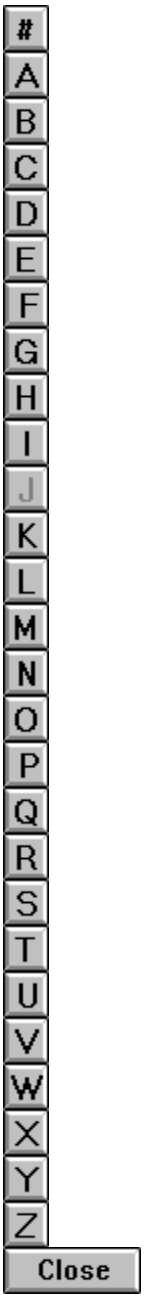
Cisco TCP/IP Suite Glossary



Acknowledgments

Portions of this online glossary are derived from the work of the User Glossary Working Group of the User Services Area of the Internet Engineering Task Force (IETF). The Internet Users' Glossary appears in its entirety in RFC 1392.

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CRC
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Cyclic Redundancy Check

D

DARPA
Data Encryption Key
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Defense Advanced Research Projects Agency
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email
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Ethernet
Ethernet meltdown
European Academic and Research Network
Extended Binary Coded Decimal Interchange Code
Exterior Gateway Protocol
External Data Representation

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FARNET
FDDI
Federal Information Exchange
Federal Networking Council
Fiber Distributed Data Interface
file transfer
File Transfer Protocol
finger
FIX
FNC
For Your Information
FQDN
fragment
fragmentation
frame
freenet
FTP
Fully Qualified Domain Name
FYI

G

gated
gateway
Gopher
GOSIP
Government OSI Profile

H

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hacker
header
header compression
heterogeneous network
hierarchical routing
High Performance Computing and Communications
High Performance Parallel Interface
HIPPI
hop
host
host address
hostname
host number
HPCC
hub

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I

ISOC
ISODE

J

No glossary entries available for this letter.

K

L

M

MAC
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mail bridge
Mail Exchange Record
mail exploder
mail gateway
mail path
mail server
mailing list
MAN
Management Information Base
Maximum Transmission Unit
Media Access Control
message switching
Metropolitan Area Network
MIB
mid-level network
MIME
moderator
MTU
MTU path discovery
multicast
multihomed host
Multipurpose Internet Mail Extensions
MX Record

N

O

OCLC
octet
Online Computer Library Catalog
Open Shortest Path First Interior Gateway Protocol
Open Systems Interconnection
OSI
OSI Reference Model
OSPF

P

packet
Packet Internet Groper
Packet Switch Node
packet switching
PD
PDU
PEM
physical network address
Ping
Point Of Presence
Point-to-Point Protocol
POP (Point of Presence)
POP (Post Office Protocol)
port
Post Office Protocol
Postal Telegraph and Telephone
postmaster
PPP
Privacy Enhanced Mail
Prospero
protocol
protocol converter
Protocol Data Unit
protocol stack
proxy ARP
PSN
PTT
publish translations

Q ◆◆◆

◆◆◆

queue

◆◆◆

R

RARE
RARP
reassembly
regional
remote login
Remote Procedure Call
repeater
Request For Comments
Reseaux Associes pour la Recherche Europeenne
Reseaux IP Europeenne
Reverse Address Resolution Protocol
RFC
RFC 822
RIP
RIPE
Round-Trip Time
route
routed
router
routing
routing domain
Routing Information Protocol
routing tables
RPC
RTT

S

T

U

UDP
Universal Time Coordinated
UNIX-to-UNIX copy
Usenet
User Datagram Protocol
UTC
UUCP

V

W

W3
WAIS
WAN
WG
white pages
WHOIS
Wide Area Information Servers
Wide Area Network
World Wide Web
worm
WWW
WYSIWYG

X

Y

Yellow Pages
YP

Z ◆◆◆

◆◆◆

zone
◆◆◆

(Non-Character Glossary Entries)

abstract syntax

A description of a data structure that is independent of machine-oriented structures and encodings.

[Source: RFC 1392]

Abstract Syntax Notation One (ASN.1)

The language used by the OSI protocols for describing abstract syntax. This language is also used to encode SNMP packets. ASN.1 is defined in ISO documents 8824.2 and 8825.2.

 See Also: Basic Encoding Rules

[Source: RFC 1392]

Acceptable Use Policy (AUP)

Many transit networks have policies which restrict the use to which the network may be put. A well known example is NSFNET's AUP which does not allow commercial use. Enforcement of AUPs varies with the network.

 See Also: National Science Foundation

[Source: RFC 1392]

Access Control List (ACL)

Most network security systems operate by allowing selective use of services. An Access Control List is the usual means by which access to, and denial of, services is controlled. It is simply a list of the services available, each with a list of the hosts permitted to use the service.

[Source: RFC 1392]

acknowledgment (ACK)

A type of message sent to indicate that a block of data arrived at its destination without error.

GlossaryContents See Also: Negative Acknowledgment

[Source: RFC 1392]

address

There are three types of addresses in common use within the Internet. They are email address; IP, internet, or Internet address; and hardware or MAC address.

GlossaryContents See Also: email address, IP address, internet address, MAC address

[Source: RFC 1392]

address mask

A bit mask used to identify which bits in an IP address correspond to the network and subnet portions of the address. This mask is often referred to as the subnet mask because the network portion of the address can be determined by the encoding inherent in an IP address.

[Source: RFC 1392]

address resolution

Conversion of an internet address into the corresponding physical address.

[Source: RFC 1392]

Address Resolution Protocol (ARP)

Used to dynamically discover the low-level physical network hardware address that corresponds to the high-level IP address for a given host. ARP is limited to physical network systems that support broadcast packets that can be heard by all hosts on the network. It is defined in RFC 826.

GlossaryContents See Also: proxy ARP

[Source: RFC 1392]

Administrative Domain (AD)

A collection of hosts and routers, and the interconnecting network(s), managed by a single administrative authority.

[Source: RFC 1392]

Advanced Research Projects Agency Network (ARPANET)

A pioneering longhaul network funded by ARPA (now DARPA). It served as the basis for early networking research, as well as a central backbone during the development of the Internet. The ARPANET consisted of individual packet switching computers interconnected by leased lines.

GlossaryContents See Also: Defense Advanced Research Projects Agency

[Source: RFC 1392]

agent

In the client-server model, the part of the system that performs information preparation and exchange on behalf of a client or server application.

[Source: RFC 1392]

alias

A name, usually short and easy to remember, that is translated into another name, usually long and difficult to remember.

[Source: RFC 1392]

American National Standards Institute (ANSI)

This organization is responsible for approving U.S. standards in many areas, including computers and communications. Standards approved by this organization are often called ANSI standards (for example, ANSI C is the version of the C language approved by ANSI). ANSI is a member of ISO.

GlossaryContents See Also: International Organization for Standardization

[Source: RFC 1392]

American Standard Code for Information Interchange (ASCII)

A standard character-to-number encoding widely used in the computer industry.

Glossary Contents See Also: EBCDIC

[Source: RFC 1392]

anonymous FTP

Anonymous FTP allows a user to retrieve documents, files, programs, and other archived data from anywhere in the Internet without having to establish a user ID and password. By using the special user ID of "anonymous," the network user bypasses local security checks and has access to publicly accessible files on the remote system.

GlossaryContents See Also: archive site, File Transfer Protocol

[Source: RFC 1392]

Appletalk

A networking protocol developed by Apple Computer for communication between Apple Computer products and other computers. This protocol is independent of the network layer on which it is run. Current implementations exist for Localtalk, a 235Kb/s local area network; and Ethertalk, a 10Mb/s local area network.

[Source: RFC 1392]

application

A program that performs a function directly for a user. FTP, mail and Telnet clients are examples of network applications.

[Source: RFC 1392]

application layer

The top layer of the network protocol stack. The application layer is concerned with the semantics of work (for example, formatting electronic mail messages). How to represent that data and how to reach the foreign node are issues for lower layers of the network.

[Source: RFC 1392]

Application Program Interface (API)

A set of calling conventions which define how a service is invoked through a software package.

[Source: RFC 1392]

archie

A system to automatically gather, index, and serve information on the Internet. The initial implementation of archie provided an indexed directory of filenames from all anonymous FTP archives on the Internet. Later versions provide other collections of information.

GlossaryContents See Also: archive site, Gopher, Prospero, Wide Area Information Servers

[Source: RFC 1392]

archive site

A machine that provides access to a collection of files across the Internet. An "anonymous FTP archive site," for example, provides access to this material via the FTP protocol.

GlossaryContents See Also: anonymous FTP, archie, Gopher, Prospero, Wide Area Information Servers

[Source: RFC 1392]

assigned numbers

The RFC [STD2] which documents the currently assigned values from several series of numbers used in network protocol implementations. This RFC is updated periodically and, in any case, current information can be obtained from the Internet Assigned Numbers Authority (IANA). If you are developing a protocol or application that will require the use of a link, socket, port, protocol, please contact the IANA to receive a number assignment.

GlossaryContents See Also: Internet Assigned Numbers Authority, STD

[Source: RFC 1392]

Asynchronous Transfer Mode (ATM)

A method for the dynamic allocation of bandwidth using a fixed-size packet (called a cell). ATM is also known as "fast packet."

[Source: RFC 1392]

authentication

The verification of the identity of a person or process.

[Source: RFC 1392]

Autonomous System (AS)

A collection of routers under a single administrative authority using a common Interior Gateway Protocol for routing packets.

[Source: RFC 1392]

backbone

The top level in a hierarchical network. Stub and transit networks which connect to the same backbone are guaranteed to be interconnected.

GlossaryContents See Also: stub network, transit network

[Source: RFC 1392]

bandwidth

Technically, the difference, in Hertz (Hz), between the highest and lowest frequencies of a transmission channel. However, as typically used, the amount of data that can be sent through a given communications circuit.

[Source: RFC 1392]

bang path

A series of machine names used to direct electronic mail from one user to another, typically by specifying an explicit UUCP path through which the mail is to be routed.

GlossaryContents See Also: email address, mail path, UNIX-to-UNIX Copy

[Source: RFC 1392]

baseband

A transmission medium through which digital signals are sent without complicated frequency shifting. In general, only one communication channel is available at any given time. Ethernet is an example of a baseband network.

GlossaryContents See Also: broadband, Ethernet

[Source: RFC 1392]

Basic Encoding Rules (BER)

Standard rules for encoding data units described in ASN.1. Sometimes incorrectly lumped under the term ASN.1, which properly refers only to the abstract syntax description language, not the encoding technique.

