



Global Knowledge™

Expert Reference Series of White Papers

Geek Speak Glossary: A Manager's Guide to IT Terminology

Geek Speak Glossary: A Manager's Guide to IT Terminology

Introduction

The rapidly changing pace of information technology leads to acronyms and terms being created and used seemingly overnight. This glossary is a guide to the most commonly used and confused IT terms designed to help managers better communicate with (and understand) their IT staff.

Glossary

10Base5 (10 Mbps, baseband, 500 meter): one of several physical media specified by 802.3 for use in an Ethernet local area network (LAN); consists of Thickwire coaxial cable with a maximum segment length of 500 meters

10Base2 (10 Mbps, baseband, 185 meter): one of several physical media specified by IEEE 802.3 for use in an Ethernet local area network (LAN); consists of Thickwire coaxial cable with a maximum segment length of 185 meters

10BaseT (10 Mbps, baseband, unshielded twisted-pair): one of several physical media specified by IEEE 802.3 for use in an Ethernet local area network (LAN); is ordinary telephone twisted pair wire

100BaseT (100 Mbps, baseband, unshielded twisted-pair): one of several physical media specified by IEEE 802.3 for use in an Ethernet local area network (LAN); referred to as Fast Ethernet because of its higher transmission speed

AAL (ATM adaptation layer): adapts PDUs passed down from higher layers onto ATM cells

Active hub: allows multiple devices to be wired to a central location to share the same media and regenerate the signal; also referred to as multiport repeaters

ADSL (asymmetric digital subscriber line): typical form of xDSL telephone companies offer to residences

AGP (accelerated or advanced graphics port): a high-speed, point-to-point channel for attaching a graphics card to a computer's motherboard, primarily to assist in the acceleration of 3D computer graphics

ALU (arithmetic logic unit): a digital circuit that calculates an arithmetic operation (e.g., addition, subtraction) and logic operations between two numbers; the fundamental building block of the Central Processing Unit (CPU) or a computer

AM (amplitude modulation): a technique used for transmitting information via a radio carrier wave

Amplitude: height of the wave at any point in the wave

ANSI (American National Standards Institute): a voluntary organization that coordinates the development and use of consensus standards in the United States and represents the needs and views of U.S. stakeholders in standardization forums around the globe

API (application programming interface): gives programmers a formal set of routines to call on to use underlying network services

Application layer: performs the functions of file transfer, e-mail, etc. (see OSI Model)

Architecture: how a system is designed; includes how the components are connected to and operate with each other

ARP (address resolution protocol): network layer protocol provided with TCP/IP; used to map an IP (internet protocol) address to a MAC (media access card) address

ASCII (American Standard Code for Information Interchange): relates a number from 0 to 255 in the binary (base 2) form to keyboard characters

ASIC (application-specific integrated circuit): an integrated circuit designed for a particular use (e.g., a chip designed solely to run a cell phone)

Asynchronous communication: describes when devices, such as computers, rely on their own internal clocks; it provides connectivity to printers, modems, fax machines, etc.

ATM (asynchronous transfer mode): high bandwidth, cell-switching technology; designed to carry many different types of information, including voice, video, image, data, and graphics; another form of STDM (statistical time division multiplexing)

AUI (attachment unit interface): a 15-pin connection that provides a path between a node's Ethernet interface and the medium attachment unit (MAU); also known as a transceiver

AS (Autonomous system): collection of IP networks under the control of a single entity

B (bearer) channel: carries voice, video, image, or data traffic, depending upon the equipment and applications available

Bandwidth: expressed in a range of frequencies using hertz as the unit of measurement; also called analog capacity

Base 2 System: binary number system, only two discrete values (0 and 1) are possible and all numbers are a combination of these two characters; digital signals are numbers sent in the Base 2 system

Base 10 System: the decimal system

Baseband: describes signals and systems whose range of frequency is measured from 0 to a maximum bandwidth or highest signal frequency; sometimes used as a noun for a band of frequencies starting at 0

BGP (border gateway protocol): an interautonomous system routing protocol; a network or group of networks under a common administration and with common routing policies

Bit: contraction of the expression "binary digit"; smallest unit of data in a computer

BIOS (basic input/output system): the firmware code run by an IBM-compatible PC when first powered on, known as "booting up"; primary function is to prepare the machine so other software programs can load, execute, and assume control of the PC

