W

W3C   *(See World Wide Web Consortium.)*

Waldo   A term used to describe a remotely controlled robot or machine.

WAN (Wide Area Network)   A network of computers and interconnected LANs. Typically a WAN is spread over a greater area than a LAN.

WAV   A Microsoft standard file format for storing wave audio data. It can be used to store 8 bit and 16 bit wave audio at sample rates of 11.025 kHz, 22.050 kHz and 44.1 kHz. WAV files are compatible with all fully specified multimedia presentation programs and multimedia authoring tools. They are also compatible with all modern Windows wave audio recorders and editors, including Sound Recorder, Creative Wave Studio and QuickRecorder.
(See ASF, MPEG*, Streaming* and Wave audio.)

Wave audio   A term often used to describe digital audio recordings, usually made using an analogue signal provided by a source device. Such wave audio may be distributed in real time over the Internet using streaming server technologies, or it may be distributed using CD- and DVD-based variants. It may provide content for CD-ROM, DVD or Web applications. Generally it can be distributed and played back using any medium that is capable of sustaining an average data transfer rate that is appropriate to the recorded wave audio quality level. The principal parameters which drive the quality of wave audio recorded using PCM (Pulse Code Modulation) include the sampling frequency and the sample size. The wave audio quality levels that can be achieved are functions of the wave audio recording software and the sound facility on the recording system. MPC-2/3-compliant sound cards may be used to record and play wave audio in mono or stereo at sampling rates of 11.025 kHz, 22.05 kHz and 44.1 kHz, using 8 bit or 16 bit samples. Used with appropriate software, highly specified sound cards offer higher sampling frequencies and larger sample sizes. They may make DAT-quality wave

audio possible, which equates to 16 bit samples recorded at a frequency of 48 kHz. There are many programs able to record and edit wave audio, including Windows Sound Recorder, Creative Wave Studio and QuickRecorder (supplied with Microsoft Windows Sound System). All of these may record CD-quality wave audio, which equates to a sampling frequency of 44.1 kHz and a 16 bit sample size. Wave audio files may also be produced using modern video capture software such as VidCap (supplied with Video for Windows) or Asymetrix Digital Video Producer. Apart from the odd exception, almost all video capture cards have a built-in sound feature that can record wave audio of the same quality levels accommodated by MPC-2/3 cards. Simple calculations imply that one minute of uncompressed CD-quality wave audio, which amounts to 10.08 Mbyte (10321.92 Kbyte), requires a DSM capable of providing an average data transfer rate of around 172.032 Kbyte/s. Approximate file sizes when recording one minute of 8 bit stereo wave audio at different sampling rates are as follows:

11.025 kHz	1.25 Mb
22.050 kHz	2.52 Mb
44.1 kHz	5.04 Mb
48 kHz	5.49 Mb

Approximate file sizes when recording one minute of 16 bit stereo wave audio at different sampling rates are as follows:

11.025 kHz	2.52 Mb
22.050 kHz	5.04 Mb
44.1 kHz	10.08 Mb
48 kHz	10.98 Mb

The memory capacity consumed by a sequence is a function of quality. If it is necessary to calculate the exact memory/data capacity consumed, then the following simple formula can be applied:

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Memory capacity required (bits) = Sequence  duration
(secs) × Sampling rate (Hz) × bits per sample
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For example, if an 8 bit sound digitiser with a sample rate of 11 kHz were used to digitise a 15 second sequence, then:

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Data capacity required (bits)
  = 15 × 11 000 × 8
  = 1 320 000 bits
  = 165 000 bytes
  = 161.13 Kbyte
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Memory or disk data capacity required naturally increases linearly with increased sample rates.

(See MPC-3 and Streaming audio.)

Web   A global hypertext-based structure that may be navigated and browsed (shorthand for World Wide Web). It provides links to information sources and services, which are termed Web sites. Tim Berners-Lee is credited with the Web's invention, and is currently the Director of W3C (World Wide Web Consortium). The initial work was carried out by Berners-Lee when he was a computer scientist at the Centre for Nuclear Research (CERN) in Switzerland. A key facet of the Internet, the Web is based on the hypertext model for information storage and retrieval. URLs are the key to permitting the implantation of hypertext links and navigation schemes on the Web. It can support mixed media, including video. It was released in 1992 by CERN. Its origins are in hypertext, hypermedia and multimedia models and concepts.

 (See Berners-Lee, Tim, Web* and World Wide Web Consortium.)

Web-based company   A company that uses the Web as its marketing and selling channel. Historically, such e-commerce Web sites require CGI scripts and programs in order to implement processing logic. Typically forms posted from the browser are validated in terms of credit card details and so on, and if accepted the customer's order is placed in the database and processed by the vendor at an appropriate point in operations.

