Computer Desktop Encyclopedia

Ninth Edition

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client   (1) A workstation or personal computer in a client/server environment. See *client/server* and *fat client*.

(2) One end of the spectrum in a request/supply relationship between programs. See *X Window* and *OLE*.

client application   An application running in a workstation or personal computer on a network. See also *OLE*.

client based   Refers to hardware or software that runs in the user's machine (client). Contrast with *server based*.

client machine   A user's workstation that is attached to a network. The term can also refer to a portable computer that is plugged into the network. See *client* and *client/server*.

client program   Software that runs in the user's PC or workstation. Contrast with *server program*, which resides in a server in the network.

client/server   An architecture in which the user's PC (the client) is the requesting machine and the server is the supplying machine, both of which are connected via a local area network (LAN) or wide area network (WAN). Throughout the late 1980s and early 1990s, client/server was the hot buzzword as applications were migrated from centralized minicomputers and mainframes to networks of personal computers.

In client/server, the client processes the user interface (Windows, Mac, etc.) and can perform some or all of the application processing. Servers range in capacity from high-end PCs to mainframes. A database server maintains the databases and processes requests from the client to extract data from or to update the database. An application server provides additional business processing for the clients. See *client/server development system*.
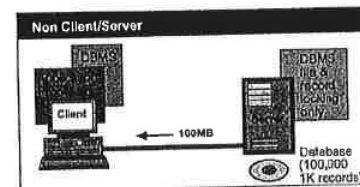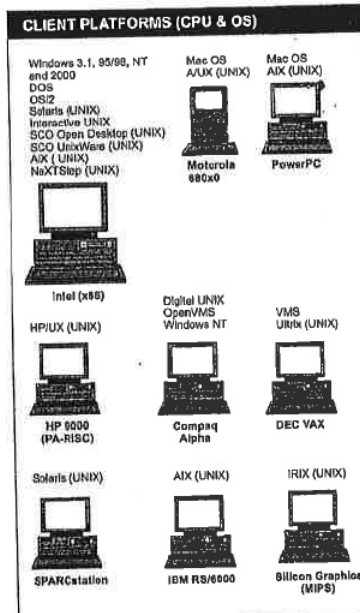
Client/server Versus the Web   Because of the Internet, terms such as "Web based" and "Web enabled" have replaced the client/server buzzword, yet the client/server architecture is conceptually the same. Users' PCs are still clients, and there are tens of thousands of Web servers throughout the Internet delivering Web pages. Nevertheless, client/server is mostly used to refer to "legacy," non-Web based systems.

On the Web, the client runs the browser and just like legacy client/server can perform little or a lot of processing: simple displaying of HTML pages, more processing with embedded scripts or considerable processing with Java applets. A myriad of browser plug-ins provide all sorts of client processing.

The server side of the Web is a multi-tier server architecture with interlinked Web servers, application servers, database servers and caching servers. See *application server*.

client/server analyst   A person responsible for performing analysis and design of a client/server system. A knowledge of two-tier and three-tier client/server architectures is required. See *systems analyst* and *client/server*.

client/server architecture   An environment in which the application processing is divided between client workstations and servers. It implies the use of desktop computers interacting with servers in a network, in contrast to processing everything in a large centralized mainframe. See *client/server*.

CLIENT PLATFORMS (CPU & OS)

Windows 3.1, 95/98, NT and 2000
DOS
OS/2
Solaris (UNIX)
Interactive UNIX
SCO Open Desktop (UNIX)
SCO UnixWare (UNIX)
AIX (UNIX)
NeXTStep (UNIX)

Mac OS A/UX (UNIX)   Mac OS AIX (UNIX)

Intel (x86)   Motorola 680x0   PowerPC

HP/UX (UNIX)   Digital UNIX OpenVMS Windows NT   VMS Ultrix (UNIX)

HP 9000 (PA-RISC)   Compaq Alpha   DEC VAX

Solaris (UNIX)   AIX (UNIX)   IRIX (UNIX)

SPARCstation   IBM RS/6000   Silicon Graphics (MIPS)

Non Client/Server

Client   100MB   Database (100,000 1K records)

Non-Client/Server
Although there are clients and servers in this scenario, this is not "true" client/server, because the server is nothing more than a remote disk drive, and the client does all the processing. Lengthy searches can bog down the network, because each client has to read the entire database. At 1,000 bytes per record, a database with 100,000 records sends 100MB over the LAN.

PATROL   An application management suite from BMC that uses agents to report on software activities on all the servers within the enterprise. Using the information in "knowledge modules" (KMs) about each system component, agents detect events, collect information and notify system and network administrators to take corrective action.

PAX   (1) (Private Automatic Exchange) An inhouse intercom system.

(2) (Parallel Architecture Extended) A parallel processing environment standard based on Intel's i860 RISC chip, UNIX System V and Alliant Computer's parallel and 3-D graphics technologies.

payload   The data-carrying capacity of some structure. It typically refers to a part of a packet or frame in a communications system that holds the message data in contrast to the headers, which are considered overhead.

payment service   See *Web payment service*.

payware   Software distributed for money. Contrast with *freeware*.

PB   See *PowerBuilder*.

PBX   (Private Branch eXchange) An inhouse telephone switching system that interconnects telephone extensions to each other, as well as to the outside telephone network. It may include functions such as least cost routing for outside calls, call forwarding, conference calling and call accounting. Modern PBXs use all-digital methods for switching and may support both digital terminals and telephones along with analog telephones. See *WPBX*.
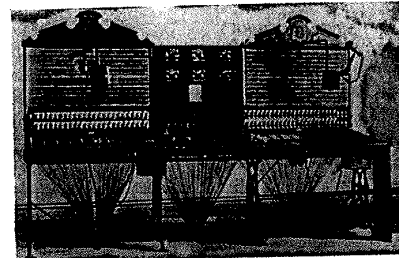
An Early PBX
This PBX began operation in Bangor, Maine in 1883. *(Image courtesy of AT&T.)*

PC   (3) (Printed Circuit) See *printed circuit board*.