Bluetooth: specification that allows mobile phones, computers, and PDAs to be connected wirelessly over short ranges

Bps: bits per second: common measure of data speed for computer modems and transmission carriers

BRI (basic rate interface): an integrated services digital network configuration, usually intended for the home and small enterprise (see also PRI)

Bricks and clicks: business that existed pre-Internet that now uses e-commerce technology to sell on the Internet

Bridge: interprets the LAN hardware adapter address contained in MAC and decide whether to filter or forward the frame; does not change the frame in any way

Browsers: client applications that access WWW servers

Building backbone: connects LANs within a building

Bus: electrical connection between any two components in a computer

Bus topology: system layout where electrical signals generated by a device connected anywhere on the bus are received by all other connected devices

Byte: the standard size of data in a computer; 8-bits

Cache: keeps data the processor is likely to need quickly close at hand; increases processor operation speed

CAD/CAM (computer-aided design/computer-aided manufacturing): software used to design products such as electronic circuit boards in computers

Campus backbone: connects building LANs together

CAP (competitive access provider): company that provides network links between the customer and the InterExchange carrier or directly to the internet service provider (ISP); CAPs operate private networks independent of local exchange carriers

CD-R (compact disc - recordable): special type of CD-ROM that can be written onto by any computer with a recording drive; can only be written onto once

CD-ROM (compact disc read-only memory): optical storage device read by lasers; can hold up to 700 megabytes of data

CD-RW (compact disc - rewritable): special type of CD-ROM that can be written onto by any computer with a recording drive; can be written onto more than once

Checksum: a count of the number of bits in a transmission unit that is included with the unit so the receiver can check to see whether the same number of bits arrived

CIR (committed information rate): describes the user information transfer rate the network supports during normal network operations

CLEC (competitive local exchange carrier): In the US, a telecommunications provider company (also called a carrier) that competes with other, already established carriers (the local telephone company; e.g., GTE, Bell South).

CLI (command line interface): allows precise control of a function, but requires remembering all the correct commands and switches necessary for a task; used in DOS; a way of interacting with computers

Client/server architecture: network where some computers are dedicated clients (workstations) and some are dedicated servers; information is centralized on the server, and an administrator sets policies and manages it

CMOS (complementary metal-oxide semiconductor) RAM: requires very little power; maintains information even when the computer is off

Collision: occurs when several network users communicate at the same time and interfere (collide) with one another

Collision domain: logical network segment where data packets can "collide" with one another for being sent on a shared medium, in particular in the Ethernet networking protocol

Computer networking: a combination of hardware and software that lets the various computers in an organization communicate with one another

Computer operating system (OS): special computer program that provides an environment in which other programs can use the computer's central processor and the attached input/output devices

Connectivity devices: bring users of the network into contact with one another

Constant bit rate (CBR): transmission that uses a set amount of network capacity on a continual basis; used when the arrival of the information is time-sensitive

Convergence: the merging and sometimes clashing of voice and data networks

CPE (customer premises equipment): generally refers to telephones, DSL or cable modems, or purchased set-top boxes for use with communication service providers' services

CPS (cycles per second): measure of how frequently an alternating current changes direction; has been replaced by the term hertz (Hz)

CPU (Central Processing Unit): the brain of the computer system where calculations and decisions are made; also referred to as the processor

CPU Speed: how fast the CPU works

CSU (channel service unit): provides a loopback function for telephone company testing, and checks bipolar signal generation

CRC (cyclic redundancy check): method of checking for errors in data that has been transmitted on a communications link; a function used to produce a Checksum against a block of data

CS (convergence sublayer): particular protocols that are responsible for gathering and formatting higher layer information so it can be processed by the lower layers

CSMA/CD (carrier sense multiple access/collision detect): set of rules for determining how network devices response when two devices collide

D (data) channel: used for common channel signaling by both the telephone company switch and the customer equipment; provides the call signals that set up B channel connections

DACS (digital access and cross-connect system): a piece of telecommunications equipment used for routing T1 lines; can cross-connect any T1 line in the system with any other T1 line in the system

Data: information manipulated inside the computer in the form of bits and bytes

Datagram: data packet that is sent over an IP network; associated with the network layer when communication protocol is connectionless

