**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*.

**backbone**

The part of a network that acts as the primary path for traffic that is
most often sourced from, and destined for, other networks.

**back end**

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

**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**

Physical connection between an interface processor or card and the
data buses and power distribution buses inside a Cisco chassis.

**back pressure**

Propagation of network congestion information upstream through an
internetwork.

**backward explicit congestion notification**

See *BECN*.

**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.

**balanced, unbalanced**

See *balun*.

**balun**

balanced, unbalanced. Device used for matching impedance between a balanced and an unbalanced line, usually twisted-pair and coaxial cable.

**bandwidth**

The difference between the highest and lowest frequencies available for network signals. The term is also used to describe the rated throughput capacity of a given network medium or protocol.

**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*.

**Banyan VINES**

See *VINES*.

**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. See also *BBN Planet*.

**baseband**

Characteristic of a network technology where only one carrier frequency is used. Ethernet is an example of a baseband network. Also called *narrowband*. Contrast with *broadband*.

**bash**

Bourne-again shell. Interactive UNIX shell based on the traditional Bourne shell, but with increased functionality. The LynxOS bash shell is presented when you log in to a LightStream 2020 ATM switch as root (bash#) or fldsup (bash$). See also *fldsup account* and *root account*.

**basic configuration**

The minimal configuration information entered when a new router, switch, or other configurable network device is installed on a network. The basic configuration for a LightStream 2020 ATM switch, for example, includes IP addresses, the date, and parameters for at least one trunk line. The basic configuration enables the device to receive a full configuration from the NMS.

**basic encoding rules**

See *BER*.

**Basic Rate Interface**

See *BRI*.

**Basic Research and Human Resources**

See *BRHR*.

**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.

**Bay Area Regional Research Network**

See *BARRNet*.

**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. See also *BBN Planet*.

**BBN Planet**

Subsidiary company of BBN that operates a nationwide Internet access network composed in part by the former regional networks BARRNET, NEARNET, and SURAnet. See also *BARRNet*, *BBN*, *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. See also *Be* and *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. See also *Bc* and *DE*.

**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. See also *failure domain*.

**bearer channel**

See *B channel*.

**Because It's Time Network**

See *BITNET*.

**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*.

**Bell Communications Research**

See *Bellcore*.

**Bellcore**

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

**Bellman-Ford routing algorithm**

See *distance vector routing algorithm*.

**Bell operating company**

See *BOC*.

**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. See also *ASN.1*.

**Berkeley Standard Distribution**

See *BSD*.

**BERT**

bit error rate tester. Device that determines the BER on a given communications channel. See also *BER (bit error rate)*.

**best-effort delivery**

Describes a network system that does not use a sophisticated acknowledgment system to guarantee reliable delivery of information.

**BGP**

Border Gateway Protocol. Interdomain routing protocol that replaces EGP. BGP exchanges reachability information with other BGP systems. It is defined by RFC 1163. See also *BGP4* and *EGP*.

**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. See also *BGP* and *CIDR*.

**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**

A numbering system characterized by ones and zeros (1 = on, 0 = off).

**binary 8-zero substitution**

See *B8ZS*.

**binary coded alternate mark inversion**

See *AMI*.

**binary synchronous communication**

See *BSC*.

**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*.

**bipolar 8-zero substitution**

See *B8ZS*.

**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. Contrast with *N-ISDN*. See also *BRI*, *ISDN*, and *PRI*.

**bisync**

See *BSC*.

**bit**

Binary digit used in the binary numbering system. Can be 0 or 1.

**bit error rate**

See *BER*.

**bit error rate tester**

See *BERT*.

**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 part of CREN. See also *CREN*.

**BITNET III**

Dial-up service providing connectivity for members of CREN. See also *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 rate**

Speed at which bits are transmitted, usually expressed in bits per second (bps).

**bits per second**

Abbreviated *bps*.

**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.

**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 channel**

IBM-style channel that implements the FIPS-60 channel, a U.S. channel standard. This channel is also referred to as *OEMI channel* and *370 block mux channel*.

**blower**

Internal cooling fan used in larger router and switch chassis such as the Cisco AGS+, the Cisco 7000, and the LightStream 2020.

**BNC connector**

Standard connector used to connect IEEE 802.3 10Base2 coaxial cable to an MAU.

**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. Also called *boundary node*.

**BOC**

Bell operating company. See *RBOC*.

**Bolt, Beranek, and Newman, Inc.**

See *BBN*.

**BOOTP**

Protocol used by a network node to determine the IP address of its Ethernet interfaces, in order to affect network booting.

**boot programmable read-only memory**

See *boot PROM*.

**boot PROM**

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

**border gateway**

Router that communicates with routers in other autonomous systems.

**Border Gateway Protocol**

See *BGP*.

**boundary function**

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

**boundary network node**

See *BNN*.

**boundary node**

See *BNN*.

**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. See also *PDU*.

**bps**

bits per second.

**BRHR**

Basic Research and Human Resources. Component of the HPCC program designed to support research, training, and education in computer science, computer engineering, and computational science. See also *HPCC*.

**BRI**

Basic Rate Interface. ISDN interface composed of two B channels and one D channel for circuit-switched communication of voice, video, and data. Compare with *PRI*. See also *BISDN*, *ISDN*, and *N-ISDN*.

**bridge**

Device that connects and passes packets between two network segments that use the same communications protocol. Bridges operate at the data link layer (Layer 2) of the OSI reference model. In general, a bridge will filter, forward, or flood an incoming frame based on the MAC address of that frame. See also *relay*.

**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 group**

Cisco bridging feature that assigns network interfaces to a particular spanning-tree group. Bridge groups can be compatible with the IEEE 802.1 or the DEC specification.

**bridge number**

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

**bridge protocol data unit**

See *BPDU*.

**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 IEEE 802.1 standard. See also *IEEE 802.1*.

**broadband**

Transmission system that multiplexes multiple independent signals onto one cable. In telecommunications terminology, any channel having a bandwidth greater than a voice-grade channel (4 kHz). In LAN terminology, a coaxial cable on which analog signaling is used. Also called *wideband*. Contrast with *baseband*.

**Broadband ISDN**

See *BISDN*.

**broadcast**

Data packet that will be sent to all nodes on a network. Broadcasts are identified by a broadcast address. Compare with *multicast* and *unicast*. See also *broadcast address*.

**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*. See also *broadcast*.

**broadcast and unknown server**

See *BUS*.

**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. See also *directed search*.

**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.

**browser**

See *WWW browser*.

**BSC**

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

**BSD**

Berkeley Standard Distribution. Term used to describe any of a variety of UNIX-type operating systems based on the UC Berkeley BSD 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. See also *VBR*.

**buffer**

Storage area used for handling data in transit. Buffers are used in internetworking to compensate for differences in processing speed between network devices. Bursts of data can be stored in buffers until they can be handled by slower processing devices. Sometimes referred to as a *packet buffer*.

**burst tolerance**

See *BT*.

**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. See also *ELAN*.

**bus**

1. Common physical signal path composed of wires or other media across which signals can be sent from one part of a computer to another. Sometimes called *highway*.
2. See *bus topology*.

**bus and tag channel**

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

**Bus Interface Gate Array**

See *BIGA*.

**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**

Term used to refer to a series of consecutive binary digits that are operated upon as a unit (for example, an 8-bit byte).

**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.