GlossaryContents See Also: Abstract Syntax Notation One

[Source: RFC 1392]

Berkeley Internet Name Domain (BIND)

Implementation of a DNS server developed and distributed by the University of California at Berkeley. Many Internet hosts run BIND, and it is the ancestor of many commercial BIND implementations.

[Source: RFC 1392]

Berkeley Software Distribution (BSD)

Implementation of the UNIX operating system and its utilities developed and distributed by the University of California at Berkeley. "BSD" is usually preceded by the version number of the distribution; for example, "4.3 BSD" is version 4.3 of the Berkeley UNIX distribution. Many Internet hosts run BSD software, and it is the ancestor of many commercial UNIX implementations.

[Source: RFC 1392]

big-endian

A format for storage or transmission of binary data in which the most significant bit (or byte) comes first.

GlossaryContents See Also: little-endian

[Source: RFC 1392]

binary

The base 2 number system.

[Source: RFC 1392]

Bitnet

An academic computer network that provides interactive electronic mail and file transfer services, using a store-and-forward protocol, based on IBM Network Job Entry protocols. Bitnet-II encapsulates the Bitnet protocol within IP packets and depends on the Internet to route them.

[Source: RFC 1392]

BOOTP

The Bootstrap Protocol, described in RFCs 951 and 1084, is used for booting diskless nodes.

Glossary Contents See Also: Reverse Address Resolution Protocol

[Source: RFC 1392]

Border Gateway Protocol (BGP)

The Border Gateway Protocol is an exterior gateway protocol defined in RFCs 1267 and 1268. Its design is based on experience gained with EGP, as defined in STD 18, RFC 904, and EGP usage in the NSFNET Backbone, as described in RFCs 1092 and 1093.

GlossaryContents See Also: Exterior Gateway Protocol

[Source: RFC 1392]

bounce

The return of a piece of mail because of an error in its delivery.

[Source: RFC 1392]

bridge

A device which forwards traffic between network segments based on datalink layer information. These segments would have a common network layer address.

GlossaryContents See Also: gateway, router

[Source: RFC 1392]

broadband

A transmission medium capable of supporting a wide range of frequencies. It can carry multiple signals by dividing the total capacity of the medium into multiple, independent bandwidth channels, where each channel operates only on a specific range of frequencies.

GlossaryContents See Also: baseband

[Source: RFC 1392]

broadcast

A special type of multicast packet which all nodes on the network are always willing to receive.

GlossaryContents See Also: multicast

[Source: RFC 1392]

broadcast address

Broadcast addresses are used to send information to all hosts on a network. Packets addressed to the network's broadcast address are transmitted to every host with the same network number as the broadcast address. Broadcast packets are routinely used by the network to share routing information, field ARP requests, and send status and informational messages.

Two common conventions are used for broadcast addresses. The old convention, which SunOS and Berkeley UNIX 4.2 use, represents a broadcast address as the network portion of the address followed by all zeros. Using this convention, the broadcast address for the network 191.87 is 191.87.0.0. The new convention, which Cisco TCP/IP Suite for Windows and the Internet use, represents a broadcast address as the network portion of the address followed by binary ones (255 decimal) in all host portions of the address. In this scheme, the broadcast address for network 191.87 is 191.87.255.255.

If the network includes subnets, the broadcast address for the subnet is the network portion of the address followed by the subnet address and 255. For example, the broadcast address for subnet 191.87.225 (a subnet of network 191.87) is 191.87.225.255.

GlossaryContents See Also: internet address

[Source: Cisco Systems]

broadcast storm

An incorrect packet broadcast onto a network that causes multiple hosts to respond all at once, typically with equally incorrect packets which causes the storm to grow exponentially in severity.

[Source: RFC 1392]

brouter

A device which bridges some packets (such as forwards based on datalink layer information) and routes other packets (such as forwards based on network layer information). The bridge/route decision is based on configuration information.

GlossaryContents See Also: bridge, router

[Source: RFC 1392]

Bulletin Board System (BBS)

A computer, and associated software, which typically provides electronic messaging services, archives of files, and any other services or activities of interest to the bulletin board system's operator. Although BBSs have traditionally been the domain of hobbyists, an increasing number of BBSs are connected directly to the Internet, and many BBSs are currently operated by government, educational, and research institutions.

GlossaryContents See Also: Electronic Mail, Internet, Usenet

[Source: RFC 1392]

Campus Wide Information System (CWIS)

A CWIS makes information and services publicly available on campus via kiosks, and makes interactive computing available via kiosks, interactive computing systems, and campus networks. Services routinely include directory information, calendars, bulletin boards, and databases.

[Source: RFC 1392]

checksum

A computed value which is dependent upon the contents of a packet. This value is sent along with the packet when it is transmitted. The receiving system computes a new checksum based upon the received data and compares this value with the one sent with the packet. If the two values are the same, the receiver has a high degree of confidence that the data was received correctly.

[Source: RFC 1392]

circuit switching

A communications paradigm in which a dedicated communication path is established between two hosts, and on which all packets travel. The telephone system is an example of a circuit switched network.

GlossaryContents See Also: connection-oriented, connectionless, packet switching

[Source: RFC 1392]

client

A computer system or process that requests a service of another computer system or process. A workstation requesting the contents of a file from a file server is a client of the file server.

GlossaryContents See Also: client-server model, server

[Source: RFC 1392]

client-server model

A common way to describe the paradigm of many network protocols. Examples include the name-server/name-resolver relationship in DNS and the file-server/file-client relationship in NFS.

GlossaryContents See Also: client, server, Domain Name System, Network File System

[Source: RFC 1392]

Coalition for Networked Information (CNI)

A consortium formed by American Research Libraries, CAUSE, and EDUCOM to promote the creation of, and access to, information resources in networked environments in order to enrich scholarship and enhance intellectual productivity.

[Source: RFC 1392]

Comite Consultatif International de Telegraphique et Telephonique (CCITT)

This organization is part of the United National International Telecommunications Union (ITU) and is responsible for making technical recommendations about telephone and data communications systems. Every four years CCITT holds plenary sessions where they adopt new standards; the most recent was in 1992.

[Source: RFC 1392]

Computer Emergency Response Team (CERT)

The CERT was formed by DARPA in November 1988 in response to the needs exhibited during the Internet worm incident. The CERT charter is to work with the Internet community to facilitate its response to computer security events involving Internet hosts, to take proactive steps to raise the community's awareness of computer security issues, and to conduct research targeted at improving the security of existing systems. CERT products and services include 24-hour technical assistance for responding to computer security incidents, product vulnerability assistance, technical documents, and tutorials. In addition, the team maintains a number of mailing lists (including one for CERT Advisories), and provides an anonymous FTP server, at "cert.org", where security-related documents and tools are archived. The CERT may be reached by email at "cert@cert.org" and by telephone at +1-412-268-7090 (24-hour hotline).

GlossaryContents See Also: Defense Advanced Research Projects Agency, worm

[Source: RFC 1392]

congestion

Congestion occurs when the offered load exceeds the capacity of a data communication path.

[Source: RFC 1392]

connection-oriented

The data communication method in which communication proceeds through three well-defined phases: connection establishment, data transfer, and connection release. TCP is a connection-oriented protocol.

GlossaryContents See Also: circuit switching, connectionless, packet switching, Transmission Control Protocol

[Source: RFC 1392]

connectionless

The data communication method in which communication occurs between hosts with no previous setup. Packets between two hosts may take different routes, as each is independent of the other. UDP is a connectionless protocol.

GlossaryContents See Also: circuit switching, connection-oriented, packet switching, User Datagram Protocol

[Source: RFC 1392]

Coordinating Committee for Intercontinental Research Networks (CCIRN)

A committee that includes the United States FNC and its counterparts in North America and Europe. Co-chaired by the executive directors of the FNC and the European Association of Research Networks (RARE), the CCIRN provides a forum for cooperative planning among the principal North American and European research networking bodies.

GlossaryContents See Also: Federal Networking Council, RARE

[Source: RFC 1392]

core gateway

Historically, one of a set of gateways (routers) operated by the Internet Network Operations Center at Bolt, Beranek and Newman (BBN). The core gateway system formed a central part of Internet routing in that all groups must advertise paths to their networks from a core gateway.

[Source: RFC 1392]

Corporation for Research and Educational Networking (CREN)

This organization was formed in October 1989, when Bitnet and CSNET (Computer + Science Network) were combined under one administrative authority. CSNET is no longer operational, but CREN still runs Bitnet.

GlossaryContents See Also: Bitnet

[Source: RFC 1392]

cracker

A cracker is an individual who attempts to access computer systems without authorization. These individuals are often malicious, as opposed to hackers, and have many means at their disposal for breaking into a system.

GlossaryContents See Also: hacker, Computer Emergency Response Team, Trojan Horse, virus, worm

[Source: RFC 1392]

Cyclic Redundancy Check (CRC)

A number derived from a set of data that will be transmitted. By recalculating the CRC at the remote end and comparing it to the value originally transmitted, the receiving node can detect some types of transmission errors.

[Source: RFC 1392]

Data Encryption Key (DEK)

Used for the encryption of message text and for the computation of message integrity checks (signatures).

GlossaryContents See Also: encryption

[Source: RFC 1392]

Data Encryption Standard (DES)

A popular, standard encryption scheme.

Glossary Contents See Also: encryption

[Source: RFC 1392]

datagram

A self-contained, independent entity of data carrying sufficient information to be routed from the source to the destination computer without reliance on earlier exchanges between this source and destination computer and the transporting network.

GlossaryContents See Also: frame, packet

[Source: RFC 1392]

DECnet

A proprietary network protocol designed by Digital Equipment Corporation. The functionality of each Phase of the implementation, such as Phase IV and Phase V, is different.

[Source: RFC 1392]

default route

Default routes are used when a host has no specific route for the destination host or network in its routing table. If the data cannot be delivered directly, or if the routing table has no entry for the destination host or network, the data is forwarded to the default router.

[Source: Cisco Systems]

Defense Advanced Research Projects Agency (DARPA)

An agency of the U.S. Department of Defense responsible for the development of new technology for use by the military. DARPA (formerly known as ARPA) was responsible for funding much of the development of the Internet we know today, including the Berkeley version of UNIX and TCP/IP.