DCE (data communications equipment OR data circuit-terminating equipment): a device that communicates with a data terminal equipment (DTE) device in a particular standard

DDP (datagram delivery protocol): a member of the AppleTalk networking protocol suite, mainly responsible for socket-to-socket delivery of datagrams over an AppleTalk network

DE (discard eligibility): signal used to identify less important data traffic that can be dropped during periods of congestion on the system

DLCI (data link connection identifier): a channel number that tells the network how to route the data

DMA (direct memory access): a feature that allows certain hardware subsystems in a computer to access system memory for reading and/or writing independently of the CPU; can include disk drive controllers, graphics cards, network cards, and sound cards

DOS (disk operating system): a family of closely related operating systems (COS) that ran on IBM PC-type hardware.

DNA (digital network architecture): a set of specifications or protocols created by Digital Equipment Corporation (DECnet) that evolved into one of the first peer-to-peer network architectures

DNS (domain name system): service that connects a domain name to an IP address

DRAM (dynamic random access memory): primary choice for holding large amounts of information due to its inexpensive cost; must be refreshed or rewritten frequently (about every 386 milliseconds)

DS0 (digital signal, level 0): basic digital signaling rate of 64 kbit/s, corresponding to the capacity of one voice-frequency-equivalent channel

DS1 (digital signal, level 1): also known as T1; widely used to transmit voice and data between devices

DSL (digital subscriber line): technology that delivers digital data transmission over the wires of a local telephone network

DSU (data service unit): transforms digital signal from a unipolar DTE to a bipolar digital network signal on the transmitting side and vice versa on the receiving side

DTE (data terminal equipment): a device that performs functions at the network end of a communications line; see DCE (data communications equipment).

DVD (digital versatile disc): can hold over seven times as much information as CDs; drives are backward-compatible with CD-ROM drives

DWDM (dense wavelength-division multiplexing): an optical technology used to increase bandwidth over existing fiber optic backbones (see building backbone, campus backbone)

EBCDIC (extended binary coded decimal interchange code): 8-bit character encoding table used by IBM mainframes

EGP (exterior gateway protocol): a protocol commonly used between hosts on the Internet to exchange routing table information

EMI (electromagnetic interference): radiation that causes unwanted signals (interference or noise) to be induced in other circuits; also called radio frequency interference or RFI

Enterprise network: connects many types of networks

Ethernet: most commonly used protocol designed to change the packets into electrical signals that can be sent out over the wire

Exterior protocols: routing protocol used between autonomous systems

FAT (file allocation table): table that the operating system uses to locate files on a disk; because a file may be divided into many sections that are scattered around the disk, the FAT keeps track of all the pieces

FDDI (fiber distributed data interface): a set of ANSI protocols for sending digital data over fiber optic cable (see ANSI)

FDM (frequency-division multiplexing): permits a range of input signals to be carried over a communication line that uses separate carrier frequencies for each signal channel; mostly used for analog information but can carry digital

File management system: way to store and retrieve information from disk drives; controls how files can be created, accessed, retrieved, and deleted

Firewall: a barrier between a network and the Internet through which only authorized users can pass; set of security policies to screen incoming and outgoing messages; also used to isolate one part of a network from another

Floppy drive: early versions were actually floppy; today, they use hard 3.5 inch disk; also referred to as removable drive

FM (frequency modulation): blending data into a carrier signal; a modem modulates data by converting it to audible tones that can be transmitted on a telephone wire, and demodulates received signals to get the data

Frame: data structure that collectively represents the transmission stream (headers, data, and the trailer) and provides the information necessary for the correct delivery of the data

Frame relay: service with standards and specifications designed to transmit data; some users have had success at transmitting voice

FRAD (frame relay access device): software that frames the customer's payload with the Frame Relay overhead information, including the first DLCI (data link connection identifier) address, to prepare it for delivery to the network

Frequency: number of times a wave repeats a cycle in a one-second period; measured in cycles per second, or hertz

FTP (file transfer protocol): application used to transfer a copy of a file from one computer to another computer with one acting as client and the other as server; a login with a user name and password is typically required

Full-duplex link: enables both sides to simultaneously send and receive data; could require two separate cables, one in each direction or a single multiplexed cable

Gateways: a node on a network that translates (converts protocol) from one operating system environment to another

Gateway routers: used to implement exterior protocols and interconnect autonomous systems

