the NBS, this U.S. government organization supports and catalogs a variety of standards.

NLM

NetWare Loadable Module. Individual program that can be loaded into memory and function as part of the NetWare NOS.

NLSP

NetWare Link Services Protocol. Link-state routing protocol bases on IS-IS.

NMS

Network management system. System responsible for managing at least part of a network. An NMS is generally a reasonably powerful and well-equipped computer such as an engineering workstation. NMSs communicate with agents to help keep track of network statistics and resources.

NMVT

Network management vector transport. SNA message consisting of a series of vectors conveying network management-specific information. NNNetwork node. SNA intermediate node that provides connectivity, directory services, route selection, intermediate session routing, data transport, and network management services to LEN nodes and ENs. The NN contains a CP that manages the resources of both the NN itself and those of the ENs and LEN nodes in its domain. NNs provide intermediate routing services by implementing the APPN PU 2.1 extensions.

NNI

Network-to-Network Interface. ATM Forum standard that defines the interface between two ATM switches that are both located in a private network or are both located in a public network. The interface between a public switch and private one is defined by the UNI standard. Also, the standard interface between two Frame Relay switches meeting the same criteria.

NOC

Network Operations Center. Organization responsible for maintaining a network.

Node

A networked computing device that takes a protocol address andcan initiate and respond to communication from other networked devices that employ similar protocols.

Noise

Undesirable electrical or electromagnetic signals.

Nonseed Router

In AppleTalk, a router that must first obtain and then verify its configuration with a seed router before it can begin operation.

Non-stub Area

Resource-intensive OSPF area that carries a default route, static routes, intra-area routes, interarea routes, and external routes. Nonstub areas are the only OSPF areas that can have virtual links configured across them and are the only areas that can contain an ASBR.

Non-Volatile

Information that will remain usable by a computer despite loss of power or shutdown.

Northwest Net

NSF-funded regional network serving the Northwestern United States, Alaska, Montana, and North Dakota. Northwest Net connects all major universities in the region, as well as many leading industrial concerns.

NOS

Network operating system. Generic term used to refer to what are really distributed file systems.

NREN

National Research and Education Network. Component of the HPCC program designed to ensure US. technical leadership in computer communications through research and development efforts in state-of-the-art telecommunications and networking technologies.

NRM

normal response mode. HDLC mode for use on links with one primary station and one or more secondary stations. In this mode, secondary stations can transmit only if they first receive a poll from the primary station.

NRZ

nonreturn to zero. NRZ signals maintain constant voltage levels with no signal transitions (no return to a zero-voltage level) during a bit interval.

NTP

Network Time Protocol.

Nubus

One of a large number of computer bus architecture's used in Macintosh computers.

Object

In NBP, the proper term for describing the individual name given to a service. In the Chooser, it is the name that is displayed in the list of devices.

ODI

Open Data-link Interface. A Novell specification for network interface card device drivers that allows multiple protocol stacks to use the same card simultaneously.

OEM

Original Equipment Manufacture. A system of distribution where a company markets equipment purchased from another company under its own label.

Ohm (Ω)

A measure of the opposition to the flow of electric current.

OLE

Object Linking and Embedding. A Microsoft specification for the exchange of data objects between applications.

OpenDoc

An open cross-platform, compound document architecture developed by Apple with help and support from Novell and WordPerfect, among others.

OpenView

HP's SNMP console and network management system.

Operating System

A collection of system software routines that manages all of the peripherals, hardware components and other computing resources and processes in a computing device.

OS/2

IBM's operating system for 80x86 based systems.

Oscillate

A condition where a system changes between two or more configurations on a recurring basis.

Oscilloscope

A test device that can capture and display an oscillating electrical signal.

OSF

Open Software Foundation.

OSI

Open Systems Interconnection. Referring to the subset of the ISO that promotes and defines standards for open networking systems.

OSI 7-Layer Model

A method of describing the relationships between network protocols by grouping them according to the communication functions the protocols provide. The OSI model defines 7 distinct categories (Layers) that act successively on data as it makes its way between the user and the transmission media.

OSPF

Open Shortest Path First. A link state routing protocol for IP.

Out of Band

Referring to a transmission system that is separate and auxiliary to the network's transmission system and who's operability is independent of the operability of the network.

Output

A representation of a system's data that is externally visible.