[Source: RFC 1392]

Defense Data Network (DDN)

A global communications network serving the US Department of Defense composed of MILNET, other portions of the Internet, and classified networks which are not part of the Internet. The DDN is used to connect military installations and is managed by the Defense Information Systems Agency.

GlossaryContents See Also: Defense Information Systems Agency

[Source: RFC 1392]

Defense Data Network Network Information Center (DDN NIC)

Often called "The NIC", the DDN NIC's primary responsibility is the assignment of Internet network addresses and Autonomous System numbers, the administration of the root domain, and providing information and support services to the DDN. It is also a primary repository for RFCs.

GlossaryContents See Also: Autonomous System, network address, Internet Registry, Network Information Center, Request For Comments

[Source: RFC 1392]

Defense Information Systems Agency (DISA)

Formerly called the Defense Communications Agency (DCA), this is the government agency responsible for managing the DDN portion of the Internet, including the MILNET. Currently, DISA administers the DDN, and supports the user assistance services of the DDN NIC.

GlossaryContents See Also: Defense Data Network

[Source: RFC 1392]

dialup

A temporary, as opposed to dedicated, connection between machines established over a standard phone line.

[Source: RFC 1392]

Directory Access Protocol

X.500 protocol used for communication between a Directory User Agent and a Directory System Agent.

[Source: RFC 1392]

Directory System Agent (DSA)

The software that provides the X.500 Directory Service for a portion of the directory information base. Generally, each DSA is responsible for the directory information for a single organization or organizational unit.

[Source: RFC 1392]

Directory User Agent (DUA)

The software that accesses the X.500 Directory Service on behalf of the directory user. The directory user may be a person or another software element.

[Source: RFC 1392]

Distributed Computing Environment (DCE)

An architecture of standard programming interfaces, conventions, and server functionalities (for example, naming, distributed file system, remote procedure call) for distributing applications transparently across networks of heterogeneous computers. Promoted and controlled by the Open Software Foundation (OSF), a consortium led by Digital, IBM, and Hewlett Packard.

[Source: RFC 1392]

distributed database

A collection of several different data repositories that looks like a single database to the user. A prime example in the Internet is the Domain Name System.

[Source: RFC 1392]

domain

Domains are used to provide a hierarchical grouping of hosts within the Internet. Domain names are assigned by the Internet naming authority and can pertain to your site, your organization, or the type of organization in which you participate.

A domain name normally consists of at least two words separated by a dot, such as YOYODYNE.COM.

Glossary Contents See Also: Administrative Domain, Domain Name System

[Source: Cisco Systems]

Domain Name System (DNS)

The DNS is a general purpose, distributed, replicated, data query service. The principal use is the lookup of host IP addresses based on host names. The style of host names now used in the Internet is called "domain name," because they are the style of names used to look up anything in the DNS. Some important domains are: .COM (commercial), .EDU (educational), .NET (network operations), .GOV (U.S. government), and .MIL (U.S. military). Most countries also have a domain; such as .US (United States), .UK (United Kingdom), and .AU (Australia). It is defined in STD 13, RFCs 1034 and 1035.

GlossaryContents See Also: Fully Qualified Domain Name

[Source: RFC 1392]

dot address (dotted decimal notation)

Dot address refers to the common notation for IP addresses of the form A.B.C.D; where each letter represents, in decimal, one byte of a four byte IP address.

GlossaryContents See Also: IP address

[Source: RFC 1392]

DS1

A framing specification for T-1 synchronous lines.

Glossary Contents See Also: T1

[Source: RFC 1392]

DS3

A framing specification for T-3 synchronous lines.

Glossary Contents See Also: T3

[Source: RFC 1392]

dynamic adaptive routing

Automatic rerouting of traffic based on a sensing and analysis of current actual network conditions.

Note

This does not include cases of routing decisions taken on predefined information.

[Source: RFC 1392]

dynamic routing

Dynamic routing uses routing protocols to share routing information with other routers and hosts.

[Source: Cisco Systems]

dynamic routing tables

Dynamic routing tables are generated by a routing protocol, such as RIP, which collects information from other routers and populates the table with this information. Dynamic routing solutions automatically share information and update the table as routing information changes.

GlossaryContents See Also: dynamic routing, routing, static routing tables

[Source: Cisco Systems]

Ebone

A pan-European backbone service.

[Source: RFC 1392]

Electronic Frontier Foundation (EFF)

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

[Source: RFC 1392]

Electronic Mail (email)

A system whereby a computer user can exchange messages with other computer users (or groups of users) via a communications network. Electronic mail is one of the most popular uses of the Internet.

[Source: RFC 1392]

email address

The domain-based or UUCP address that is used to send electronic mail to a specified destination. For example, an editor's address is "gmalkin@xylogics.com."

GlossaryContents See Also: bang path, mail path, UNIX-to-UNIX copy

[Source: RFC 1392]

encapsulation

The technique used by layered protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. As an example, in Internet terminology, a packet would contain a header from the physical layer, followed by a header from the network layer (IP), followed by a header from the transport layer (TCP), followed by the application protocol data.

[Source: RFC 1392]

encryption

Encryption is the manipulation of a packet's data in order to prevent any but the intended recipient from reading that data. There are many types of data encryption, and they are the basis of network security.

GlossaryContents See Also: Data Encryption Standard

[Source: RFC 1392]

Ethernet

A 10-Mb/s standard for LANs, initially developed by Xerox, and later refined by Digital, Intel, and Xerox (DIX). All hosts are connected to a coaxial cable where they contend for network access using a Carrier Sense Multiple Access with Collision Detection (CSMA/CD) paradigm.

GlossaryContents See Also: 802.x, Local Area Network, token ring

[Source: RFC 1392]

Ethernet meltdown

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

[Source: RFC 1392]

European Academic and Research Network (EARN)

A network connecting European academic and research institutions with electronic mail and file transfer services using the Bitnet protocol.

GlossaryContents See Also: Bitnet

[Source: RFC 1392]

Extended Binary Coded Decimal Interchange Code (EBCDIC)

A standard character-to-number encoding used primarily by IBM computer systems.

Glossary Contents See Also: ASCII

[Source: RFC 1392]

Exterior Gateway Protocol (EGP)

A protocol which distributes routing information to the routers which connect autonomous systems. The term "gateway" is historical, as "router" is currently the preferred term. There is also a routing protocol called EGP defined in STD 18, RFC 904.

GlossaryContents See Also: Autonomous System, Border Gateway Protocol, Interior Gateway Protocol

[Source: RFC 1392]

External Data Representation (XDR)

A standard for machine independent data structures developed by Sun Microsystems and defined in RFC 1014. It is similar to ASN.1.

GlossaryContents See Also: Abstract Syntax Notation One

[Source: RFC 1392]

FARNET

A non-profit corporation, established in 1987, whose mission is to advance the use of computer networks to improve research and education.

[Source: RFC 1392]

Federal Information Exchange (FIX)

One of the connection points between the American governmental internets and the Internet.

[Source: RFC 1392]

Federal Networking Council (FNC)

The coordinating group of representatives from those federal agencies involved in the development and use of federal networking, especially those networks using TCP/IP and the Internet. Current members include representatives from DOD, DOE, DARPA, NSF, NASA, and HHS.

GlossaryContents See Also: Defense Advanced Research Projects Agency, National Science Foundation

[Source: RFC 1392]

Fiber Distributed Data Interface (FDDI)

A high-speed (100Mb/s) LAN standard. The underlying medium is fiber optics, and the topology is a dual-attached, counter-rotating token ring.

GlossaryContents See Also: Local Area Network, token ring

[Source: RFC 1392]

file transfer

The copying of a file from one computer to another over a computer network.

Glossary Contents See Also: File Transfer Protocol, Kermit

[Source: RFC 1392]

File Transfer Protocol (FTP)

A protocol which allows a user on one host to access, and transfer files to and from, another host over a network. Also, FTP is usually the name of the program the user invokes to execute the protocol. It is defined in STD 9, RFC 959.

GlossaryContents See Also: anonymous FTP

[Source: RFC 1392]

finger

A program that displays information about a particular user, or all users, logged on the local system or on a remote system. It typically shows full name, last login time, idle time, terminal line, and terminal location (where applicable). It may also display plan and project files left by the user.

[Source: RFC 1392]

For Your Information (FYI)

A subseries of RFCs that are not technical standards or descriptions of protocols. FYIs convey general information about topics related to TCP/IP or the Internet.

GlossaryContents See Also: Request For Comments, STD

[Source: RFC 1392]

fragment

A piece of a packet. When a router is forwarding an IP packet to a network that has a maximum packet size smaller than the packet size, it is forced to break up that packet into multiple fragments. These fragments are reassembled by the IP layer at the destination host.

[Source: RFC 1392]

fragmentation

The IP process in which a packet is broken into smaller pieces to fit the requirements of a physical network over which the packet must pass.

GlossaryContents See Also: reassembly

[Source: RFC 1392]

frame

A frame is a datalink layer "packet" which contains the header and trailer information required by the physical medium. That is, network layer packets are encapsulated to become frames.

GlossaryContents See Also: datagram, encapsulation, packet

[Source: RFC 1392]

freenet

Community-based bulletin board system with email, information services, interactive communications, and conferencing. Freenets are funded and operated by individuals and volunteers--in one sense, like public television. They are part of the National Public Telecomputing Network (NPTN), an organization based in Cleveland, Ohio, devoted to making computer telecommunication and networking services as freely available as public libraries.

[Source: RFC 1392]

Fully Qualified Domain Name (FQDN)

The FQDN is the full name of a system, rather than just its hostname. For example, "venera" is a hostname and "venera.isi.edu" is an FQDN.

GlossaryContents See Also: hostname, Domain Name System

[Source: RFC 1392]

gated

Gatedaemon. A program which supports multiple routing protocols and protocol families. It may be used for routing, and makes an effective platform for routing protocol research. The software is freely available by anonymous FTP from "gated.cornell.edu". Pronounced "gate-dee."

GlossaryContents See Also: Exterior Gateway Protocol, Open Shortest Path First Interior Gateway Protocol, Routing Information Protocol, routed

[Source: RFC 1392]

gateway

The term "router" is now used in place of the original definition of "gateway." Currently, a gateway is a communications device/program which passes data between networks having similar functions but dissimilar implementations. This should not be confused with a protocol converter. By this definition, a router is a layer 3 (network layer) gateway, and a mail gateway is a layer 7 (application layer) gateway.