Gbps (gigabits per second; billions of bits per second): a data transfer speed measurement for high-speed networks

GUI (graphical user interface): easy way of accessing applications with the use of a pointing device, such as a mouse; pronounced "gooey"

Half-duplex link: enables one side to transmit and receive, but not simultaneously; information only flows in one direction at a time using a control procedure to mediate

Hard drive: large data storage devices permanently mounted in the computer's case

Hardware: physical devices located on a desk or in a server-room rack

Host-to-host layer: part of the TCP/IP model that performs the same function as the transport layer in the OSI model

Host address: part of an IP address that is uniquely assigned by an administrator

HTTP (hypertext transfer protocol): protocol users interact with (by means of a browser) to access Web pages over an internet or intranet

Hubs: bring the users of the network into contact with one another

Hz (hertz): unit of frequency; one hertz simply means one cycle per second, applied to any periodic event (e.g., one tick of a clock is 1 Hz; the human heart beats at 1.2 Hz)

ICANN (Internet Corporation for Assigned Names and Numbers): non-profit corporation created to oversee Internet-related tasks previously performed for the U.S. Government by other organizations; tasks include managing the assignment of domain names and IP addresses, and introducing new generic top-level domains; pronounced "I can"

ICMP (Internet control protocol message protocol): network layer protocol provided with TCP/IP; used to report errors and provide other information relevant to IP packet processing

IEEE (Institute of Electronic and Electrical Engineers): voluntary organization of engineers that creates consensus standards for network wiring and other technologies; pronounced "eye-triple-E"

IGMP (Internet group management protocol): a communications protocol used to manage the membership of IP multicast groups

IGP (interior gateway protocol): set of routing protocols used within an autonomous system

IGRP (interior gateway routing protocol): developed by Cisco to provide a robust protocol for rerouting within an autonomous system (AS); a type of IGP

ILECs (incumbent local exchange carriers): a telephone company providing local service when the Telecommunications Act of 1996 was enacted (see CLEC)

ILP (initial loader program): reads an existing file containing database records; also called a boot-loader

Input/output management routines: provide orderly control and flow of information between a computer's main memory and attached peripheral devices

Interface: point in the system where the rules, control codes, formats, and information direction (as dictated by the protocol) are implemented

Interior protocols: routing protocol used within/interior to an independent/ autonomous system

Internet layer: part of the TCP/IP model that performs the same function as the network layer of the OSI model

Internetworking: connecting one network to another network

Interprocess communication: allows programs to share information dynamically, whether running locally or remotely

I/O (Input/output devices): hardware used to enter and retrieve data from the system

IP (internet protocol): network layer protocol provided with TCP/IP; connectionless, unreliable protocol that provides features for addressing, type or service specification, fragmentation and reassembly, and security

IP address (internet protocol address): logical address assigned to every workstation, server, printer, and router on any interconnected network

IPX/SPX (Internetwork packet exchange/sequenced packet exchange): a networking protocol used by the Novell NetWare operating systems; it is a datagram protocol used for connectionless communications

IRC (Internet relay chat): allows groups to communicate interactively via keyboard and screen display

ISDN (Integrated Services Digital Network): a circuit-switched telephone network system designed to allow digital transmission of voice and data over ordinary copper telephone wires

ISDN PRI: switched-line service from telephone companies that operates over T1 (or E1/J1) facilities

IS-IS (intermediate system-to-intermediate system): an interior gateway protocol (IGP) intended for use within an administrative domain or network

ISPs (Internet service providers): businesses or organizations that provide consumers with access to the Internet and related services

IT (information technology): broad term that can refer to anything from mainframes to PDAs; any technology that moves information (voice, video, or data)

ITU-T (ITU Telecommunication Standardization Sector): coordinates standards for telecommunications on behalf of the International Telecommunication Union (ITU)

IXC (interexchange carrier): a telephone company that provides connections between local exchanges in different geographic areas

Jitter: distortion in a digital signal caused by a shift in timing pulses; can cause data interpretation errors

JPEG (Joint Photographics Experts Group): a lossy compression technique for color images; pronounced jay-peg (see Lossy)

Kbps (thousands of bits per second): a measure of data transfer speed

kHz (kilohertz): a unit of measurement of frequency, also known as cycles per second; e.g., one kilohertz equals 1,000 Hz, or cycles per second