Overwrite

An error condition that occurs when a process stores data in a location that it 1) has not properly allocated for that purpose or 2) has been allocated by another process.

Packet

A discrete chunk of communication in a pre-defined format.

Padding

Additional, meaningless data adds to a packet to increase its size.

Parity Checking

A method of error checking where an extra bit is used to signify the condition of a small group of data bits.

PDA

Personal Digital Assistant.

PDS

Processor Direct Slot. One of a large number of computer bus architecture's used in Macintosh computers.

Peek

A term used to describe the viewing of network data not ordinarily visible to a user.

Peer

In networking, a device to which a computer has a network connection that is relatively symmetrical, i.e. where both devices can initiate or respond to a similar set of requests.

Peripheral

1. Any hardware resource used by a computer that is external to a computer's enclosure case that is accessed by serial or parallel connections, or bus architectures such as SCSI, MIDI or VME. 2. Any hardware computing resource that can be accessed by a user.

Physical Address

A synonym for Hardware Address or MAC - layer address.

Pico

A prefix denoting a 1 trillionth portion of a unit of measure, as in picosecond or picofarad.

Pin

A type of electrical contact point for a single conductor.

Ping

1. A network diagnostic utility on Unix systems that sends an ICMP Echo Request to a distant node which must then immediately return an ICMP Echo Reply packet back to the originating node. 2. An ICMP Echo Request packet.

Plug

A synonym for male connector.

Poke

A term used to refer to the transmission of a packet on a network for test purposes only.

Polarity

A Term used to describe the orientation of a differential voltage.

Polling

A means of Media Access Control where a device may only transmit information when it is given permission to transmit by a controller device.

Port

On a network hub, bridge or router, a physically distinct and individually controllable set of transmission hardware. Each such port is connected to the devices other ports through the device's internal electronic structures.

POSIX

Portable Operating Systems Interface. An IEEE standard that specifies requirements for portable UNIX operating systems.

PostScript

An Extensible programming language that is capable of describing and drawing complex images that was developed by Adobe Systems.

PowerOpen

Apple's next-generation operating system co-developed with IBM.

Power PC

A Motorola-developed RISC chip. Also refers to the successor of the Macintosh powered by this chip.

PPC

1. Process-to-Process Communication. 2. Sometimes used as an acronym for PowerPC.

PPP

Point-to-Point Protocol. A specification for synchronous or asynchronous data communication between two routers or between a computer system and a network.

Precision

Referring to the smallest difference in measurement that a test instrument can distinguish.

PRI

Primary Rate Interface. An ISDN service over a T1 link that provides 23 data channels "bearer" or "b" Channels" at 64 KBPS and one 16 KBPS control channel (or "D" channel).

Print Spooler

A Software process that accepts a print job from a workstation as if it were a printer and then sends the print job to an actual printer at a later time. There are two styles, a background spooler, where the print spooling process is resident in the same node as the process seeking the print service, and a hardware spooler, where the print spooling process is in a separate node.

Printer Driver

In the Macintosh, a System Extension that is intermediate between the CPU and the printer. It accepts the Macintosh's internal representation of an image and translates it into the control codes and image descriptions necessary for the printer to manufacture an image.

Process

A set of instructions, as in a computer program or application that is currently active, i.e. consuming CPU time and memory resources. While an "application" is a process, that term usually refers to a process that a user can launch from the Finder and directly control, where the use of the term "process" often implies that the process has been launched by the system and is not under direct user control.

Program

A set of instructions that has been coded into a computer language and compiled into a machine language.

PROM

Programmable Read-Only Memory. Firmware in which a chip has had a program "burned in" to its internal circuitry. The designation "EPROM" indicates that the program is Erasable.

Promiscuous

A LAN station that receives and processes all of the packets on its network.

Proprietary

Meaning that information concerning the methods or implementation of a technology are owned by an individual or a company. "Proprietary" may mean that the information is secret or that the information must be licensed from the owner before it can be used.

Protocol

In networking, a specification of the data structures and algorithms necessary to accomplish a particular network function.

Protocol Stack

A group of protocols, usually specified by a single vendor or organization, that are implemented at more than one Layer of the OSI 7-Layer model that also have Service Access Points defined.

Publish & Subscribe

An Apple proprietary method of defining and maintaining a live link between a file and an external piece of data.

Quad

A low-grade implementation of twisted pair wire, where four conductors (two pairs) are all twisted together with no independent twisting between the pairs.

