

**facility loopback**

Signal looped back toward the incoming facility.

failure domain

Area in which a failure 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. Beacons in turn initiate a process called autoreconfiguration. See also *autoreconfiguration*, *beacon*, and *NAUN*.

fallback

Mechanism used by ATM networks when rigorous path selection does not generate an acceptable path. The fallback mechanism attempts to determine a path by selectively relaxing certain attributes, such as delay, in order to find a path that meets some minimal set of desired attributes.

fan-out unit

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

fantail

Panel of I/O connectors that attaches to an equipment rack, providing easy access for data connections to a network.

FAQ

frequently asked questions. Usually appears in the form of a “read-me” file in a variety of Internet forums. New users are expected to read the FAQ before participating in newsgroups, bulletin boards, video conferences, and so on.

FARNET

Federation of American Research NETworks.

Fast Ethernet

Any of a number of 100-Mbps Ethernet specifications. Fast Ethernet offers a speed increase 10 times that of the 10BaseT Ethernet specification while preserving such qualities as frame format, MAC mechanisms, and MTU. Such similarities allow the use of existing 10BaseT applications and network management tools on Fast Ethernet networks. Based on an extension to the IEEE 802.3 specification. Compare with *EtherChannel*. See also [100BaseFX](#), [100BaseT](#), [100BaseT4](#), [100BaseTX](#), [100BaseX](#), and [IEEE 802.3](#).

Fast Ethernet Interface Processor

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

Fast Sequenced Transport

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

Fast Serial Interface Processor

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

fast switching

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

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 management*, and *security management*.

FCC

Federal Communications Commission. U.S. government agency that supervises, licenses, and controls electronic and electromagnetic transmission standards.

FCFS

first come first served.

FCS

frame check sequence. Extra characters added to a frame for error control purposes. Used in HDLC, Frame Relay, and other data link layer protocols.

FDDI

Fiber Distributed Data Interface. LAN standard, defined by ANSI X3T9.5, specifying a 100-Mbps token-passing network using fiber-optic cable, with transmission distances of up to 2 km. FDDI uses a dual-ring architecture to provide redundancy. Compare with *CDDI* and *FDDI II*.

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*.

FDDI Interface Processor

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

FDDITalk

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

FDL

Facility Data Link. A 4-kbps channel provided by the Extended Superframe (ESF) T1 framing format. The FDL performs outside the payload capacity and allows a service provider to check error statistics on terminating equipment without intrusion.

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*.

FE

Fast Ethernet.

feature boards

Modular system cards that perform specific functionality (DSC cards or modem cards, for example).

FEC

forward error correction. FEC is a class of methods for controlling errors in a one-way communication system. FEC sends extra information along with the data, which can be used by the receiver to check and correct the data.

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 FECN bit set can request that higher-level protocols take flow-control action as appropriate. Compare with *BECN*.

Federal Communications Commission

See *FCC*.

Federal Networking Council

See *FNC*.

FEIP

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

FEP

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

FGD

Feature Group-D (FGD). Identifies a standardized service available to carriers delivered on a channelized T1 line.

FGD-EANA

Feature Group-D (FGD) signalling protocol of type Exchange Access North American (EANA). This provides certain call services, such as emergency (USA-911) calls. The command calling number outbound is used only for FGD-EANA signalling to generate ANI digits for outgoing calls.

Fiber Distributed Data Interface

See *FDDI*.

fiber optics

A method for the transmission of information (audio, video, data). Light is modulated and transmitted over high purity, hair-thin fibers of glass. The bandwidth capacity of fiber optic cable is much greater than that of conventional cable or copper wire.

fiber plant

Aerial or buried fiber optic cable that established connectivity between fiber optic transmission equipment locations.

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*.

fiber-optic interpeater link

See *FOIRL*.

FICON

fiber connectivity. FICON channels provide 100-Mbps bi-directional link rates at unrepeated distances of up to 20 km over fiber optic cables (compared with ESCON channels that support 17-Mbps link rates at maximum unrepeated distances of up to 3 km).

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 encapsulates 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 replaceable unit

Hardware component that can be removed and replaced on-site. Typical field-replaceable units include cards, power supplies, and chassis components.

FIFO

first-in, first-out. Refers to a buffering scheme where the first byte of data entering the buffer is the first byte retrieved by the CPU. In telephony, FIFO refers to a queueing scheme where the first calls received are the first calls processed.