LAN (local area network): network that operates within a small geographic area, usually within a building, office, or department

LAPB (link access protocol, balanced): a data link protocol in the X.25 stack

LATAs (local access and transport areas): In the US, refers to a geographic region assigned to one or more telephone companies for providing communication services

Layer 2 switches: interpret and make switching decisions on the LAN hardware adapter address contained in the data link header of MAC frames; forward frames only to the destination hardware address contained in the frame

LCI (logical channel identifier): used to define frequencies in use on M/A-COM EDACS (Enhanced Digital Access Communications System) systems and LTR (logic trunked radio) systems; more commonly known as logical channel number (see LCN); also known as virtual channel;

LCN (logical channel number): used to define frequencies in use on M/A-COM EDACS (Enhanced Digital Access Communications System) systems and LTR (logic trunked radio) systems; also known as the logical channel identifier (see LCI); also known as virtual channel

LE (local exchange): a regulatory term in telecommunications for local telephone company

Leased lines: another name for private lines, dedicated lines, or permanent circuits

LEC (local exchange carrier): a public telephone company in the US that provides local service

LGN (logical channel group number): together with the LCN (in the X.25 packet header), identifies the actual logical channel number of the DTE-DCE link; a 4-bit field representing a number between 0 and 15

Line layer: layer of the OSI physical layer that is responsible for synchronizing and multiplexing multiple streams of data into one SONET stream within SONET frames; also monitors and administers SONET multiplexers

LLC (logical link control): standard interface allowing any combination of MAC techniques and physical media to be used simultaneously in the same workstations; shields higher layer protocols from the peculiarities of the physical medium

Logical segmentation devices: allow network designers to maintain separate networks (often for security reasons) that can still communicate with one another

Lossy: data compression method where compressing and then decompressing retrieves data that may well be different from the original, but is "close enough" to be useful in some way

LU (logical unit): identifies an end-user in IBM's Systems Network Architecture (SNA)

MAC (media access control) address: unique 6-byte address associated with and coded into each network interface card (NIC); address assignment is controlled by the IEEE

MAN (metropolitan area network): connects sites in and around a large city

MB (megabyte): unit of information or computer storage equal to either exactly one million bytes or, in some cases, 1,048,567 bytes, or more rarely, 1,024,000 bytes; not to be confused with Mb, which stands for megabits

Mbps (megabits per second): a unit of information storage; not to be confused with MB or megabytes

Medium: transmission, or system that carries the message or data

MAU (medium attachment unit): converts signals on an Ethernet cable to and from AUI signals.

Memory: desk space of the computer system; microchips located on the motherboard that hold data and instructions for the CPU (central processing unit)

Memory management: allocates memory to separate tasks and protects data from corruption

Menu: used in some DOS shells and early versions of Windows; an improvement on the command line but cumbersome when a task requires the submenu of a submenu of a submenu of a menu item

Message: information content to be shared

MHz (megahertz): one hertz is one cycle per second; a megahertz is equal to one million cycles per second

MIB (management information base): a type of database used to manage the devices in a communications network

MPEG (Motion Picture Experts Group): digital video format identified by ".mpg" extension after the file name; a working group of ISO/IEC charged with the development of video and audio encoding standards; pronounced m-peg

MPLS (multiprotocol label switching): an initiative that integrates Layer 2 information about network links (bandwidth, latency, utilization) into Layer 3 (IP) within a particular autonomous system to simplify and improve IP packet exchange

Mpps (millions of packets per second): a measurement of information sent per second

Multiplexing: process of putting multiple signals on a wire simultaneously

Multiport repeaters: allow multiple devices to be wired to a central location, share the same media, and regenerate (repeat) the signal; also referred to as active hubs

Multitasking routines: permit two or more distinct tasks to be performed concurrently by the computer

Name resolution: process by which the peer-to-peer name used on each conversational level is related to other levels

NAP (network access point): transitional data communications facilities at which Network Service Providers (NSPs) would exchange traffic, in replacement of the publicly-financed NSFNet Internet backbone; now replaced by modern IXPs

NAT (network address translator): involves re-writing the source and/or destination addresses of IP packets as they pass through a router or firewall; also called network masquerading, native address translation, or IP-masquerading

NetBIOS (network basic input/output system): allows applications on separate computers to communicate over a local area network (LAN)