Quantum

The maximum unit of time that a real-time process can occupy the CPU.

Query

A general term to describe the formation, usually in a prescribed format, that a computer process would use to retrieve specific information from another process as opposed to a wholesale transfer of data.

QuickTime

A multi-media technology developed by Apple.

Radio (RF) Frequency

1. Electromagnetic radiation with a frequency in the range of 10 KHz to 300 GHz. 2. Wireless data communication using such radiation.

RAM

Random Access Memory. A group of memory locations that are numerically identified to allow high speed access by a CPU. In random access, any memory location can be accessed at any time by referring to its numerical identifier as compared to sequential access, where memory location 6 can only be accessed after accessing memory locations 1-5.

RARP

Reverse Address Resolution Protocol. A method for workstations to ask a server for their IP address during bootstrap operations.

Reboot

A user activity where the user starts a computing device without interrupting its source of electrical power.

Receiver

The node or process for which a packet or other information is intended.

Remote Access

AppleTalk Remote Access. Apple's protocol that allows a single user to gain network access over a modern connection.

Repeater

A Physical Layer device which restores, amplifies, re-clocks or otherwise improves a network signal that it receives on one of its ports and transmits the improved signal without buffering or interpreting it.

ResEdit

A Macintosh utility that allows a user to modify the resource fork of an HFS file.

Reset button

A small button that, when pushed, will restart a Macintosh.

Resistor

A passive electrical device that adds resistance to a circuit.

Resource Fork

In a Macintosh file, the portion of the file that contains such auxiliary information as the menus, the dialog boxes and sounds that a file may require in addition to its data.

Response Time

The gap between the time when a user initiates an action and the time that the action displays its results.

RF Interference

Radio Frequency signals that degrade the integrity of a data signal.

RFC

Request For Comment. For the IETF, the document that specifies a standard after an exhaustive review process.

RFS

Remote File Sharing. The activity of sharing a file among remote computers.

Ring

A type of network topology where the devices are connected to a continuous conductor.

RIP

Routing Information Protocol. A distance vector routing protocol for IP.

ROM

Read Only Memory. A chip or other electronic device that contains memory that cannot be altered. In the Macintosh, the ROM contains the Macintosh OS and instructions for basic system operations.

Router

A device that forwards packets between networks according to the rules of a network layer protocol such as DDP and information it has gathered during its service concerning the structure of the internet.

RPC

Remote Procedure Call. A command given by one computer to a second computer over a network to execute a defined system call, such as in an NFS session.

RTT

Round Trip Time. the time between the transmission of a packet and the receipt of its acknowledgment or reply.

SAA

Systems Application Architecture. IBM's architecture for communications and application development.

SAP

Service Access Point. The interface between one protocol and another in an adjacent layer.

Scalability

The suitability of a system (particularly a network system to operate properly and efficiently when configured on a large scale.

Screen Saver

A background process that monitors system activity such as mouse clicks and key strokes and takes over the system during prolonged periods of idle activity to cover the screen with a display that will prevent damage to its phosphors either by reducing the intensity of electron flow or by displaying an image that changes often enough to avoid screen "burn-in". Some screen savers also offer a security option by requiring a password before a user can regain control of the system.

Script

A set of instructions that a computer can operate. Unlike a program, script instructions are not compiled into machine language but are interpreted by the system at the time of execution. Scripting languages for the Macintosh include HyperTalk, Frontier and AppleScript.

SCSI

Small Computer Systems Interface. A specification (ANSI X3T9.2) for a short distance ((6 meters max.) Local Area Network using bus topology for up to eight devices. The Macintosh uses this network for attaching devices such as external disk drives and scanners.

SDLC

Synchronous Data Link Control. IBM's specification for encapsulation of data over synchronous links. Analogous to HDLC.

Serial Port

A port on a computing device that is capable of either transmitting or receiving one bit at a time. Examples include the Mac's printer and modem ports.

Server

A device that is shared by several users of a network.

Session

An on-going relationship between two computing devices involving the allocation of resources and sustained date flow.

Session Layer

The layer in the OSI 7-Layer Model that is concerned with managing the resources required for the session between two computers.

Set

In SNMP, the command given by the Console that asks the MIB to change the value of a data object in its MIB.

Short

The direct connection of two or more conductors of a circuit with each other.