GlossaryContents See Also: mail gateway, router, protocol converter

[Source: RFC 1392]

Gopher

A distributed information service that makes available hierarchical collections of information across the Internet. Gopher uses a simple protocol that allows a single Gopher client to access information from any accessible Gopher server, providing the user with a single "Gopher space" of information. Public domain versions of the client and server are available.

GlossaryContents See Also: archie, archive site, Prospero, Wide Area Information Servers

[Source: RFC 1392]

Government OSI Profile (GOSIP)

A subset of OSI standards specific to U.S. Government procurements, designed to maximize interoperability in areas where plain OSI standards are ambiguous or allow excessive options.

[Source: RFC 1392]

hacker

A person who delights in having an intimate understanding of the internal workings of a system, computers, and computer networks in particular. The term is often misused in a pejorative context, where "cracker" would be the correct term.

GlossaryContents See Also: cracker

[Source: RFC 1392]

header

The portion of a packet, preceding the actual data, containing source and destination addresses, and error checking and other fields. A header is also the part of an electronic mail message that precedes the body of a message and contains, among other things, the message originator, date, and time.

GlossaryContents See Also: Electronic Mail, packet

[Source: RFC 1392]

header compression

Cisco TCP/IP Suite SLIP supports Van Jacobson's header compression algorithm which reduces the bandwidth required for the TCP and IP headers. If both sides of a SLIP line support compression, turnaround improves significantly.

[Source: Cisco Systems]

heterogeneous network

A network running multiple network layer protocols.

Glossary Contents See Also: DECnet, Internet Protocol (IP) , IPX, XNS

[Source: RFC 1392]

hierarchical routing

The complex problem of routing on large networks can be simplified by reducing the size of the networks. This is accomplished by breaking a network into a hierarchy of networks, where each level is responsible for its own routing. The Internet has, basically, three levels: the backbones, the mid-levels, and the stub networks. The backbones know how to route between the mid-levels, the mid-levels know how to route between the sites, and each site (being an autonomous system) knows how to route internally.

GlossaryContents See Also: Autonomous System, Exterior Gateway Protocol, Interior Gateway Protocol, stub network, transit network

[Source: RFC 1392]

High Performance Computing and Communications (HPCC)

High performance computing encompasses advanced computing, communications, and information technologies, including scientific workstations, supercomputer systems, high-speed networks, special purpose and experimental systems, the new generation of large-scale parallel systems, and application and systems software with all components well integrated and linked over a high-speed network.

[Source: RFC 1392]

High Performance Parallel Interface (HIPPI)

An emerging ANSI standard which extends the computer bus over fairly short distances at speeds of 800 and 1600 Mb/s. HIPPI is often used in a computer room to connect a supercomputer to routers, frame buffers, mass-storage peripherals, and other computers.

GlossaryContents See Also: American National Standards Institute

[Source: RFC 1392]

hop

A term used in routing. A path to a destination on a network is a series of hops, through routers, away from the origin.

[Source: RFC 1392]

host

A computer that allows users to communicate with other host computers on a network. Individual users communicate by using application programs, such as electronic mail, Telnet, and FTP.

[Source: RFC 1392]

hostname

The name given to a machine.

Glossary Contents See Also: Fully Qualified Domain Name

[Source: RFC 1392]

hub

A device connected to several other devices. In ARCnet, a hub is used to connect several computers together. In a message-handling service, a hub is used for the transfer of messages across the network.

[Source: RFC 1392]

IEEE

The Institute of Electrical and Electronics Engineers.

[Source: RFC 1392]

Integrated Services Digital Network (ISDN)

An emerging technology which is beginning to be offered by the telephone carriers of the world. ISDN combines voice and digital network services in a single medium, making it possible to offer customers digital data services as well as voice connections through a single "wire." The standards that define ISDN are specified by CCITT.

GlossaryContents See Also: CCITT

[Source: RFC 1392]

Interagency Interim National Research and Education Network (IINREN)

An evolving operating network system. Near-term (1992-1996) research and development activities will provide for the smooth evolution of this networking infrastructure into the future gigabit NREN.

[Source: RFC 1392]

Interior Gateway Protocol (IGP)

A protocol which distributes routing information to the routers within an autonomous system. The term "gateway" is historical, as "router" is currently the preferred term.

GlossaryContents See Also: Autonomous System, Exterior Gateway Protocol, Open Shortest Path First Interior Gateway Protocol, Routing Information Protocol

[Source: RFC 1392]

Intermediate System (IS)

An OSI system which performs network-layer forwarding. It is analogous to an IP router.

Glossary Contents See Also: Open Systems Interconnection, router

[Source: RFC 1392]

Intermediate System-Intermediate System (IS-IS)

The OSI IGP.

Glossary Contents See Also: Open Systems Interconnection, Interior Gateway Protocol

[Source: RFC 1392]

International Organization for Standardization (ISO)

A voluntary, nontreaty organization founded in 1946 which is responsible for creating international standards in many areas, including computers and communications. Its members are the national standards organizations of the 89 member countries, including ANSI for the U.S.

GlossaryContents See Also: American National Standards Institute, Open Systems Interconnection

[Source: RFC 1392]

internet

While an internet is a network, the term "internet" is usually used to refer to a collection of networks interconnected with routers.

GlossaryContents See Also: network

[Source: RFC 1392]

Internet

(note the capital "I") The Internet is the largest internet in the world. Is a three-level hierarchy composed of backbone networks (for example, NSFNET, MILNET), mid-level networks, and stub networks. The Internet is a multiprotocol internet.

GlossaryContents See Also: backbone, mid-level network, stub network, transit network, Internet Protocol, Corporation for Research and Educational Networks, National Science Foundation

[Source: RFC 1392]

internet address

An IP address that uniquely identifies a node on an internet. An Internet address (capital "I"), uniquely identifies a node on the Internet.

GlossaryContents See Also: internet, Internet, IP address

[Source: RFC 1392]

Internet Architecture Board (IAB)

The technical body that oversees the development of the Internet suite of protocols. It has two task forces: the IETF and the IRTF. "IAB" previously stood for Internet Activities Board.

GlossaryContents See Also: Internet Engineering Task Force, Internet Research Task Force

[Source: RFC 1392]

Internet Assigned Numbers Authority (IANA)

The central registry for various Internet protocol parameters, such as port, protocol and enterprise numbers and options, codes, and types. The currently assigned values are listed in the "Assigned Numbers" document [STD2]. To request a number assignment, contact the IANA at "iana@isi.edu".

GlossaryContents See Also: assigned numbers, STD

[Source: RFC 1392]

Internet Control Message Protocol (ICMP)

ICMP is an extension to the Internet Protocol. It allows for the generation of error messages, test packets, and informational messages related to IP. It is defined in STD 5, RFC 792.

[Source: RFC 1392]

Internet-Draft (I-D)

Internet-Drafts are working documents of the IETF, its Areas, and its Working Groups. As the name implies, Internet-Drafts are draft documents. They are valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. Very often, I-Ds are precursors to RFCs.

GlossaryContents See Also: Internet Engineering Task Force, Request For Comments

[Source: RFC 1392]

Internet Engineering Steering Group (IESG)

The IESG is composed of the IETF Area Directors and the IETF Chair. It provides the first technical review of Internet standards and is responsible for day-to-day "management" of the IETF.

GlossaryContents See Also: Internet Engineering Task Force

[Source: RFC 1392]

Internet Engineering Task Force (IETF)

The IETF is a large, open community of network designers, operators, vendors, and researchers whose purpose is to coordinate the operation, management, and evolution of the Internet, and to resolve short-range and mid-range protocol and architectural issues. It is a major source of proposals for protocol standards which are submitted to the IAB for final approval. The IETF meets three times a year and extensive minutes are included in the IETF Proceedings.

GlossaryContents See Also: Internet, Internet Architecture Board

[Source: RFC 1392]

Internet Experiment Note (IEN)

A series of reports pertinent to the Internet. IENs were published in parallel to RFCs and are no longer active.

GlossaryContents See Also: Internet-Draft, Request For Comments

[Source: RFC 1392]

Internet Monthly Report (IMR)

Published monthly, the purpose of the Internet Monthly Reports is to communicate to the Internet Research Group the accomplishments, milestones reached, or problems discovered by the participating organizations.

[Source: RFC 1392]

Internet Protocol (IP)

The Internet Protocol, defined in STD 5, RFC 791, is the network layer for the TCP/IP Protocol Suite. It is a connectionless, best-effort, packet-switching protocol.

GlossaryContents See Also: packet switching, Request For Comments, TCP/IP Protocol Suite

[Source: RFC 1392]

Internet Registry (IR)

The IANA has the discretionary authority to delegate portions of its responsibility and, with respect to network address and Autonomous System identifiers, has lodged this responsibility with an IR. The IR function is performed by the DDN NIC.

GlossaryContents See Also: Autonomous System, network address, Defense Data Network Network Information Center, Internet Assigned Numbers Authority

[Source: RFC 1392]

Internet Relay Chat (IRC)

A world-wide "party line" protocol that allows one to converse with others in real time. IRC is structured as a network of servers, each of which accepts connections from client programs, one per user.

GlossaryContents See Also: talk

[Source: RFC 1392]

Internet Research Steering Group (IRSG)

The "governing body" of the IRTF.

Glossary Contents See Also: Internet Research Task Force

[Source: RFC 1392]

Internet Research Task Force (IRTF)

The IRTF is chartered by the IAB to consider long-term Internet issues from a theoretical point of view. It has Research Groups, similar to IETF Working Groups, which are each tasked to discuss different research topics. Multi-cast audio/video conferencing and privacy-enhanced mail are samples of IRTF output.

GlossaryContents See Also: Internet Architecture Board, Internet Engineering Task Force, Privacy Enhanced Mail

[Source: RFC 1392]

Internet Society (ISOC)

The Internet Society is a non-profit, professional membership organization which facilitates and supports the technical evolution of the Internet, stimulates interest in, and educates the scientific and academic communities, industry, and the public about the technology, uses, and applications of the Internet, and promotes the development of new applications for the system. The Society provides a forum for discussion and collaboration in the operation and use of the global Internet infrastructure. The Internet Society publishes a quarterly newsletter, the Internet Society News, and holds an annual conference, INET. The development of Internet technical standards takes place under the auspices of the Internet Society with substantial support from the Corporation for National Research Initiatives under a cooperative agreement with the US Federal Government.

[Source: RFC 1392]

Internetwork Packet Exchange (IPX)

Novell's protocol used by Netware. A router with IPX routing can interconnect LANs so that Novell Netware clients and servers can communicate.