Network access layer: allows a computer to exchange data with another computer over a common network medium; part of the TCP/IP model that performs the same functions as the data link and physical layers of the OSI model

Network address: part of an IP address that is uniquely assigned by one of the ICANN-sanctioned agencies

Network design: how the various clients and servers are arranged for purposes of connectivity, performance, and security

NOS (network operating system): optimizes the client/server architecture; provides and supports network services such as file services, e-mail, Internet and intranet services, and applications

NIC (network interface card): hardware adapter that provides communication capabilities; responsible for building, transmitting, receiving, and decoding frames in a LAN environment; serves as the interface between the networked devices and the connecting wires

NNTP (network news transfer protocol): makes USENET possible; protocol for the distribution, inquiry, retrieval, and posting of news articles using a reliable stream-based transmission of news among the ARPANet community

Nonvolatile memory: chips that hold information even when the system is turned off

NRZ-L (non-return to zero level): form of digital encoding; negative voltage is used to represent a binary 1, and a positive voltage is used to represent a binary 0

NSP (network service provider): a business or organization that sells bandwidth or network access by providing direct backbone access to the Internet, and usually access to its network access points (see NAP)

OC1 (optical carrier, level 1): a fiber optic connection capable of transferring data at 51.85 Mbps

Operating environment: how the OS controls the hardware and application programs

OS (operating system): interface between the application (word processor, spreadsheet, etc.) and the computer hardware

OSI (open systems interconnection) model: developed to provide a view of the distinct functionalities that are required to implement each protocol layer; defines a complete range of functions that can be achieved with data communications equipment

OSPF (open shortest path first): a link-state hierarchical interior gateway protocol (see IGP) for network routing protocol

Packet filters: security method that filter by IP address; not adequate security for a network

Packets: data structures that collectively represent the transmission stream (headers and data); associated with the network layer when the communication protocol is connection-oriented

PAD (packet assembler/disassembler): assembles X25 packets on the sending end for transmission over the X25 PSDN, or disassembles X25 packets on the receiving end for onward transmission to the local network

Parallel port: port where the bits travel down parallel paths, arriving one byte at a time; can supply more bytes of data per unit time

Passive hubs: used in a LAN environment; special form of repeater that allow multiple devices to be wired into a central location and share the same media; do not regenerate (repeat) the signal

Path layer: layer of the OSI physical layer that is responsible for reliable end-to-end transport and payload delivery, including automatic recovery from failure points

PBX (private branch exchange): a telephone exchange that serves a particular business or office

PC (personal computer): a microcomputer whose price, size, and capabilities make it useful for individuals

PCI (peripheral component interconnect): a computer bus for attaching peripheral devices to a computer motherboard

PCM (pulse code modulation): process for converting from analog to digital

PDA (personal digital assistant): hand-held computer with a touch screen

PDU (protocol data unit): information that is delivered as a unit among peer entities of a network; in layered systems, a unit of data that is specified in a protocol of a given layer

Phase: where in the wave cycle the wave currently is; measured in degrees

Peer-to-peer networks: network in which each computer is capable of functioning as a client and a server; users on the network can freely share resources on their computer or access shared resources on other computers

Photonic layer: layer of the OSI physical layer that specifies fiber cable with optical light sources and receivers

Physical segmentation devices: divide collision domains to improve network performance

Ping: sonar concept implemented with the Echo Request and Echo Reply application; basic connectivity test between two TCP/IP network devices

POP (Post Office Protocol): how clients access their mailboxes on the messaging server; usually done in its third version, POP3

POPs (points of presence): an artificial demarcation point or interface point between communications entities

POST (power-on self-test): the pre-boot sequence for a computer, router, or printer

POTS (plain old telephone service): standard telephone service, the basic form of residential and small business telephone service

PRI (primary rate interface): an integrated services digital network (ISDN) configuration, usually intended for large users (see also BRI)

Process and application layer: Part of the TCP/IP model that performs the same functions as the application, presentation, and session layers of the OSI model

Processor: brain of the computer system where calculations and decisions are made; also referred to as the CPU

Processor memory: referred to as the L1 (level 1), an interface between the processor and the cache

Protocol: set of rules used to control the exchange of information that is understood by the transmitter and receivers

Proxy server: sits between the network router and the Internet; talks to the Internet on behalf of a network's resources, allowing real network addresses to be hidden