Signal

The means of conveyance for a communication, typically an electromagnetic wave that is modulated to encode the information communicated.

Signal to Noise Ratio

In an electromagnetic signal, the ratio of the amplitude (strength) of a signal to the amplitude of the ambient radiation and other signal disturbances that are present, usually expressed in decibels (dB).

Slewing Rate

The maximum rate, usually expressed in volts/second, at which an active device such as a transistor or transformer can change its voltage state.

SLIP

Serial Line Internet Protocol. A protocol for carrying IP information over serial links.

SMDS

Switched Multimegabit Data Service. A metropolitan area packet switching data network using T-1 and T-3 lines.

SMI

Structure of Management Information.

SMTP

Simple Mail Transfer Protocol. The standard protocol for exchanging mail over TCP/IP networks.

SNA

Systems Network Architecture. IBM's communications architecture and strategy.

SNMP

Simple Network Management Protocol. A de facto standard for management of networked devices using a simple request-response data retrieval mechanism.

SNMPv2

Simple Network Management Protocol Version 2. Offers increased performance, better security, greater portability and greater ability to manage non-network resources.

Source

The node or process transmitting information.

SONET

Synchronous Optical Network. A standard for a worldwide digital network using a common transport. SONET can run over copper or fiber.

Specification

A document that defines a concept and its allowable implementation forms.

Spike

A sudden and transient increase in the voltage from a power supply.

SPX

Sequential Packet Exchange. A Transport layer protocol developed by Novell to provide in-sequence data transfer.

SQL

Structured Query Language. A widely used metalanguage for data base access and management. AN IBM and ANSI standard.

Square wave

An electromagnetic wave that oscillates between two voltage states, theoretically requiring no time to accomplish a state transition.

Standard

1. A synonym for specification. 2. A component or way of accomplishing a task that is so frequently and widely used that is seems to be part of a specification.

Standby Monitor

Device placed in standby mode on a Token Ring network in case an active monitor fails. See also active monitor and ring monitor.

Star

A network topology that is constructed by connecting computing devices to a common device.

StarLAN

CSMA/CD LAN, based on IEEE 802.3, developed by AT&T.

Star Topology

LAN topology in which end points on a network are connected to a common central switch by point-to-point links. A ring topology that is organized as a star implements a unidirectional closed-loop star, instead of point-to-point links. Compare with bus topology, ring topology, and tree topology.

Static Route

Route that is explicitly configured and entered into the routing table. Static Routes take precedence over routes chosen by dynamic routing protocols.

Statistical Multiplexing

Technique in which information from multiple logical channels can be transmitted across a single physical channel. Statistical multiplexing dynamically allocates bandwidth only to active input channels, making better use of available bandwidth and allowing more devices to be connected than with other multiplexing techniques. Also referred to as statistical time-division multiplexing or stat mux.

STM-1

Synchronous Transport Module level 1. One of a number of SDH formats that specifies the frame structure for the 155.52-Mbps lines used to carry ATM cells.

Store And Forward Packet Switching

Packet-switching technique in which frames are completely processed before being forwarded out the appropriate port. This processing includes calculating the CRC and checking the destination address. In addition, frames must be temporarily stored until network resources are available to forward the message.

STP

Shielded twisted-pair. Two-pair wiring medium used in a variety of network implementations. STP cabling has a layer of shielded insulation to reduce EMI.

STS-1

Synchronous Transport Signal level 1. Basic building block signal of SONET, operating at 51.84 Mbps. Faster SONET rates are defined as STS-n, where n is a multiple of 51.84 Mbps.

STS-3c

Synchronous Transport Signal level 3, concatenated. SONET format that specifies the frame structure for the 155.52-Mbps lines used to carry ATM cells.

Stub Area

OSPF area that carries a default route, intra-area routes, and interarea routes, but does not carry external routes. Virtual links cannot be configured across a stub area, and they cannot contain as ASBR.

Stub Network

Network that has only a single connection to a router.

Subarea

Portion of an SNA network that consists of a subarea node and any attached links and peripheral nodes.

Subarea Node

SNA communication controller or host that handles complete network addresses.

Subchannel

In broadband terminology, a frequency-based subdivision creating a separate communications channel.

Subinterface

One of a number of virtual interfaces on a single physical interface.

Subnet Address

Portion of an IP address that is specified as the subnetwork by the subnet mask. See also IP address, subnet mask, and subnetwork.