GlossaryContents See Also: Local Area Network

[Source: RFC 1392]

interoperability

The ability of software and hardware on multiple machines from multiple vendors to communicate meaningfully.

[Source: RFC 1392]

IP address

An IP address identifies a host or interface on an IP network. IP addresses are generally written in dotted decimal form, in hexadecimal, or in octal. An IP address consists of a network number and a host number. The portions of the address that identify the network and host are determined by the class of network:

- Class A
- Class B
- Class C

The network class is determined by the estimated size of the network. An example IP address is `191.87.34.22`, which is a class B address with `191.87` as the network number and `34.22` as the host number.

IP addresses are defined by the Internet protocol in STD 5, RFC 791.

See Also: dot address, internet address, Internet Protocol, network address, subnet address

[Source: Cisco Systems]

Class A

A class A network is identified by a number from 1 to 127 in the first byte, such as `26.1.1.1`. In a class A network, the first byte identifies the network, while the three remaining bytes identify the host. For example, IP address `26.1.1.1` identifies host `1.1.1` on network `26`. A class A network can have over 16 million hosts (16,777,216 to be exact).

Class B

A class B network is identified by a number from 128 to 191 in the first byte, such as `191.87.34.22`. In a class B network, the first and second bytes identify the network, while the remaining bytes identify the host. For example, IP address `191.87.34.22` identifies host `34.22` on network `191.87`. A class B network can have over 65 thousand hosts (65,536 to be exact).

Class C

A class C network is identified by a number from 192 to 223 in the first byte, such as `197.1.1.2`. In a class C network, the first three bytes identify the network, while the remaining byte identifies the host. For example, IP address `197.1.1.2` identifies host `2` on network `197.1.1`. A class C network can have 256 hosts.

ISO Development Environment (ISODE)

Software that allows OSI services to use a TCP/IP network.

Glossary Contents See Also: Open Systems Interconnection, TCP/IP Protocol Suite

[Source: RFC 1392]

KA9Q

A popular implementation of TCP/IP and associated protocols for amateur packet radio systems.

GlossaryContents See Also: TCP/IP Protocol Suite

[Source: RFC 1392]

Kerberos

Kerberos is the security system of MIT's Project Athena. It is based on symmetric key cryptography.

GlossaryContents See Also: encryption

[Source: RFC 1392]

Kermit

A popular file transfer protocol developed by Columbia University. Because Kermit runs in most operating environments, it provides an easy method of file transfer. Kermit is NOT the same as FTP.

GlossaryContents See Also: File Transfer Protocol

[Source: RFC 1392]

Knowbot

An experimental directory service.

Glossary Contents See Also: white pages, WHOIS, X.500

[Source: RFC 1392]

layer

Communication networks for computers may be organized as a set of more or less independent protocols, each in a different layer (also called level). The lowest layer governs direct host-to-host communication between the hardware at different hosts; the highest consists of user applications. Each layer builds on the layer beneath it. For each layer, programs at different hosts use protocols appropriate to the layer to communicate with each other. TCP/IP has five layers of protocols; OSI has seven. The advantages of different layers of protocols is that the methods of passing information from one layer to another are specified clearly as part of the protocol suite, and changes within a protocol layer are prevented from affecting the other layers. This greatly simplifies the task of designing and maintaining communication programs.

GlossaryContents See Also: Open Systems Interconnection, TCP/IP Protocol Suite

[Source: RFC 1392]

listserv

An automated mailing list distribution system originally designed for the Bitnet/EARN network.

GlossaryContents See Also: Bitnet, European Academic Research Network, mailing list

[Source: RFC 1392]

little-endian

A format for storage or transmission of binary data in which the least significant byte (bit) comes first.

GlossaryContents See Also: big-endian

[Source: RFC 1392]

Local Area Network (LAN)

A data network intended to serve an area of only a few square kilometers or less. Because the network is known to cover only a small area, optimizations can be made in the network signal protocols that permit data rates up to 100Mb/s.

GlossaryContents See Also: Ethernet, Fiber Distributed Data Interface, token ring, Wide Area Network

[Source: RFC 1392]

Logical Link Control (LLC)

The upper portion of the datalink layer, as defined in IEEE 802.2. The LLC sublayer presents a uniform interface to the user of the datalink service, usually the network layer. Beneath the LLC sublayer is the MAC sublayer.

GlossaryContents See Also: 802.x, layer, Media Access Control

[Source: RFC 1392]

MAC address

The hardware address of a device connected to a shared media.

Glossary Contents See Also: Media Access Control, Ethernet, token ring

[Source: RFC 1392]

mail bridge

A mail gateway that forwards electronic mail between two or more networks while ensuring that the messages it forwards meet certain administrative criteria. A mail bridge is simply a specialized form of mail gateway that enforces an administrative policy with regard to what mail it forwards.

GlossaryContents See Also: Electronic Mail, mail gateway

[Source: RFC 1392]

Mail Exchange Record (MX Record)

A DNS resource record type indicating which host can handle mail for a particular domain.

Glossary Contents See Also: Domain Name System, Electronic Mail

[Source: RFC 1392]

mail exploder

Part of an electronic mail delivery system which allows a message to be delivered to a list of addresses. Mail exploders are used to implement mailing lists. Users send messages to a single address and the mail exploder takes care of delivery to the individual mailboxes in the list.

See Also: Electronic Mail, email address, mailing list

[Source: RFC 1392]

mail gateway

A machine that connects two or more electronic mail systems (including dissimilar mail systems) and transfers messages between them. Sometimes the mapping and translation can be quite complex, and it generally requires a store-and-forward scheme whereby the message is received from one system completely before it is transmitted to the next system, after suitable translations.

GlossaryContents See Also: Electronic Mail

[Source: RFC 1392]

mail path

A series of machine names used to direct electronic mail from one user to another. This system of email addressing has been used primarily in UUCP networks which are trying to eliminate its use altogether.

GlossaryContents See Also: bang path, email address, UNIX-to-UNIX copy

[Source: RFC 1392]

mail server

A software program that distributes files or information in response to requests sent via email. Internet examples include Almanac and netlib. Mail servers have also been used in Bitnet to provide FTP-like services.

GlossaryContents See Also: Bitnet, Electronic Mail, FTP

[Source: RFC 1392]

mailing list

A list of email addresses, used by a mail exploder, to forward messages to groups of people. Generally, a mailing list is used to discuss certain set of topics, and different mailing lists discuss different topics. A mailing list may be moderated. This means that messages sent to the list are actually sent to a moderator who determines whether or not to send the messages on to everyone else. Requests to subscribe to, or leave, a mailing list should ALWAYS be sent to the list's "-request" address (such as ietf-request@cnri.reston.va.us for the IETF mailing list).

GlossaryContents See Also: Electronic Mail, mail exploder

[Source: RFC 1392]

Management Information Base (MIB)

The set of parameters an SNMP management station can query or set in the SNMP agent of a network device (such as a router). Standard, minimal MIBs have been defined, and vendors often have Private enterprise MIBs. In theory, any SNMP manager can talk to any SNMP agent with a properly defined MIB.

GlossaryContents See Also: client-server model, Simple Network Management Protocol

[Source: RFC 1392]

Maximum Transmission Unit (MTU)

The largest frame length which may be sent on a physical medium.

Glossary Contents See Also: fragmentation, frame

[Source: RFC 1392]

Media Access Control (MAC)

The lower portion of the datalink layer. The MAC differs for various physical media.

Glossary Contents See Also: MAC Address, Ethernet, Logical Link Control, token ring

[Source: RFC 1392]

Metropolitan Area Network (MAN)

A data network intended to serve an area approximating that of a large city. Such networks are being implemented by innovative techniques, such as running fiber cables through subway tunnels. A popular example of a MAN is SMDS.

GlossaryContents See Also: Local Area Network, Switched Multimegabit Data Service, Wide Area Network

[Source: RFC 1392]

mid-level network

Mid-level networks (or regionals) make up the second level of the Internet hierarchy. They are the transit networks which connect the stub networks to the backbone networks.

GlossaryContents See Also: backbone, Internet, stub network, transit network

[Source: RFC 1392]

moderator

A person, or small group of people, who manage moderated mailing lists and newsgroups. Moderators are responsible for determining which email submissions are passed on to the list of subscribers.

GlossaryContents See Also: Electronic Mail, mailing list, Usenet

[Source: RFC 1392]

MTU path discovery

MTU path discovery determines the maximum TCP packet that can be sent through the network. By determining the largest, most efficient packet size possible with the hardware at each hop, performance is increased. This feature is described in RFC-1191.

[Source: Cisco Systems]

multicast

A packet with a special destination address which multiple nodes on the network may be willing to receive.

GlossaryContents See Also: broadcast

[Source: RFC 1392]

multihomed host

A host which has more than one connection to a network. The host may send and receive data over any of the links but will not route traffic for other nodes.

GlossaryContents See Also: host, router

[Source: RFC 1392]

Multipurpose Internet Mail Extensions (MIME)

An extension to Internet email which provides the ability to transfer non-textual data, such as graphics, audio, and fax. It is defined in RFC 1341.

GlossaryContents See Also: Electronic Mail

[Source: RFC 1392]

name resolution

The process of mapping a name into its corresponding address.

Glossary Contents See Also: Domain Name System

[Source: RFC 1392]

namespace

A commonly distributed set of names in which all names are unique.

[Source: RFC 1392]

National Institute of Standards and Technology (NIST)

United States governmental body that provides assistance in developing standards. Formerly the National Bureau of Standards.

[Source: RFC 1392]

National Research and Education Network (NREN)

The NREN is the realization of an interconnected gigabit computer network devoted to High Performance Computing and Communications.

GlossaryContents See Also: HPPC, IINREN

[Source: RFC 1392]

National Science Foundation (NSF)

A U.S. government agency whose purpose is to promote the advancement of science. NSF funds science researchers, scientific projects, and infrastructure to improve the quality of scientific research. The NSFNET, funded by NSF, is an essential part of academic and research communications. It is a high speed "network of networks" which is hierarchical in nature. At the highest level, it is a backbone network currently comprising 16 nodes connected to a 45Mb/s facility which spans the continental United States. Attached to that are mid-level networks and attached to the mid-levels are campus and local networks. NSFNET also has connections out of the U.S. to Canada, Mexico, Europe, and the Pacific Rim. The NSFNET is part of the Internet.

[Source: RFC 1392]

Negative Acknowledgment (NAK)

Response to receipt of a corrupted packet of information.