PSDN (packet-switched data network): a publicly available network supporting packet-switched data, separate from PSTN

PSTN (public switched telephone network): the network of the world's public circuit-switched telephone networks; in much the same way the Internet is the network of the worlds' public IP-based packet-switched networks

PU (physical unit): a value or magnitude conventionally adopted as a unit or standard of physical measurements (e.g., length, mass, and time); identifies a network node that supports communication sessions between logical units (LU) which represent end users in IBM's SNA,

Pure play: newly developed business built on advantages afforded by e-commerce

PVCs (permanent virtual circuits): use a real, shared circuit in the service provider's backbone

QoS (quality of service): the capability of a network to provide better service to selected network traffic over various technologies

RAM (random access memory): chips capable of storing and later dumping data in preparation for other uses

RARP (reverse address resolution protocol): protocol used to resolve an IP address from a given hardware address (e.g., an Ethernet address)

RAS (remote access service): allows users to access the network through dial-up modem connections

Receiver: destination of the message or data

Recovery routine: enables a computer to resume operation after encountering a problem, such as a power outage or program error

Remote login: allows a user at one computer to interact with another, as if the user's computer is directly attached to the remote computer

Removable storage: a way to store information on disks that can be removed and used on different systems; most removable drives (also known as floppy drives) use a hard 3.5 inch disk

Repeaters: regenerate and reshape digital pulses and allow a signal to be transmitted further than a single circuit can achieve

RIP (routing information protocol): used by routers connecting LANs to exchange routing table information to determine the best path through the network at any point in time

ROM (read-only memory): chips that store data that needs to be maintained constantly

Routers: basic piece of network hardware necessary to connect one network to another; makes decisions about packet forwarding based on IP address information in the packet; directs traffic between network segments

RTMP (routing table maintenance protocol): a communication protocol used by AppleTalk to ensure that all routers on the network have consistent routing information

SAPs (service access points): represent internal software addresses in the sending or receiving computer

SAR (segmentation and reassembly): the process used to fragment and rebuild packets that allows them to be transported across asynchronous transfer mode (ATM)

SDH (synchronous digital hierarchy): international counterpart of SONET

SDRAM (synchronous dynamic random access memory): version of DRAM that allows for increased speed

SEAL (simple and efficient AAL): method of relaying ATM (asynchronous transfer mode) cells between ATM Layer and a higher layer

Section layer: layer of the OSI physical layer that creates frames, monitors the conditions of the transmission between the SONET equipment, and converts optical signals to and from electrical signals

Security routines: protect data and applications from unauthorized use, execution, or change

Semaphores: messages sent when a file is opened that prevent other users from opening the same file at the same time and compromising the integrity of the data

Serial port: handles data one bit at a time traveling sequentially across a single line from one device to the next

Server: a computer that provides services to the other workstations

Simplex transmission: the information always flows from the transmitter to one or more receivers with no provision for a return signal; like radio and TV broadcasts

SMLI (stateful multi-layer inspection): similar to application gateways; however, no proxy is used between the network and the Internet

SMLIS (stateful multilayer inspection servers): sophisticated firewalls that inspect each frame for suspicious communications

SMTP (simple mail transfer protocol): electronic mail service that allows a user to send or receive messages

SNA (systems network architecture): IBM's mainframe network standards

SNMP (simple network management protocol): application layer protocol in the TCP/IP family; provides remote network management capabilities to a network administrator; implemented with centralized management stations that collect network information from agents throughout the network; can also send commands to the agents to alter the configuration or status of remote devices

SOCKS (an abbreviation of SOCKets): protocol for handling TCP through a proxy server; library of software added to an individual application for secure communication through the firewall

SOCKS servers: specialized servers for prearranged communications through a firewall

Software: instructions that tell computers how and under what circumstances to function

SONET (synchronous optical network): standardized hierarchy of digital transmission rates for North American and ITU-T rates

SQL (structured query language): computer language used to create, retrieve, update, and delete data from relational database and/or object-relational database management systems; pronounced "sequel"

StarTopology: physical topology where all devices attach to a common wiring point; alternative to Bus topology

SRAM (static random access memory): holds information until the electricity is turned off; faster and more expensive than DRAM; most computer manufacturers use SRAM for caching