Subnet Mask

A representation of a user's Internet address where all of the bit positions corresponding to the user's network and subnetwork id are 1's and the bit corresponding to the user's host id are 0's.

Subnetwork

1. In IP networks, a network sharing a particular subnet address. Subnetworks are networks arbitrarily segmented by a network administrator in order to provide a multilevel, hierarchical routing structure while shielding the subnetwork from the addressing complexity of attached networks. Sometimes called a subnet. 2. In OSI networks, a collection of ESs and ISs under the control of a single administrative domain and using a single network access protocol.

Subvector

A data segment of a vector in an SNA message. A subvector consists of a length field, a key that describes the subvector type, and subvector specific data.

SURAnet

Southeastern Universities Research Association Network. Network connecting universities and other organizations in the Southeastern United States. SURAnet, originally funded by the NSF and a part of the NSFNET, is now part of BBN Planet.

SVC

Switched virtual circuit. Virtual circuit that is dynamically established on demand and is torn down when transmission is complete. SVCs are used in situations where data transmission is sporadic. Called a switched virtual connection in ATM terminology.

Switch

A switch is a device that forwards packets between nodes based on the packet's destination node address (either hardware or protocol), typically with a buffer time longer than a repeater but shorter than the transmission time of the packet.

Switched 56

A dial-up communication service available from a telephone service provider that offers a fractional portion of a T1 line built from as many as 24 channels of 56 KBPS each. Also called Fractional T1.

Switched LAN

LAN implemented with LAN switches.

Synchronization

Establishment of common timing between sender and receiver.

Synchronous

A communication system where stations may only transmit at prescribed intervals and must provide a timing pulse with their packet.

Synchronous

Term describing digital signals that are transmitted with

Transmission

precise clocking. Such signals have the same frequency, with individual characters encapsulated in control bits (called start bits and stop bits) that designate the beginning and end of each character. Compare with asynchronous plesiochronous transmission.

Sysgen

System generation. Process of defining network resources in a network.

System

Any computer system that can be controlled by a user consisting of a CPU and optional equipment such as display monitors, disk drives, and other peripherals.

System File

The Macintosh file that contains system software for the Macintosh OS, including patches or replacements to obsolete code contained in ROM.

System Folder

The directory in which the System File resides.

System Management

Activities that focus on the care and management of individual computer systems.

System Software

Software in a computing system that provides basic functionality like file management, visual display, and keyboard input and is used by application software to accomplish these functions.

T-1

A Telecommunications technology for wide area networks (WAN) with a transmission speed of 1.554 MBPS over 24 multiplexed 56 KBPS channels.

T-2

Four multiplexed T-1 lines offering a communication channel at 6.3 MBPS. Available

T-3

Twenty-eight multiplexed T-1 circuits with a bandwidth of 44.736 MBPS

TAC

Terminal Access Controller. Internet host that accepts terminal connections from dial-up lines.

TACACS

Terminal Access Controller Access Control System. Authentication protocol, developed by the DDN community, that provides remote access authentication and related services, such as event logging. User passwords are administered in a central database rather than in individual routers, providing an easilyscalable network security solution.

Tagged Traffic

ATM cells that have their CLP bit set to 1. If the network is congested, tagged traffic can be dropped to ensure deliver of higher-priority traffic. Sometimes called DE (discard eligible) traffic.

Tap

An intrusion into a network cable by a connector.

Task

1) Synonym for process. 2) An activity or group of activities necessary to accomplish a goal.

TAXI 4B/5B

Transparent Asynchronous Transmitter/Receiver Interface 4-byte/5-byte. Encoding scheme used for FDDI LANs, as well as for ATM. Supports speeds of up to 100 Mbps over multimode fiber. TASI is the chipset that generates 4B/5B encoding on multimode fiber.

T-carrier

TDM transmission method usually referring to a line or cable carrying a DS-1 signal.

TCP

Transmission Control Protocol. A reliable Transport Layer Protocol for managing IP that supports re-transmission, sequencing and fragmentation.

TCP/IP

Transmission Control Protocol/Internet Protocol. A Transport and Network Layer Protocol, respectively, used by a large number of computers.

TCU

Trunk coupling unit. In Token Ring networks, a physical device that enables a station to connect to the trunk cable.

TDM

Time-division multiplexing. Technique in which information from multiple channels can be allocated bandwidth on a single wire based on preassigned time slots. Bandwidth is allocated to each channel regardless of whether the station has data to transmit.