(2) (Personal Computer) Any laptop or desktop computer such as Windows machine or a Macintosh.

(1) (Personal Computer) A stand-alone laptop or desktop computer running Windows (or DOS for earlier applications). PC hardware and operating systems are primarily governed by Intel and Microsoft respectively. The PC is the world's largest computer base.

PCs are also widely used as clients and servers in a local area network (LAN). PC clients predominantly run under Windows, but PC servers (x86-based servers) run under Windows, NetWare or a variation of UNIX such as Linux or UnixWare. PC servers may use Windows 95/98, but Windows NT and 2000 are more likely choices.

Although there are literally thousands of PC vendors, from mom and pop shops to large mail order houses (Dell, Gateway, etc.) to the major computer companies (Compaq, HP, etc.), and of course IBM, still one of the world's largest PC makers, all PCs use an Intel x86 or compatible CPU.

After IBM introduced the PC in 1981, the first attempts at cloning it were mostly unsuccessful. Except for Compaq's first PC, from 1982 to 1985, there were a lot of "almost compatible" PCs. However, as soon as the part of the operating system known as the BIOS was successfully cloned and made commercially available, true compatibles appeared in abundance.

Before Windows 95, adding another peripheral device to a PC was often an exercise in trial and error. Modifying DOS's infamous configuration files (AUTOEXEC.BAT and CONFIG.SYS) caused many a user to give up. Windows 95, 98 and 2000 added Plug and Play, which means for the most part, you can replace hard disks and display adapters, as well as add a scanner, CD-ROM or other device without difficulty.

The PC has become a commodity item, winding its way onto the shelves of retail outlets worldwide. This is a testimonial to the power of a computer standard, even one fraught with loopholes and inconsistencies.
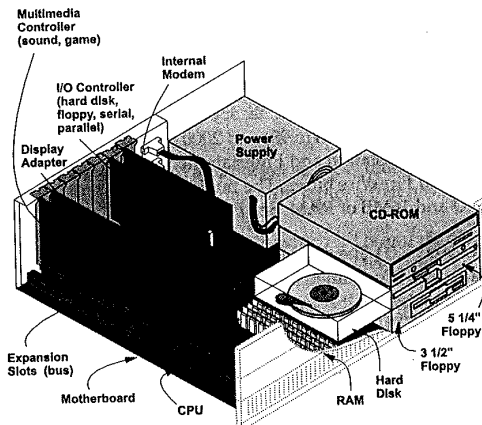
What's Inside a PC?

Perl   (Practical Extraction Report Language) A programming language written by Larry Wall that combines syntax from several UNIX utilities and languages. Introduced in 1987, Perl is designed to handle a variety of system administrator functions and provides comprehensive string handling functions. It is widely used to write Web server programs for such tasks as automatically updating user accounts and newsgroup postings, processing removal requests, synchronizing databases and generating reports. Perl has also been adapted to non-UNIX platforms. See also *PURL*.

permanent font   (1) A soft font that is kept in the printer's memory until the printer is turned off.
(2) Same as *internal font*.

permanent memory   Same as *non-volatile memory*.

permutation   One possible combination of items out of a larger set of items. For example, with the set of numbers 1, 2 and 3, there are six possible permutations: **12, 21, 13, 31, 23 and 32**.

perpendicular recording   See *vertical recording*.

per seat   By workstation. See *per seat licensing*.

per seat licensing   Software licensing based on a per user basis. For example, a 100-user license means that up to 100 specifically-named users have access to the program. Per seat licensing is administered by providing user-level security to the directory containing the program. Contrast with *concurrent licensing*.

persistence   (1) In a CRT, the time a phosphor dot remains illuminated after being energized. Long-persistence phosphors reduce flicker, but generate ghost-like images that linger on screen for a fraction of a second.
(2) In object technology, the storage of an object on a disk or other permanent storage device.

persistent data   Data that exists from session to session. Persistent data is stored in a database on disk or tape. Contrast with *transient data*.

persistent link   See *hot link*.

persistent object   An object that continues to exist after the program that created it has been unloaded. An object's class and current state must be saved for use in subsequent sessions. In object technology, persistence means storing the object for later use.

personal agent   See *agent*.

personal communicator   See *PDA*.

personal computer   Synonymous with "microcomputer," "desktop computer," and "laptop computer," it is a computer that serves one user in the office or home. A complete personal computer system with printer can cost as little as $1,000 or as much as $8,000 or more. Size is based on memory and disk capacity. Speed is based on the CPU that runs it, and output quality is based on the type and resolution of its monitor and printer.

Major Suppliers of Personal Computers   The personal computer world is dominated by Windows-based PCs. There are thousands of vendors that make them, from mom and pop shops to huge companies such as Compaq, HP and IBM. The alternate personal computer standard is Apple's Macintosh, which is only made by Apple. Atari and Commodore once carved out their respective niches, but Atari returned to its gaming roots and Commodore has since closed its doors.

The History of Personal Computers   The industry began in 1977, when Apple, Radio Shack and Commodore introduced the first off-the-shelf computers as consumer products. The first machines used an 8-bit microprocessor with a maximum of 64K of memory and floppy disks for storage. The Apple II, Atari 500, and Commodore 64 became popular home computers, and Apple was successful in companies after the VisiCalc spreadsheet was introduced. However, the business world was soon dominated by the Z80 processor and CP/M operating system, used by

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