STDM (statistical time-division multiplexing): a method for transmitting several types of data simultaneously across a single transmission cable or line

STM-1 (synchronous transport module, level 1): the basic rate of transmission of the SDH ITU-T fiber optic network transmission standard

Storage devices: means of storing data in the computer system for later retrieval and use

STS-1 (synchronous transport signal, level 1): base signal in SONET (synchronous optical network)

Subnetting: logical segmentation of the network into smaller, more manageable parts

SVCs (switched virtual circuits): use a real, shared circuit path in the service provider's backbone for the duration of the call or connection only

Switched lines: another name for dial-up or circuit switched lines

Switches: intelligent devices that look at the destination MAC address in a frame and decide whether it should be forwarded or filtered; work like bridges with more ports; make decisions in hardware rather than software for a faster response

Switching: preferred method of interconnecting devices in the LAN environment; provides greater throughput at lesser cost than traditional routers

T1: leased-line services from telephone companies that provide the most popular high-speed connectivity; E1 is the European version, J1 the Japanese version

Tbps: Trillions of bits per second

TCP/IP (transmission control protocol/Internet protocol): dominant protocol suite used in networking

TCP (transport control protocol): connection-oriented, reliable protocol that has end-to-end responsibility for making sure that information arrives without errors and in the correct order

TDM (time-division multiplexing): used in the T1 frame format; different channels are multiplexed by being assigned their own individual time slots

Threads: individual processes within a single application

Three-layer Network Model: shows network communications as a set of three conversations

Transmitter: source that generates the message or data

Transport layer: layer that is responsible for delivering information in sequence and to the correct end-user

Trap: SNMP protocol function used by the agent in a managed device to report important events or alarms

Topology: the physical (how the wires are laid out) and/or logical (how the wires work) arrangement of the devices on the network

UART (universal asynchronous receiver/transmitter): a computer component that handles asynchronous serial communication; pronounced U-art

UDP (user datagram protocol): connectionless, unreliable protocol that exchanges datagrams without acknowledgments or guaranteed delivery; requires error processing and retransmission by other protocols

USB (universal serial bus) port: designed to replace the RS-232 connection with one that can handle up to 127 devices; comes in 15 Mbps or 12 Mbps speed

USENET (USER NETWORK): Internet service that enables open forum discussions with people all over the world through newsgroups

User interface: how you interact with the computer

Utility routines: diagnostic, tracing, monitoring, and resource housekeeping functions

UTP (unshielded twisted-pair): the most common cable used in computer networking

VBR (variable bit rate): transmissions that are not time sensitive - the receiving computer can reconstruct the information regardless of how quickly or in what order the parts are received; also called "bursty" transmission

VCI (virtual channel identifier): identifies the virtual channel between ATM switch nodes

VoIP (Voice over Internet Protocol): routing of voice conversations over the Internet or through any other IP-based network; also called telephone, broadband phone

Volatile memory: chips that lose whatever information they are holding if power is interrupted

VPI (virtual path identifier): traces the virtual path, from endpoint-to-endpoint, through the ATM network

WDM (wavelength-division multiplexing): when two or more different wavelengths of light each carrying information are multiplexed together on a fiber link, and demultiplexed at the receiving end to recapture the individual information carried by each wavelength used

WAN (wide area network): geographically dispersed network of computers

WC3 (World Wide Web Consortium): user and developer forum dedicated to developing interoperable Web technologies (specifications, guidelines, software, and tools)

Wi-Fi: describes the underlying technology of wireless local area networks (WLAN) based on IEEE specifications; originally developed for mobile computing devices in LANs, but is now used for more services, including Internet and VoIP phone access

Wireless: telecommunications in which electromagnetic waves (rather than some form of wire) carry the signal over part or all of the communication path

Word size: number of bits that a processor can manipulate at a time

WPAN (wireless personal area networks): wireless network for interconnecting devices centered around an individual person's workspace; typically limited to a 10 meter range

WLAN (wireless local area network): computer network used for wireless communications among computer devices (including telephones and PDAs); also known as LAWN (local area wireless network)

WWW (World Wide Web): server-based application that organizes information using hypermedia

xDSL (digital subscriber line): technologies that provide digital data transmission over the wires of a local telephone network

XML (extensible markup language): W3C (World Wide Web consortium)-recommended general-purpose markup language that supports a wide variety of applications