TDR

Time domain reflectometer. Device capable of sending signals through a network medium to check cable continuity and other attributes. TDRs are used to find physical layer network problems.

Telco

Abbreviation for telephone company.

Telecommunications

The system of technologies used in telephone communications.

Telephony

The science and practice of telecommunications.

Telex

Teletypewriter service allowing subscribers to send messages over the PSTN.

Telnet

A process to access a remote computer system, often a Unix system, over the network. Origin: Teletype Network.

Tempest

U.S. military standard. Electronic products adhering to the Tempest specifications are designed to withstand EMP.

TERENA

Trans-European Research and Education Networking Association. Organization that promotes information and telecommunications technologies development in Europe. Formed by the merging of EARN and RARE.

Termid

SNA cluster controller identification. Termid is meaningful only for switched lines. Also called Xid.

Terminal

Simple device at which data can be entered or retrieved from a network. Generally, terminals have a monitor and a keyboard, but no processor or local disk drive.

Terminal Adapter

Device used to connect ISDN BRI connections to existing interfaces such as EIA/TIA-232. Essentially, an ISDN modem.

Terminal Emulation

A computing activity in which a computer runs an application and communicates with a host as if it were a terminal such as a DEC VT220.

Terminal Server

Communications processor that connects asynchronous devices such as terminals, printers, hosts, and modems to any LAN or WAN that uses TCP/IP, X.25, or LAT protocols. Terminal servers provide the internetwork intelligence that is not available in the connected devices.

Terminator

Typically, a resistor placed at the end of a bus to prevent the reflection of signals.

TFTP

Trivial File Transfer Protocol. A simplified version of FTP.

TH

Transmission header. SNA header that is appended to the SNA basic information unit (BIU). The TH uses one of a number of available SNA header formats.

THEnet

Texas Higher Education Network. Regional network comprising over 60 academic and research institutions in Texas.

Thick Ethernet

Also known as 10Base5.

Thinnet

Term used to define a thinner, less expensive version of the cable specified in the IEEE 802.3 10Base2 standard.

Throughput

Rate of information arriving at, and possibly passing through, a particular point in a network system.

TIA

Telecommunications Industry Association. Organization that develops standards relating to telecommunications technologies. Together, the TIA and the EIA have formalized standards, such as EIA/TIA-232, for the electrical characteristics of data transmission.

TIC

Token Ring interface coupler. Controller through which an FEP connects to a Token Ring.

Tightly Coupled

A term that describes the relationship between two computing processes whose successful completion and individual performance rates are highly inter-dependent.

Time-Out

Event that occurs when one network device expects to hear from another network device within a specified period of time, but does not. The resulting time-out usually results in a retransmission of information or the dissolving of the session between the two devices.

TN3270

Terminal Emulation software that allows a terminal to appear to an IBM host as a 3278 Model 2 terminal.

TNotify

Time Notify. Specifies how often SMT initiates neighbor notification broadcasts.

Token

Frame that contains control information. Possession of the token allows a network device to transmit data onto the network.

Token bus

LAN architecture using token passing access over a bus topology. This LAN architecture is the basis for the IEEE 802.4 LAN specification.

Token Passing

A MAC method where stations may only transmit when they are in possession of a special bit sequence (token) passed from station to station.

Token Ring

A ring topology network that uses token passing for MAC.

Toner

Also tone generator. In a tone test set, the tone generating device.

Tool

Any device, software program or instrument constructed for the purpose of aiding a human in accomplishing a goal.

TOP

Technical Office Protocol.

Topology

1. The arrangement of computing devices in a network. 2. A term describing such an arrangement.

Trailer

The group of bytes that marks the end of a frame and usually contains an error checking mechanism such as a CRC.

Transceiver

1. In Ethernet, an electronic device that transforms signals between a node's internal circuitry and the Ethernet signals and also detects collisions. 2. Any device that can simultaneously transmit and receive.

Transfer Rate

The rate at which data is transferred from one device to another, usually expressed in bit per second or in bytes per second.

Transient

A short-lived electrical event.

Transmission

The activity of sending or conveying information.

Transmit

To send information.

Transport Protocol

The Protocol Layer of the OSI 7-Layer Model that is concerned with management of the data flow between source and destination.

Transport

Any of the functions carried out by protocols in the Network or Transport Layers.