FIFO queueing

first-in, first-out queueing. Involves buffering and forwarding of packets in the order of arrival. FIFO embodies no concept of priority or classes of traffic. There is only one queue, and all packets are treated equally. Packets are sent out an interface in the order in which they arrive.

file transfer

Category of popular network applications that allow files to be moved from one network device to another.

File Transfer Protocol

See *FTP*.

File Transfer, Access, and Management

See *FTAM*.

filter

Generally, a process or a device that screens network traffic for certain characteristics, such as source address, destination address, or protocol, and determines whether to forward or discard that traffic based on the established criteria.

filtering router

Internetwork router that selectively prevents the passage of data packets according to a security policy.

finger

Software tool for determining whether a person has an account at a particular Internet site. Many sites do not allow incoming finger requests.

FIP

See *FIP (FDDI Interface Processor)* in the “Cisco Systems Terms and Acronyms” section.

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.

firmware

Software instructions set permanently or semipermanently in ROM.

FISU

Fill-In Signal Unit. SS7 message that is sent in both directions whenever other signal units are not present. Provides a CRC checksum for use by both signalling endpoints.

FIX

Federal Internet Exchange. Connection point between the North American governmental internets and the Internet. The FIXs are named after their geographic region, as in FIX West (Mountain View, California) and FIX East (College Park, Maryland). See also *CIX*, *GIX*, and *MAE*.

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

A special type of EEPROM that can be erased and reprogrammed in blocks instead of one byte at a time. Many modern PCs have their BIOS stored on a flash memory chip so that it can be updated easily if necessary. Such a BIOS is sometimes called a flash BIOS. Flash memory is also popular in modems because it enables the modem manufacturer to support new protocols as they become standardized.

flash update

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

flat addressing

Scheme of addressing that does not use a logical hierarchy to determine location. For example, MAC addresses are flat, so bridging protocols must flood packets throughout the network to deliver the packet to the appropriate location. Compare with *hierarchical addressing*.

F-link

SS7 fully associated link. An SS7 signaling link directly associated with a link carrying traffic (although not necessarily imbedded within the same physical span).

flooding

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

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*.

flowspec

In IPv6, the traffic parameters of a stream of IP packets between two applications. See also *IPv6*.

FLT

Full Line Terminal. Multiplexer that terminates a SONET span. See also *SONET*.

FM

frequency modulation. Modulation technique in which signals of different frequencies represent different data values. Compare with *AM* and *PAM*. See also *modulation*.

FNC

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

FOIRL

fiber-optic interrepeater link. Fiber-optic signaling methodology based on the IEEE 802.3 fiber-optic specification. FOIRL is a precursor of the 10BaseFL specification, which is designed to replace it. See also *10BaseFL*.

footprint

Geographical area in which an entity is licensed to broadcast its signal.

foreign exchange

See *FX*.

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 is activated for bridging and before forwarding actually begins.

forward explicit congestion notification

See *FE*.

forwarding

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

FOTS

Fiber Optics Transmission Systems. Vendor-proprietary fiber-optic transmission equipment.

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. FQDN is the full name of a system, rather than just its host name. For example, *aldebaran* is a host name, and *aldebaran.interop.com* is an FQDN.

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. See also *Cisco FRAD* (Cisco Frame Relay access device) and *FRAS* (*Frame Relay access support*) in the “Cisco Systems Terms and Acronyms” section.

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 the original size of the packet. See also *reassembly*.

frame

Logical grouping of information sent as a data link layer unit over a transmission medium. Often refers to the header and the trailer, used for synchronization and error control, that surround the user data contained in the unit. The terms *cell*, *datagram*, *message*, *packet*, and *segment* also are used to describe logical information groupings at various layers of the OSI reference model and in various technology circles.

frame check sequence

See *FCS*.

frame forwarding

Mechanism by which frame-based traffic, such as *HDLC* and *SDLC*, traverses an ATM network.

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 generally is considered a replacement. See also *X.25*.

Frame Relay access device

See *FRAD*.

Frame Relay access support

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

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*.

frames types

- information frame (I-frame)
- supervisory frame (S-frame)
- unnumbered frame (U-frame)
- unnumbered information frame (UI-frame)

FRAS

See *FRAS (Frame Relay access support)* in the “Cisco Systems Terms and Acronyms” section.