Glossary Contents See Also: Acknowledgment

[Source: RFC 1392]

network

A computer network is a data communications system which interconnects computer systems at various different sites. A network may be composed of any combination of LANs, MANs or WANs.

GlossaryContents See Also: Local Area Network, Metropolitan Area Network, Wide Area Network, internet

[Source: RFC 1392]

network address

The network portion of an IP address. For a class A network, the network address is the first byte of the IP address. For a class B network, the network address is the first two bytes of the IP address. For a class C network, the network address is the first three bytes of the IP address. In each case, the remainder is the host address. In the Internet, assigned network addresses are globally unique.

GlossaryContents See Also: Internet, IP address, subnet address, Internet Registry

[Source: RFC 1392]

Network File System (NFS)

A protocol developed by Sun Microsystems, and defined in RFC 1094, which allows a computer system to access files over a network as if they were on its local disks. This protocol has been incorporated in products by more than two hundred companies, and is now a de facto Internet standard.

[Source: RFC 1392]

Network Information Center (NIC)

A NIC provides information, assistance, and services to network users.

Glossary Contents See Also: Network Operations Center

[Source: RFC 1392]

Network Information Services (NIS)

A set of services, generally provided by a NIC, to assist users in using the network.

Glossary Contents See Also: Network Information Center

[Source: RFC 1392]

Network News Transfer Protocol (NNTP)

A protocol, defined in RFC 977, for the distribution, inquiry, retrieval, and posting of news articles.

GlossaryContents See Also: Usenet

[Source: RFC 1392]

Network Operations Center (NOC)

A location from which the operation of a network or internet is monitored. Additionally, this center usually serves as a clearinghouse for connectivity problems and efforts to resolve those problems.

GlossaryContents See Also: Network Information Center

[Source: RFC 1392]

Network Time Protocol (NTP)

A protocol that assures accurate local time keeping with reference to radio and atomic clocks located on the Internet. This protocol is capable of synchronizing distributed clocks within milliseconds over long time periods. It is defined in STD 12, RFC 1119.

GlossaryContents See Also: Internet

[Source: RFC 1392]

NIC.DDN.MIL

This is the domain name of the DDN NIC.

Glossary Contents See Also: Defense Data Network Network Information Center, Domain Name System, Network Information Center.

[Source: RFC 1392]

Nodal Switching System (NSS)

Main routing nodes in the NSFnet backbone.

Glossary Contents See Also: backbone, National Science Foundation

[Source: RFC 1392]

node

An addressable device attached to a computer network.

Glossary Contents See Also: host, router

[Source: RFC 1392]

octet

An octet is 8 bits. This term is used in networking, rather than byte, because some systems have bytes that are not 8 bits long.

[Source: RFC 1392]

Online Computer Library Catalog

OCLC is a nonprofit membership organization offering computer-based services to libraries, educational organizations, and their users. The OCLC library information network connects more than 10,000 libraries worldwide. Libraries use the OCLC System for cataloging, interlibrary loan, collection development, bibliographic verification, and reference searching.

[Source: RFC 1392]

Open Shortest Path First Interior Gateway Protocol (OSPF)

A link state, as opposed to distance vector, routing protocol. It is an Internet standard IGP defined in RFC 1247.

GlossaryContents See Also: Interior Gateway Protocol, Routing Information Protocol

[Source: RFC 1392]

Open Systems Interconnection (OSI)

A suite of protocols, designed by ISO committees, to be the international standard computer network architecture.

GlossaryContents See Also: International Organization for Standardization

[Source: RFC 1392]

OSI Reference Model

A seven-layer structure designed to describe computer network architectures and the way that data passes through them. This model was developed by the ISO in 1978 to clearly define the interfaces in multivendor networks, and to provide users of those networks with conceptual guidelines in the construction of such networks.

GlossaryContents See Also: International Organization for Standardization

[Source: RFC 1392]

packet

The unit of data sent across a network. "Packet" a generic term used to describe unit of data at all levels of the protocol stack, but it is most correctly used to describe application data units.

GlossaryContents See Also: datagram, frame

[Source: RFC 1392]

Packet Internet Groper (Ping)

A program used to test reachability of destinations by sending them an ICMP echo request and waiting for a reply. If a host cannot be reached, a message appears indicating so.

Short elapsed times indicate that the destination is relatively few hops away. Longer elapsed times can indicate a variety of conditions including: the network is congested, the destination is many hops away, or that the destination can only be reached by a satellite link or by transoceanic link.

GlossaryContents See Also: Internet Control Message Protocol (ICMP)

[Source: RFC 1392 and Cisco Systems]

Packet Switch Node (PSN)

A dedicated computer whose purpose is to accept, route, and forward packets in a packet switched network.

GlossaryContents See Also: packet switching, router

[Source: RFC 1392]

packet switching

A communications paradigm in which packets (messages) are individually routed between hosts, with no previously established communication path.

GlossaryContents See Also: circuit switching, connection-oriented, connectionless

[Source: RFC 1392]

PD

Public Domain.

[Source: RFC 1392]

physical network address

The physical network address for Ethernet and Token-Ring network interface cards consists of six two-digit hexadecimal numbers separated by colons, as in the following example, `00:00:A6:00:01:BA`

For Ethernet boards, the hardware address is assigned to the Ethernet controller card. A Token-Ring hardware address is assigned by your network administrator.

GlossaryContents See Also: Ethernet, token ring

[Source: Cisco Systems]

Point Of Presence (POP)

A site where there exists a collection of telecommunications equipment, usually digital leased lines and multi-protocol routers.

[Source: RFC 1392]

Point-to-Point Protocol (PPP)

The Point-to-Point Protocol, defined in RFC 1171, provides a method for transmitting packets over serial point-to-point links.

GlossaryContents See Also: Serial Line IP

[Source: RFC 1392]

port

A port is a transport layer demultiplexing value. Each application has a unique port number associated with it.

GlossaryContents See Also: Transmission Control Protocol, User Datagram Protocol

[Source: RFC 1392]

Post Office Protocol (POP)

A protocol designed to allow single user hosts to read mail from a server. There are three versions: POP, POP2, and POP3. Later versions are not compatible with earlier versions.

GlossaryContents See Also: Electronic Mail

[Source: RFC 1392]

Postal Telegraph and Telephone (PTT)

Outside the USA, PTT refers to a telephone service provider, which is usually a monopoly, in a particular country.

[Source: RFC 1392]

postmaster

The person responsible for taking care of electronic mail problems, answering queries about users, and other related work at a site.

GlossaryContents See Also: Electronic Mail

[Source: RFC 1392]

Privacy Enhanced Mail (PEM)

Internet email which provides confidentiality, authentication, and message integrity using various encryption methods.

GlossaryContents See Also: Electronic Mail, encryption

[Source: RFC 1392]

Prospero

A distributed filesystem which provides the user with the ability to create multiple views of a single collection of files distributed across the Internet. Prospero provides a file naming system, and file access is provided by existing access methods (such as anonymous FTP and NFS). The Prospero protocol is also used for communication between clients and servers in the archie system.

GlossaryContents See Also: anonymous FTP, archie, archive site, Gopher, Network File System, Wide Area Information Servers

[Source: RFC 1392]

protocol

A formal description of message formats and the rules two computers must follow to exchange those messages. Protocols can describe low-level details of machine-to-machine interfaces (such as the order in which bits and bytes are sent across a wire) or high-level exchanges between allocation programs (such as the way in which two programs transfer a file across the Internet).

[Source: RFC 1392]

protocol converter

A device/program which translates between different protocols which serve similar functions (such as TCP and TP4).

[Source: RFC 1392]

Protocol Data Unit (PDU)

A packet.

Glossary Contents See Also: packet

[Source: RFC 1392]

protocol stack

A layered set of protocols which work together to provide a set of network functions.

Glossary Contents See Also: layer, protocol

[Source: RFC 1392]

proxy ARP

A proxy ARP translation lets one machine, usually a router, answer ARP requests intended for another machine. The router then accepts responsibility for routing packets to the intended host.

Proxy translations require manual entry of IP address information and manual entry of hardware address information if another interface (not the active interface on the machine) will handle the proxy translation and services.

GlossaryContents See Also: Address Resolution Protocol, publish translations

[Source: Cisco Systems]

publish translations

Publish ARP translations advertise the IP address and hardware address of a machine that resides on a physical network that does not use ARP. The network that does not use ARP must be connected to the same network as the host supplying the publish service.

The publish translation is manually entered; proper discovery of the IP and physical addresses are the responsibility of the user.

Glossary Contents See Also: Address Resolution Protocol, proxy ARP

[Source: Cisco Systems]

queue

A backup of packets awaiting processing.

[Source: RFC 1392]

reassembly

The IP process in which a previously fragmented packet is reassembled before being passed to the transport layer.

GlossaryContents See Also: fragmentation

[Source: RFC 1392]

remote login

Operating on a remote computer, using a protocol over a computer network, as though locally attached.

GlossaryContents See Also: Telnet

[Source: RFC 1392]

Remote Procedure Call (RPC)

An easy and popular paradigm for implementing the client-server model of distributed computing. In general, a request is sent to a remote system to execute a designated procedure, using arguments supplied, and the result returned to the caller. There are many variations and subtleties in various implementations, resulting in a variety of different (incompatible) RPC protocols.

[Source: RFC 1392]

repeater

A device which propagates electrical signals from one cable to another.

Glossary Contents See Also: bridge, gateway, router

[Source: RFC 1392]

Request For Comments (RFC)

The document series, begun in 1969, which describes the Internet suite of protocols and related experiments. Not all (in fact very few) RFCs describe Internet standards, but all Internet standards are written up as RFCs. The RFC series of documents is unusual in that the proposed protocols are forwarded by the Internet research and development community, acting on their own behalf, as opposed to the formally reviewed and standardized protocols that are promoted by organizations such as CCITT and ANSI.

GlossaryContents See Also: For Your Information, STD

[Source: RFC 1392]

Reseaux Associes pour la Recherche Europeenne (RARE)

European association of research networks.

[Source: RFC 1392]

Reseaux IP Europeenne (RIPE)

A collaboration between European networks which use the TCP/IP protocol suite.

[Source: RFC 1392]

Reverse Address Resolution Protocol (RARP)

A protocol, defined in RFC 903, which provides the reverse function of ARP. RARP maps a hardware (MAC) address to an internet address. It is used primarily by diskless nodes when they first initialize to find their internet address.

