Technology Definitions

Acrobat: Document exchange software from Adobe that allows documents created on one platform to be displayed and printed exactly the same on another. An Acrobat driver works with most applications to convert DOS, Windows, UNIX and Mac documents into the Portable Document Format (.pdf), which is displayed on the target machine with a free Acrobat reader.

.tif: Tagged Image File Format.

ASCII: American Standard Code for Information Interchange: A binary code for text as well as communications and printer control. It is used for most communications and is the built-in character code in most minicomputers and all personal computers. ASCII is a 7-bit code providing 128 character combinations, the first 32 of which are control characters. Since the common storage unit is an 8-bit byte (256 combinations) and ASCII uses only 7 bits, the extra bit is used differently depending on the computer.

Network/Device Nomenclature

Gateway: The term is overused and non-specific. If is usually used to mean the computer that performs protocol conversion between different types of networks or applications. For example, a gateway can connect a PC LAN to a mainframe network. An electronic mail, or Messaging, gateway converts messages between two different Messaging protocols. It is usually the term for the device that leads to the Internet, but in this case, the gateway could also be called a router.

Bridge: (1) to cross from one circuit, channel or element over to another.
(2) A device that connects two LAN segments together, which may of similar or dissimilar types, such as Ethernet and Token Ring. Usually connect networks in the same organization. Bridges are inserted into a network to improve performance by keeping traffic contained within smaller segments. Bridges work at the data link layer and are faster than routers which work as the network layer.

Router: A device that routes data packets from one local area network LAN or wide area network WAN to another. Generally connects networks that are dissimilar. Routers see the network as network addresses and all the possible paths between them. They read the network address in each transmitted frame and make a decision on how to send it based on the most expedient route (traffic load, line costs, speed, bad lines, etc.). Routers work at the network layer (OSI layer 3), whereas bridges and switch work at the data link layer (layer 2). Router has firewall protection.

Hub: A central connecting device in a network that joins communications lines together in a star configuration. Passive hubs are connecting units that add nothing to the data passing through them. Active hubs, also called multiport repeaters, regenerate the data bits in order to maintain a strong signal, and intelligent hubs provide added functionality. In a hub, the bandwidth is divided to allow for simultaneous transmissions.

Switch: A mechanical or electronic device that directs the flow of electrical or optical signals from one side to the other. Switches with multiple input and output ports such as a PBX are able to route traffic. In a switch, the transmissions take place one at a time, but they happen so quickly that it can not be noticed by the user.

Multiplexor: In communications, a device that merges several low-speed transmissions into one high-speed transmission and vice versa.

Topology: The design of a network, would show all above devices. Should have topology maps showing network operation.

Token ring topology is old now, cabling goes in ring connecting devices and if one link fails, the whole ring fails. Standard now is Ethernet, 10 Base t, or 10BT.

T1,T2,T3 (Same as DS1/DS2/DS3): A T1 is a 1.544 Mbps point-to-point dedicated line provided by the telephone companies. The monthly cost is typically based on distance. T1 lines are widely used for private networks and high-speed links to and from Internet service providers. A T1 line provides 24-64 Kbps voice or data channels. T2 provides 6.312 Mbps and 96 channels and T3, 44.736 Mbps and 672 channels (which is the cube of the T1). OC1/OC3 is fiber optic cables, many more channels, very expensive.

Cabling: Cat 3 is old, but sill used sometimes in telephones to save money. Cat 5 is standard now. Each cable has 8 wires, and Cat 5 is twisted more tightly than Cat 3 to provide more shielding. Just four of the eight cables are used: 1, 2, 3 and 6.

Config.sys: a DOS and OS/2 configuration file. It resides in the root directory and is used to load drivers and change settings at startup. Install programs often modify config.sys in order to customize the computer for their particular use.

Firewall: Combination of hardware (separate box) and software that prevents hacking. Allows for levels of security, or DMZ.

Access Methods

- remote control, such as PC anywhere, windows remote terminal.
- remote node in which PC is full member of the network, just logging into the network from offsite location.
- remote node via Virtual Private Network, VPN, through Internet. Can buy personal firewall for home. E.g. link between home PC and office network involving encryption.
- e-mail systems have remote clients, but just that part of network is available, not all data.
- extranet as network dial-in.

Internet

Protocol: Language that computers use to communicate. Dominant protocol is TCPIP. If you can't get to a specific server, then have an IP problem. If can't get to a file, have a server problem.

TCP/IP: Transmission Control Protocol/Internet Protocol. A communication protocol developed under contract from the DOD to connect dissimilar systems. It is a defacto UNIX standard, now supported on almost all platforms. TCP/IP is the protocol of the Internet.