FRASM

Frame Relay access service module.

freenet

Community-based bulletin board system with e-mail, information services, interactive communications, and conferencing.

free-trade zone

Part of an AppleTalk internetwork that is accessible by two other parts of the internetwork that cannot directly access one another.

frequency

Number of cycles per second, measured in hertz, of an alternating current.

frequency modulation

See *FM*.

frequency re-use

One of the fundamental concepts on which commercial wireless systems are based that involves the partitioning of an RF radiating area (cell) into segments of a cell, which for Cisco purposes means the cell is broken into three equal segments. One segment of the cell uses a frequency that is far enough away from the frequency in the bordering segment that it does not provide interference problems.

Frequency re-use in mobile cellular systems means that each cell has a frequency that is far enough away from the frequency in the bordering cell that it does not provide interference problems. The same frequency is used at least two cells apart from each other. This practice enables cellular providers to have many times more customers for a given site license.

frequency-division multiplexing

See *FDM*.

FRF

Frame Relay Forum. An association of corporate members consisting of vendors, carriers, users, and consultants committed to the implementation of Frame Relay in accordance with national and international standards. See www.frforum.com.

FRF.11

Frame Relay Forum implementation agreement for Voice over Frame Relay (v1.0 May 1997). This specification defines multiplexed data, voice, fax, DTMF digit-relay, and CAS/Robbed-bit signaling frame formats but does not include call setup, routing, or administration facilities. See www.frforum.com.

FRF.11 Annex C

See *FRF.12*.

FRF.12

The FRF.12 Implementation Agreement (also known as FRF.11 Annex C) was developed to allow long data frames to be fragmented into smaller pieces and interleaved with real-time frames. In this way, real-time voice and non real-time data frames can be carried together on lower speed links without causing excessive delay to the real-time traffic. See www.frforum.com.

FRF.8

Frame Relay-to-ATM Service Interworking. To communicate over WANs, end-user stations and the network cloud typically must use the same type of transmission protocol. This limitation has prevented differing networks, such as Frame Relay and ATM, from being linked. However, the Frame Relay-to-ATM Service Interworking (FRF.8) feature allows Frame Relay and ATM networks to exchange data despite differing network protocols. The Frame Relay/ATM PVC Service Interworking Implementation Agreement specified in Frame Relay Forum (FRF) document number FRF.8 provide the functional requirements for linking Frame Relay and ATM networks.

FRF11-trunk

Point to point permanent voice connection (private line) conforming to the FRF.11 specification.

FRMR

Frame REJECT.

front end

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

front-end processor

See *FEP*.

FRTS

Frame Relay traffic shaping. Queueing method that uses queues on a Frame Relay network to limit surges that can cause congestion. Data is buffered and sent into the network in regulated amounts to ensure that the traffic can fit within the promised traffic envelope for the particular connection.

FSIP

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

FSN

Forward Sequence Number. Part of an SS7 MSU that contains the sequence number of the signal unit.

FSSRP

Fast Simple Server Redundancy Protocol. The LANE simple server redundancy feature creates fault-tolerance using standard LANE protocols and mechanisms. FSSRP differs from LANE SSRP in that all configured LANE servers of an Emulated LAN (ELANE) are always active. See also *SSRP*.

FST

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

FTAM

File Transfer, Access, and Management. In OSI, an application layer protocol developed for network file exchange and management between diverse types of computers.

FTP

File Transfer Protocol. Application protocol, part of the TCP/IP protocol stack, used for transferring files between network nodes. FTP is defined in RFC 959.

full duplex

Capability for simultaneous data transmission between a sending station and a receiving station. Compare with *half duplex* and *simplex*.

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 usually is reserved for network backbones. See also *mesh* and *partial mesh*.

fully qualified domain name

See *FQDN*.

FUNI

frame user network interface.

Fuzzball

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

FX

foreign exchange.

1. A circuit that connects a subscriber in one exchange with a central office (CO) in another exchange.
2. A trunk type that connects a call center with a central office in a remote exchange. This allows callers in that remote exchange. See also *CO*, *FXO*, *FXS*, and *PBX*.

FXO

Foreign Exchange Office. An FXO interface connects to the Public Switched Telephone Network (PSTN) central office and is the interface offered on a standard telephone. Cisco's FXO interface is an RJ-11 connector that allows an analog connection at the PSTN's central office or to a station interface on a PBX.

FXS

Foreign Exchange Station. An FXS interface connects directly to a standard telephone and supplies ring, voltage, and dial tone. Cisco's FXS interface is an RJ-11 connector that allows connections to basic telephone service equipment, keysets, and PBXs.