GlossaryContents See Also: Address Resolution Protocol, BOOTP, internet address, MAC address

[Source: RFC 1392]

RFC 822

The Internet standard format for electronic mail message headers. Mail experts often refer to "822 messages." The name comes from "RFC 822", which contains the specification (STD 11, RFC 822). 822 format was previously known as 733 format.

GlossaryContents See Also: Electronic Mail

[Source: RFC 1392]

Round-Trip Time (RTT)

A measure of the current delay on a network.

[Source: RFC 1392]

route

The path that network traffic takes from its source to its destination. Also, a possible path from a given host to another host or destination.

[Source: RFC 1392]

routed

Route Daemon. A program which runs under 4.2BSD/4.3BSD UNIX systems (and derived operating systems) to propagate routes among machines on a local area network, using the RIP protocol. Pronounced "route-dee".

GlossaryContents See Also: Routing Information Protocol, gated

[Source: RFC 1392]

router

A device which forwards traffic between networks. The forwarding decision is based on network layer information and routing tables, often constructed by routing protocols.

GlossaryContents See Also: bridge, gateway, Exterior Gateway Protocol, Interior Gateway Protocol

[Source: RFC 1392]

routing

Routing is the process of selecting the route that data, in the form of packets, must take to reach its destination. Routers forward packets to other routers or networks. When the packet is received on the destination network for a host, it is forwarded directly to the host. Routing can be as simple as delivering packets to another host on the same network (direct routing) or it may involve forwarding packets to routers on its way to the destination network.

GlossaryContents See Also: hop, router, Exterior Gateway Protocol, Interior Gateway Protocol, routing tables

[Source: Cisco Systems]

routing domain

A set of routers exchanging routing information within an administrative domain.

Glossary Contents See Also: Administrative Domain, router

[Source: RFC 1392]

Routing Information Protocol (RIP)

A distance vector, as opposed to link state, routing protocol. It is an Internet standard IGP defined in STD 34, RFC 1058 (updated by RFC 1388).

GlossaryContents See Also: Interior Gateway Protocol, Open Shortest Path First Interior Gateway Protocol

[Source: RFC 1392]

routing tables

Routing tables store information about the routes that hosts can use to reach other hosts on the network or Internet. Routing tables can be static or dynamic.

GlossaryContents See Also: dynamic routing tables, routing, static routing tables

[Source: Cisco Systems]

Serial Line IP (SLIP)

A protocol used to run IP over serial lines, such as telephone circuits or RS-232 cables, interconnecting two systems. SLIP is defined in RFC 1055.

GlossaryContents See Also: Point-to-Point Protocol

[Source: RFC 1392]

server

A provider of resources (such as file servers and name servers).

Glossary Contents See Also: client, Domain Name System, Network File System

[Source: RFC 1392]

SIG

Special Interest Group.

[Source: RFC 1392]

signature

The three or four line message at the bottom of a piece of email or a Usenet article which identifies the sender.

GlossaryContents See Also: Electronic Mail, Usenet

[Source: RFC 1392]

Simple Mail Transfer Protocol (SMTP)

A protocol, defined in STD 10, RFC 821, used to transfer electronic mail between computers. It is a server to server protocol, so other protocols are used to access the messages.

GlossaryContents See Also: Electronic Mail, Post Office Protocol, RFC 822

[Source: RFC 1392]

Simple Network Management Protocol (SNMP)

The Internet standard protocol, defined in STD 15, RFC 1157, developed to manage nodes on an IP network.

GlossaryContents See Also: Management Information Base

[Source: RFC 1392]

static routing tables

Static routing tables are established by manually entering information into a configuration file and loading the file from disk or across the network. Once a static routing table is established, the network administrator must update the table as changes occur.

[Source: Cisco Systems]

STD

A subseries of RFCs that specify Internet standards. The official list of Internet standards is in STD 1.

GlossaryContents See Also: For Your Information, Request For Comments

[Source: RFC 1392]

stream-oriented

A type of transport service that allows its client to send data in a continuous stream. The transport service guarantees that all data is delivered to the other end in the same order as sent and without duplicates.

GlossaryContents See Also: Transmission Control Protocol

[Source: RFC 1392]

Structure of Management Information (SMI)

The rules used to define the objects that can be accessed via a network management protocol. This protocol is defined in STD 16, RFC 1155.

GlossaryContents See Also: Management Information Base

[Source: RFC 1392]

stub network

A stub network only carries packets to and from local hosts. Even if it has paths to more than one other network, it does not carry traffic for other networks.

GlossaryContents See Also: backbone, transit network

[Source: RFC 1392]

subnet

A portion of a network, which may be a physically independent network segment, which shares a network address with other portions of the network and is distinguished by a subnet number. A subnet is to a network what a network is to an internet.

GlossaryContents See Also: internet, network

[Source: RFC 1392]

subnet address

The subnet portion of an IP address. In a subnetted network, the host portion of an IP address is split into a subnet portion and a host portion using an address (subnet) mask.

GlossaryContents See Also: address mask, IP address, network address

[Source: RFC 1392]

subnet mask

The subnet mask is a value used by the IP stack on your system to determine which hosts are on your local network and which hosts must be reached through a router.

Subnet masks let you create networks consisting of multiple network segments while maintaining a single network address for the entire site. Subnet masks state explicitly which bits in an address for a host correspond to the network address. Without this information, hosts cannot reach hosts on other subnets.

Subnet masks specify the bits in the IP address for your host that comprise the network address, and override the network address implied by address classes. For example, class B networks have 16-bit network addresses, but to accommodate eight network segments, each of which must have a unique network address, they require three more address bits. The subnet mask tells the host to use three of the 16 host address bits, and reduce the number of hosts on each subnet from 2 to the 16th power to 2 to the 13th power.

For example, the subnet mask 255.255.255.0 indicates that all bits in the first three octets define the network address. If you have a class B address, in which the first two octets define the network address, the third octet specifies one of 256 possible network segments. You do not have to use an entire octet for the subnet number; a subnet mask of 255.255.224.0 indicates that only the highest three bits of the third octet specify a subnet, of which there can be eight.

[Source: Cisco Systems]

Switched Multimegabit Data Service (SMDS)

An emerging high-speed, datagram-based, public data network service developed by Bellcore and expected to be widely used by telephone companies as the basis for their data networks.

GlossaryContents See Also: Metropolitan Area Network

[Source: RFC 1392]

Systems Network Architecture (SNA)

A proprietary networking architecture used by IBM and IBM-compatible mainframe computers.

[Source: RFC 1392]

T1

An AT&T term for a digital carrier facility used to transmit a DS-1 formatted digital signal at 1.544 megabits per second.

[Source: RFC 1392]

T3

A term for a digital carrier facility used to transmit a DS-3 formatted digital signal at 44.746 megabits per second.

[Source: RFC 1392]

tab

A tab is a set of controls that affect Cisco TCP/IP Suite application feature sets. Click a tab legend to move between tabs.

[Source: Cisco Systems]

talk

A protocol which allows two people on remote computers to communicate in a real-time fashion.

GlossaryContents See Also: Internet Relay Chat

[Source: RFC 1392]

TCP/IP Protocol Suite

Transmission Control Protocol over Internet Protocol. This is a common shorthand which refers to the suite of transport and application protocols which runs over IP.

GlossaryContents See Also: Internet Protocol (IP), ICMP, TCP, UDP, FTP, Telnet, SMTP, SNMP

[Source: RFC 1392]

TELENET

A public packet switched network using the CCITT X.25 protocols. It should not be confused with Telnet.

[Source: RFC 1392]

Telnet

Telnet is the Internet standard protocol for remote terminal connection service. It is defined in STD 8, RFC 854 and extended with options by many other RFCs.

[Source: RFC 1392]

Terminal Access Controller (TAC)

A device which connects terminals to the Internet, usually using dialup modem connections and the TACACS protocol.

[Source: RFC 1392]

terminal emulator

A program that allows a computer to emulate a terminal. The workstation thus appears as a terminal to the remote host.

[Source: RFC 1392]

terminal server

A device which connects many terminals to a LAN through one network connection. A terminal server can also connect many network users to its asynchronous ports for dial-out capabilities and printer access.

GlossaryContents See Also: Local Area Network

[Source: RFC 1392]

Time to Live (TTL)

A field in the IP header which indicates how long this packet should be allowed to survive before being discarded. It is primarily used as a hop count.

GlossaryContents See Also: Internet Protocol

[Source: RFC 1392]

TN3270

A variant of the Telnet program that allows you to attach to IBM mainframes and use the mainframe as if you had a 3270 or similar terminal.

[Source: RFC 1392]

token ring

A token ring is a type of LAN with nodes wired into a ring. Each node constantly passes a control message (token) on to the next; whichever node has the token can send a message. Often, "Token Ring" is used to refer to the IEEE 802.5 token ring standard, which is the most common type of token ring.

GlossaryContents See Also: 802.x, Local Area Network

[Source: RFC 1392]

topology

A network topology shows the computers and the links between them. A network layer must stay abreast of the current network topology to be able to route packets to their final destination.

[Source: RFC 1392]

transceiver

Transmitter-receiver. The physical device that connects a host interface to a local area network, such as Ethernet. Ethernet transceivers contain electronics that apply signals to the cable and sense collisions.

[Source: RFC 1392]

transit network

A transit network passes traffic between networks in addition to carrying traffic for its own hosts. It must have paths to at least two other networks.

GlossaryContents See Also: backbone, stub network

[Source: RFC 1392]

Transmission Control Protocol (TCP)

An Internet Standard transport layer protocol defined in STD 7, RFC 793. It is connection-oriented and stream-oriented, as opposed to UDP.

GlossaryContents See Also: connection-oriented, stream-oriented, User Datagram Protocol

[Source: RFC 1392]

Trojan Horse

A computer program which carries within itself a means to allow the creator of the program access to the system using it.

GlossaryContents See Also: virus, worm

[Source: RFC 1392]

tunnelling

Tunnelling refers to encapsulation of protocol A within protocol B, such that A treats B as though it were a datalink layer. Tunnelling is used to get data between administrative domains which use a protocol that is not supported by the internet connecting those domains.

GlossaryContents See Also: Administrative Domain

[Source: RFC 1392]

twisted pair

A type of cable in which pairs of conductors are twisted together to produce certain electrical properties.

[Source: RFC 1392]

Universal Time Coordinated (UTC)

Greenwich Mean Time.

[Source: RFC 1392]

UNIX-to-UNIX copy (UUCP)

This was initially a program run under the UNIX operating system that allowed one UNIX system to send files to another UNIX system via dial-up phone lines. Today, the term is more commonly used to describe the large international network which uses the UUCP protocol to pass news and electronic mail.