File Transfer Protocol FTP and Simple Mail Transfer Protocol SMTP provide file transfer and e-mail. The Telmet protocol provides terminal emulation for all types of computers in the network. TCP controls data transfer. IP provides the routing the combination of TCP/IP, NFS and NIS comprise the primary networking components of UNIX.

HTML: Hyper Text Markup Language. The document format used on the World Wide Web. Web pages are built with HTML tags, or codes, embedded in the text. HTML defines the page layout, fonts, and graphic elements as well as the hypertext links to other documents on the Web. Each link contains the URL, or address, of a Web page residing on the same server or any server worldwide, hence, WWW. The problem is that it does not paginate well when printing.

XML: Language that is supposed to replace HTML. Supposed to have universal document language.

HTTP: Hyper Text Transport Protocol. The communication protocol used to connect to servers on the World Wide Web WWW. Its primary function is to establish a connection with a Web server and transmit HTML pages to the client browser.

Internet Service Provider, ISP: Provider that is needed to get to the Internet, whether from home or office, e.g. AOL. Also called a host, or portal.

Browser: A program that lets you look through a set of data. E.g. Netscape (Sun) or Internet Explorer (Microsoft)

Search Engine: Software that searches for data based on some criterion. E.g. Yahoo, Google.

Intranet: An inhouse website that serves the employees of an enterprise. May link to Internet, the Intranet is not accessible by the general public.

Extranet: A website that is made available to external customers or organizations for electronic commerce. Although on the Internet, it generally provides more customer-specific information than a public site. It may require passwords to gain access to the more sensitive information.

Device address numbers are assigned by IANA, the Internet Assigned Number Authority. The format of the addresses are four triplets with those triplets between 1 and 254. (e.g. XXX.XXX.XXX.XXX) Different classes of addresses are:

C Class — TCPIP device address that can accommodate 254 devices since the first three triplets are fixed and only the last triplet can take on values of 1-254.

B Class — Same as above, but the last two triplets can vary resulting in about 64,000 device addresses.

A Class — Last three triplets can vary resulting in millions of device addresses.

These addresses allow messages to be routed through the Internet.

DHCP - Dynamic Host Control Protocol. Allows assignment of TCPIP addresses to devices when logging on, but just for certain number of hours and when device is no longer active, reassigns number to a new device. Way of having overall greater number of devices than addresses. A static address such as for a server, is permanent.

DNS - Domain Name Server. Registrars control domain names and in effect, the DNS.

The owner's identity of any particular gateway is available in many on-line directories such as Network Solution.com in the "whois" file.

SMTP - Simple Mail Transmission Protocol. Helps route e-mail messages.

NAT - network address translation. Translates domain names to IANA numbers.

CM - Content Management. Managing the content of a website.

KM - Knowledge Management. Within an organization, making knowledge of the organization available and preserving it.

ERP - Enterprise Resource Planning, e.g. SAP, People Soft, one big database for all the enterprise data, information flows through all applications with one update.

SQL - Structured Query Language, dominant language of databases.

CRM - Customer Relations Management, overall, overreaching management of customers of an enterprise.

Application Service Provider:

Security Protocols:

Hardware

Ports: places to connect computer to another device. Each type has different cable types and lengths.
- *serial/async* ports are older technology and slower. Typically connect modem and mice. 9/25pins, M/F, annoying because of specificity of connection. Data transmitted in stream.
- *parallel* ports communicate in many parallel streams of data, so fast. Most people think of it as the printer port. Also can connect CD players and tape drives.

Universal Serial Bus: USB: Allows may types of devices to connect to the same port. It can detect devices and knows what to do with it. Easier to install and configure.

PCMCIA: standard for adding cards.

SCSI: Small computer standard interface.

What happens when turn on computer:

In DOS boot: the BIOS is activated, which understands most basic things like when the power comes on, check the basics and the beep and then look at a very specific spot on the hard drive for the operating system. It reads it and puts it I memory. It reads command.com which interprets basic commands, and then config.sys, which it reads into memory about how the computer is configured with the devices, and autoexec.bat, which has the standard commands in the batch file such as time, date. The operating system knows to run these commands.

In a Windows boot: all the above, and the last line of the autoexec.bat is to run windows. The .ini files have settings about how windows works. There are .ini files for each program.

Database - collection of information about something.

Flat database - each collection of data is a record.

Relational database - Data is organized in profile tables. The database is make up of tables and individual records link to those tables. Server does the search that the client (PC) requests. Document Management System is an example of the 3-Tier relational database meaning that the PC makes a request of the DMS and the DMS makes a request of the server.