Trap

In SNMP, a message sent from the Agent to the Console when the Agent detects that condition defined by the network manager has occurred.

TREDI

Traffic Reduced Encapsulation of DDP in IP. An AppleTalk tunneling protocol developed by Cayman.

Trojan Horse

A maliciously-created computer program or virus that causes significant damage to a system. Trojan Horses are typically given attractive file names and placed on bulletin board systems. Damage usually occurs when the user launches the Trojan horse on his own system. Named after a successful offensive ploy made by the ancient Greek army at the siege of Troy.

TrueType

An outline font technology developed as an alternative to Adobe Postscript fonts.

Truncate

A method of formatting data by removing characters at the end of the data that do not conform to the format desired.

Trunk

A synonym for bus.

TSO

Time Sharing Option.

Tuple

A set of two related data items.

Tweak

A minor adjustment.

Type Field

A byte or group of bytes that indicates the protocol used by the data that is to follow.

UDP

User Datagram protocol.

UNIX

A 32-bit multi-tasking, multi-user operating system invented by Bell Labs that is used on many type of computer systems.

Upload

The activity of transferring a file from a user's computer system to a remote system.

UPS

Uninterruptable Power Supply. An electrical supply system that conditions electrical power for a computer system and will allow continued operating in the event of a power failure.

User

A person who uses a computer system to accomplish a non-computing goal, as compared to a programmer or network manager.

User Interface

The collection of display symbols and other sensory stimuli made by a computer that present information to a human and the collection of physical action that a human can take to present data to a computer.

User Area

The area where users work and where the computer systems are located.

UTP

Unshielded twisting pair wiring.

UTP Ethernet

1) A synonym for 10BaseT. 2) Any of a number of Ethernet technologies in use before the adoption of the 10BaseT Standard that provided a 10 MBPS network system using CSMA/CD.

UUCP

Unix-to-Unix Copy. A simple yet powerful mechanism to copy files from one Unix computer to another over a network or modem connections.

Vaporware

A computer program that has been publicly announced but is not shipping.

Variable

1) A situation or aspect that cannot be expressed explicitly because it may have one of several values. 2) In troubleshooting, an aspect of a problem that makes it differ from a normal situation. 3) In a mathematical expression, a symbol that represents a number.

VAX

A family of computers made by the Digital Equipment Corporation.

VINES

A Network Operating System developed by Banyan.

Virtual

A quality used to describe a situation where a computer simulates aspects of an activity or device but the activity or device does not have a physical form.

Virus

A piece of computer code that attaches itself to applications and data files without their consent or knowledge.

VITAL

Virtually Integrated Technical Architecture Lifecycle. A conceptual framework, designed by Apple, for designing, building and maintaining enterprise information systems.

VM

Virtual Machine. An operating system for IBM mainframes within which multiple other operating systems can be processing, each with its own applications.

Voice grade

A classification of communication wiring indicating that the wiring is unsuitable for network data transfer.

Volt

The standard unit of measure for a difference in electric potential

VSAM

Virtual Storage Access Method. the Primary Mechanism for accessing data on IBM mainframes.

VTAM

Virtual Terminal Access Method. the primary communication control software for SNA.

VTP

Virtual terminal Protocol. OSI's remote terminal protocol.

WAN

Wide Area Network. A network that is created between and among devices separated by large distances (typically in excess of 50 miles).

Watt

A standard unit of measure for electrical power.

Wave

The phenomena that occurs when a physical medium is host to a measurable condition that varies in intensity, frequency or velocity with time.

Well Behaved

A condition that exhibits expected properties.

Wireless

A System that provides communication without the use of wires.

Wiring closet

In wiring for telephone or data systems, any location from which the communication wires emanate, usually enclosed.

Workgroup

A group of networked computer users who frequently communicate with each other and share common devices.

X.25

A packet switching network.

X.400

An OSI standard for a group of store and forward message handling services.

X.500

Directory Services for OSI provides consistent data storage, retrieval and management for information about all network objects.

X11

The specifications for X Windows.

XDR

External Data Representation. The presentation layer protocol used by NFS.

X Windows

A way of operating remote systems. The window allows the user to control and application remotely and view the application's output.

ZIP

Zone Information Protocol. the AppleTalk protocol that correlates network addresses with zone names.

Zone

In an AppleTalk internet, a reference to a logical group of devices and services.