(See ASP, CGI, Perl and Transaction.)

WebBot   A name given to components included with Microsoft Front-Page. They each have a specific functionality:

- *Comment* is used to at Web documentation, which is only visible at design time
- *Confirmation* echoes entered user data
- *Include* replaces the contents of a Web page with another
- *Scheduled Include* echoes the Include WebBot functionality, except it may be scheduled for a future date
- *Scheduled Image* echoes the functionality of the Scheduled Include WebBot, except it includes an image rather than Web page contents
- *Search Component* provides Web site search facilities
- *Table of Contents* generates a Web's outline, together with its hyper-links.
- *TimeStamp* is used to display the date and time the Web page was last updated.

(See ActiveX, Java, Microsoft FrontPage and Plug-in.)

Webcasting   A process by which a Web server serves clients or users with specific data or files. The user merely specifies what is required. Webcasting

Webcasting client/server model
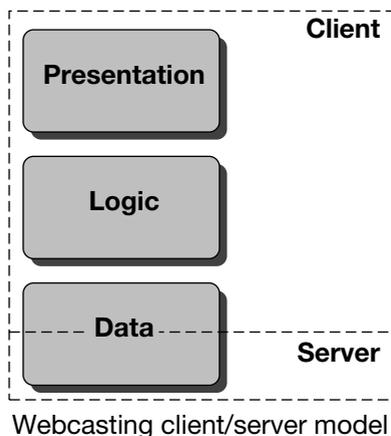
software includes Intermind Communicator and PointCast. Such a process exists within the *push* model. (See Figure).

(See Application software and Client/server.)

Webmaster   An individual that manages and maintains a Web site. His/her duties are numerous, including updating Web pages, adding new content, removing old content and overlooking integrated security features and policies.

Web page   A page which may be accessed via the Web. A Web page may include links to other pages, 2-D and 3-D graphics, sound bites, video, an e-mail address and various forms for user feedback. Its underlying code or glue is HTML, which may be used for formatting as well as for holding together such components as ActiveX controls.

(See ActiveX* and Web*.)

Web phone   *(See Internet telephony.)*

Web proxy   An agent which may be perceived as existing between the browser and the Internet or intranet. Typically they are used for caching Web pages in order to improve performance, hence the term 'caching proxy'.

(See Security proxy.)

Web security   A method of securing Web applications and their associated data from illegal unauthorised use. Securing Web applications and their data typically involves:

- implementing a firewall, which restricts access to selected Web applications and data

- using client-side security features of Windows NT and its variants, and security programs like Virtual Key
- restricting access to server-side data and components, which might include CGI scripts and ISAPI filters
- monitoring system logs
- restricting a user's rights to upload files to server-side directories, to minimise the possibility of virus infections
- adhering to SET guidelines
- designing a security regime where users require membership of the complete site or selected components
- requiring site members to change their passwords
- granting users guest rights, where they may be able to peruse demo Web applications and data.

(See Encryption, Firewall, Security and SET.)

Web server   An architecture which maintains the connection between the server-side processing and data with that of the client-side. The mainstay of one or more Web applications, the Web server may also implement inter-actions between users and server-side databases. User interaction via the browser might be processed on the client-side or on the server-side. ActiveX controls might form a basis for such client-side processing. The Web server interprets user requests and implements specified tasks, such as:

- serving HTML pages, which are interpreted by the browser
- downloading files
- downloading streaming audio, video or multimedia
- downloading Java applets
- downloading ActiveX controls
- interacting with server-side databases

Web servers include the Microsoft Personal Web Server, which can be used for prototyping and for proving conceptual designs. With Microsoft IIS, Windows NT is used as the Web server's operating system.

(See IIS and MCIS.)

Web site   1. A physical server (or collection of such servers) and software that supports the server-side applications and data of Web applications. Users may connect with the physical or virtual Web servers contained therein, using Web addresses such as www.server.com.au. Server-side components of Web applications are numerous, including:

- software server components
- ActiveX controls
- Java applets
- Perl scripts

2. A software solution which serves clients with a Web application. The application contains a page, or number of pages, and has a Web address (e.g. www.testsite.com.). Such sites can be created with numerous software packages. Microsoft Publisher 98, for instance, has numerous useful wizards which guide you through the design of Web sites. The site's interactive and media content will reside physically on the Web server, and be distributed across:

- HTML code
- Scripting languages such as JScript and VBScript
- ActiveX controls
- Java applets.

(See Active server, Active Desktop, Server, Virtual Web server and Web server.)