GlossaryContents See Also: Electronic Mail, Usenet

[Source: RFC 1392]

Usenet

A collection of thousands of topically named newsgroups, the computers which run the protocols, and the people who read and submit Usenet news. Not all Internet hosts subscribe to Usenet and not all Usenet hosts are on the Internet.

GlossaryContents See Also: Network News Transfer Protocol, UNIX-to-UNIX copy

[Source: RFC 1392]

User Datagram Protocol (UDP)

An Internet Standard transport layer protocol defined in STD 6, RFC 768. It is a connectionless protocol which adds a level of reliability and multiplexing to IP.

GlossaryContents See Also: connectionless, Transmission Control Protocol

[Source: RFC 1392]

virtual circuit

A network service which provides connection-oriented service regardless of the underlying network structure.

GlossaryContents See Also: connection-oriented

[Source: RFC 1392]

virus

A program which replicates itself on computer systems by incorporating itself into other programs which are shared among computer systems.

GlossaryContents See Also: Trojan Horse, worm

[Source: RFC 1392]

VxD

A VxD, or Virtual Device Driver, is a 32-bit multiplexing device driver that manages data exchanges between Windows applications and system services. In the context of TCP/IP networking, a TCP/IP stack in a VxD accepts requests for network services from applications, properly formats those requests according to the TCP/IP protocol specifications, sends them to the network hardware device drivers and subsequently handles any response or responses, returning the requested data to the application that made the request. VxD is the most efficient and least expensive utilization of the CPU, as TCP/IP-related activity occurs at Ring O without going to Ring 3 (DLL) or DOS Virtual Machine (TSR), ensuring the best performance.

[Source: Cisco Systems]

WG

Working Group.

[Source: RFC 1392]

white pages

The Internet supports several databases that contain basic information about users, such as email addresses, telephone numbers, and postal addresses. These databases can be searched to get information about particular individuals. Because they serve a function akin to the telephone book, these databases are often referred to as "white pages."

GlossaryContents See Also: Knowbot, WHOIS, X.500

[Source: RFC 1392]

WHOIS

An Internet program which allows users to query a database of people and other Internet entities, such as domains, networks, and hosts, kept at the DDN NIC. The information for people shows a person's company name, address, phone number and email address.

GlossaryContents See Also: Defense Data Network Network Information Center, white pages, Knowbot, X.500

[Source: RFC 1392]

Wide Area Information Servers (WAIS)

A distributed information service which offers simple natural language input, indexed searching for fast retrieval, and a "relevance feedback" mechanism which allows the results of initial searches to influence future searches. Public domain implementations are available.

GlossaryContents See Also: archie, Gopher, Prospero

[Source: RFC 1392]

Wide Area Network (WAN)

A network, usually constructed with serial lines, which covers a large geographic area.

Glossary Contents See Also: Local Area Network, Metropolitan Area Network

[Source: RFC 1392]

World Wide Web (WWW or W3)

A hypertext-based, distributed information system created by researchers at CERN in Switzerland. Users may create, edit, or browse hypertext documents. The clients and servers are freely available.

[Source: RFC 1392]

worm

A computer program which replicates itself and is self-propagating. Worms, as opposed to viruses, are meant to spawn in network environments. Network worms were first defined by Shoch & Hupp of Xerox in ACM Communications (March 1982). The Internet worm of November 1988 is perhaps the most famous; it successfully propagated itself on over 6,000 systems across the Internet.

GlossaryContents See Also: Trojan Horse, virus

[Source: RFC 1392]

WYSIWYG

Acronym for What You See is What You Get.

[Source: RFC 1392]

X

X is the name for TCP/IP-based network-oriented window systems. Network window systems allow a program to use a display on a different computer. The most widely-implemented window system is X11 -a component of MIT's Project Athena.

[Source: RFC 1392]

X.25

A data communications interface specification developed to describe how data passes into and out of public data communications networks. The CCITT- and ISO-approved protocol suite defines protocol layers 1 through 3.

[Source: RFC 1392]

X.400

The CCITT and ISO standard for electronic mail. It is widely used in Europe and Canada.
[Source: RFC 1392]

X.500

The CCITT and ISO standard for electronic directory services.

Glossary Contents See Also: white pages, Knowbot, WHOIS

[Source: RFC 1392]

Xerox Network System (XNS)

A network developed by Xerox corporation. Implementations exist for both 4.3BSD derived systems, as well as the Xerox Star computers.

[Source: RFC 1392]

Yellow Pages (YP)

A service used by UNIX administrators to manage databases distributed across a network.

[Source: RFC 1392]

zone

A logical group of network devices (AppleTalk).

[Source: RFC 1392]

10BaseT

A variant of Ethernet which allows stations to be attached via twisted pair cable.

Glossary Contents See Also: Ethernet, twisted pair

[Source: RFC 1392]

802.x

The set of IEEE standards for the definition of LAN protocols.

Glossary Contents See Also: IEEE

[Source: RFC 1392]

How to Get Internet RFCs

To obtain RFCs, use one of the following methods:

RFCs online:

The InterNIC Directory and Database Services server, **ds.internic.net**, stores all RFCs and copies can be obtained by anonymous FTP. RFCs are available in ASCII text format (RFC*nnnn*.TXT) or PostScript format (RFC*nnn*.PS), where *nnnn* is the number of the RFC without leading zeroes.

Hard copies:

InterNIC Information Services provides printed copies of all RFCs. Call **1-800-444-4345** or send email to **info@is.internic.net** for more information on obtaining printed RFCs.

Automated electronic mail:

The InterNIC Directory and Database Services automated mail server distributes RFCs in ASCII text and PostScript format. Send a message to **mailserver@ds.internic.net** and include the following information in the body of the message:

```
document-by-name rfcnnnn
```

where *nnnn* is the number of the RFC without leading zeroes.
For PostScript documents, specify the extension **.ps**, as in the following example:

```
document-by-name rfcnnnn.ps
```

where *nnnn* is the number of the RFC without leading zeroes.
You can include multiple RFCs in one message by separating the RFC numbers by commas, as in the following example:

```
document-by-name rfc903.ps, rfc826
```

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Recommended Books on TCP/IP Connectivity

For an excellent introduction to the Internet, we recommend the following books:

LaQuey, Tracy with Jeanne C. Ryer, **The Internet Companion**
Malamud, Carl, **Exploring the Internet**

For information on getting connected to the Internet, we recommend the following books:

Estrada, Susan, **Connecting to the Internet**
Lynch, Daniel C. and Marshall T. Rose, **Internet System Handbook**

For an excellent conceptual overview of TCP/IP networking concepts, we recommend the following books:

Black, Uyless D., **TCP/IP and Related Protocols**
Comer, Douglas E., **Internetworking with TCP/IP**, Volume I, 2nd ed.
Hunt, Craig, **TCP/IP Network Administration**
Stevens, W. Richard, **TCP/IP Illustrated, Volume 1: The Protocols**

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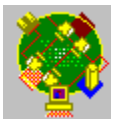

Error and Status Reporting Through ICMP

The Internet Control Message Protocol (ICMP) is a reporting mechanism that returns delivery error and status information to the source. ICMP packets are relatively small and are limited to reporting errors rather than correcting them; it is the responsibility of the source to correct the errors.

ICMP messages are self-contained. An 8-bit TYPE field and an 8-bit CODE field encoded in the message header accurately describe the nature of the problem. The ICMP packet format is described in detail in RFC 792.

The most common ICMP types are:

- Destination unreachable
- Echo request/reply
- Parameter problem
- Redirect
- Source quench
- Time exceeded

Each ICMP message type includes specific codes that further define the error or status. Click the appropriate topic to see more information on the accompanying codes.

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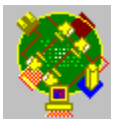

ICMP Destination Unreachable Message

The destination unreachable message (ICMP message type 3) indicates that a router cannot route or deliver a message to the destination. Some common reasons for unreachable destination reports are incorrect addressing by the sender, hardware failure at or near the destination, and a lack of routing information along the route (this is very rare).

The following table lists the most common codes along with a brief description of the probable cause of the error:

Code	Meaning	Cause
0	Network Unreachable	Routing problem or error
1	Host Unreachable	Host problem (possibly hardware)
2	Protocol Unreachable	TCP or UDP problem (very rare)
3	Port Unreachable	Connection refused or daemon server not running (very rare)
4	Fragmentation needed and DF set	A router needs to fragment a datagram before forwarding and the "Don't fragment" bit is set
5	Source route failed	The source route option contains an incorrect route

The remaining codes are self-explanatory and deal with problems of unknown destinations, isolated systems, administrative prohibitions, and the inability of a host or network to provide the requested services.

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ICMP Echo Request / Echo Reply Message

Echo request (ICMP message type 8) and echo reply (ICMP message type 0) messages are used to determine if a destination is reachable and available. This ICMP message type is used by Ping to test connectivity at the physical, data link, and network layers.

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ICMP Parameter Problem Message

The Parameter Problem on a Datagram message (ICMP message type 12) indicates that an illegal value was found in the IP header field of a datagram. The most common cause of this error is data corruption.

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ICMP Redirect Message

Redirect messages (ICMP message type 5) are used to suggest less costly routes. In general, hosts rely on routers to provide new and better routes when available. When a host forwards a datagram through a router and the router knows of a better route, it delivers the datagram and returns a redirect message suggesting the optimal route.

There are four code values for redirect messages:

Code	Meaning
0	Redirect datagrams for the Net; this code is obsolete
1	Redirect datagrams for the Host
2	Redirect datagrams for the Type of Service and Net (each IP header contains information about the type of routing service used)
3	Redirect datagrams for the Type of Service and Host (each IP header contains information about the type of routing service used)

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ICMP Source Quench Message

The Source Quench message (ICMP message type 4) is used to alert the sending host that data is arriving too fast for the receiving host to process. This can be caused by the router, which may not have sufficient buffer space to queue the datagrams or may be temporarily congested, or it can be caused by the host's inability to process the incoming datagrams quickly enough.

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ICMP Time Exceeded Message

The Time Exceeded for a Datagram message (ICMP message type 11) is sent whenever the time-to-live (TTL) counter for a datagram reaches zero. There are two code values for the message, depending on whether the TTL counter expired in transit or during datagram reassembly. The code values are:

Code	Meaning
0	Time-to-live counter exceeded in transit
1	Fragment reassembly time exceeded

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