Web TV 1. A technology integrated into Windows 98 which permits TV reception using an appropriate tuner card. 2. An Internet access appliance which connects with a television. It may take the form of an STB (set-top box.)

(See Streaming video and Video.)*

What-if A term commonly applied to hypothesising in a computer environment. Using fully specified relational databases, it is possible to play What-if by querying stored information. The querying process involves using either standard SQL such as ANSI-92 SQL, OQL (Object-oriented Query Language) or a proprietary querying language or feature such as Borland's QBE (Query By Example). Querying may be used to set up hypothetical situations such as increasing a product price, for instance. The consequences can be viewed almost immediately.

(See Data warehouse and OLAP.)

Wheatstone system A five-wire telegraph system, invented in 1837 by Cooke and Wheatstone, now consigned to the pages of history.

Whetstone A standard benchmark for measuring floating-point computations, which are the binary equivalent of decimal arithmetic. A high rating makes the machine under test suited to arithmetic intensive operations, such as CAD (Computer-Aided Design) or computer graphics, that depend upon matrix transformations. Performing such a test does not require a specialised laboratory testbed but a commercially available diagnostics program. One such program is CheckIt. More sophisticated programs include PC Bench (Ziff-Davis).

White Book   *(See Video CD.)*

Wildcard   A shorthand for search strings. For example, Van Gogh AND Amsterdam can be exchanged for Van*gh AND ?msterdam where * represents any series of characters and ? replaces any single character.

WIMP (Windows, Icons, Menus and Pointers)   A traditional term for GUI environments such as OS/2 Warp and Windows.

Windows   An industry-standard graphical user interface (GUI) and OS for the PC platform. Currently we have Windows 95, Windows 98, Windows NT Workstation and Windows NT Server. Its origins are embedded in work carried out at Xerox PARC (Palo Alto Research Center). In the mid-1980s Microsoft set up the Interactive Systems Group (ISG), a team assigned the task of developing a GUI for the PC. Ex-PARC researcher Scott MacGregor was a member of the Microsoft ISG. The founding father of the Windows concept, however, is deemed to be Douglas Engelbart, who is also credited with the invention of the mouse. Windows 1.01 was launched in November 1985. It was a success, but nothing like that of the Apple Macintosh GUI launched over a year earlier. Windows 2.x was launched in September 1987. Not until May 1990, when Microsoft began selling version 3.0, did Windows become a widespread success.
(See Microsoft.)*

Windows Explorer   *(See Explorer.)*

Windows Help system   A Windows Help system which uses hypertext-based navigation.

Windows Media Player   *(See Media Player and Visual Basic.)*

Windows NT Registry   A configurable set of parameters which allow Windows NT to optimise resources for applications. The *regsvr32* program is used to register components such as:
- ActiveX
- OLE
- DCOM
- COM.

Windows NT Server   A Microsoft 32 bit operating system which includes the functionality of Windows NT Workstation and an additional array of server-orientated features. *(Refer to the Microsoft Web site.)*

Windows NT Workstation   A Microsoft 32 bit operating system which has a graphical front-end. It features a HAL (Hardware Abstraction Layer), which helps provide crash protection. Windows NT Workstation is a complex OS and suite of integrated applications, and includes:

- Windows Explorer, which is used to browse local and remote files, open files and launch programs
- the Start menu, which permits applications to be launched
- the Desktop, upon which icons reside
- Notepad, which is a simple word processor
- Network connectivity functions
- Internet connectivity functions
- e-mail functions

Windows Sound Recorder   *(See Sound Recorder.)*

Winsock   A Windows Application Programming Interface (API), which provides input/output operations for Web applications. Its implementation takes the form of a DLL (Dynamic Link Library), and it is an evolution of the Berkeley Unix sockets, which provide interprocess communications both locally and over networks.

Wizard   A software feature that guides the users through the steps required to perform a specific task. The task might be the addition of computer hardware or programs.

Workflow management   A broad term used to define the coordination of processes necessary to implement a given task, or given set of tasks.

World Wide Web (WWW)   *(See Web.)*

World Wide Web Consortium (W3C)   The publisher, originator and certifier of specifications of Web technologies that include HTTP, HTML and CGI. Further information can be obtained at www.w3c.org.

WORM drive (Write Once, Read Many)   A device to which data may be written but not erased or overwritten.

Wozniak, Steve   A co-founder of Apple Computer and designer of the early Apple computers.

Wrappering   A process used to migrate a conventional program structure to that of an object. The program is renovated in terms of the addition of an object interface. Thereafter it may be stimulated as any other object.
(See Object*.)

WWW *(See Web.)*

WYSIWYG (What-you-see-is-what-you-get) A term applied to a program which is capable of generating on screen exactly what will be printed.