
MULTIMEDIA CD-ROMS LIBRARY NETWORKING

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Multimedia : The presentation of Information on a computer using text, Video, Audio, Animation and Graphics technologies combined in one interactive package.

- Multimedia computer can
- Recreate the sounds of musical instruments
- Play back recorded sounds
- Show pictures and movies on the monitor
- Access information stored in a compact disc with a CD-ROM Drive.

Elements of a Multimedia Programme

TEXT: Displaying of words on the screen - is the base layer of almost all programs. Text is still a quick way to spread information, so programs will always use it.

PICTURES: Multimedia computers can display photograph pictures on the monitor. The pictures creates a lot more impact than just reading.

MOVIES: With a multimedia program, your computer can turn into a TV set, letting you watch your own home movies.

ANIMATION: Sometimes animation (cartoons) can express a point better than movies. Without animation some industry people use the word animation to describe any type of moving picture, including movies.

SOUND : Sound is another feature of the multimedia computer which synchronises all into an integrated text.

Increased control: Unlike a normal, television-style movie, a computerised multimedia program lets you skip past the boring parts and watch the fun stuff. Multimedia programs can go quickly to different areas.

Multimedia is nothing new. Recorded sound, movies, and pictures have been around for years. The new part is the way computers can

intertwine these things. A multimedia program can describe a dog, show a movie of it playing with yarn, play a barking sound, and let you print something you need all at the same time. Some people say multimedia is a glorified word for expensive computer games, they're partly right.

All new computers will soon be sold with multimedia equipment built in. New technology inevitably replaces the old. Stereo sound replaced mono. The telephone replaced the telegraph. And today, even Indian farmers can take advantage of satellite technology - they no longer predict the weather by looking at the sky.

Requirements to meet Multimedia PC Standard

	Level - I	Level - II	for Better Performance
CPU	16MHz 486 SX	25 MHz 486 SX	Atleast 50 MHZ 486 DX
Hard disk	30 MB	160 MB minimum	340 MB
RAM	2MB	4MB	8MB
CD-ROM	Yes (Double Speed)	Yes (Triple Speed)	Yes
Video card	VGA	640 X480 with 65, 536 colors	1024 x768 with 65, 536 colors
Floppy disk	3 1/2 Inch, High-density	3 1/2 Inch, High-density	Same High-Density
Joystick	Yes	Yes	Two
Sound card	8-bit with 8-note Synthesizer	16-bit with 8-note synthe sizer; MIDI playback	Same

CD-ROM

The standard 12-cm- diameter CD-ROM supports up to about 660 M bytes (692, 060,000 bytes) data capacity. A single disc is equivalent to between approximately 400 1.44 M byte floppy disks or 1,500 360 Kbyte floppy disks.

A 12-cm CD-ROM can store up to 250,000 A4 pages of text or approximately 100,000, 000 words.

Technically, using CD technology, data capacities many times greater than this can be achieved with little difficulty.

Like audio CD, a CD-ROM disc physically consists of a metallic disc bonded to a polycarbonate base. This is coated with a transparent,

protective layer. A track spiralling from its centre measures some three miles long, and is arranged at a density of 16,000 tracks per inch.

Placed in the perspective of multimedia, Compact Disc - Read Only Memory (CD-ROM) and other CD variants are nothing more than distribution media. CD-ROM, however, is a vitally important component giving us the ability to meet the relatively large data storage requirements of multimedia while providing a vehicle for distribution purposes. It is also immensely useful as a publishing and information distribution medium, offering unequalled advantages in terms of compactness, large data storage capacity, durability and reliability.

Combining still and moving images, sound, audio, text and interactivity, multimedia has initially culminated in a reevaluation of the ways in which we communicate information. Unlike linear, non-interactive media such as broadcast television, it provides users with a choice of numerous meaningful paths. The paths are defined by choosing options that pertain to a current activity. For example, select information about Albert Einstein and expect to be presented with such options as "Theory of Relativity" "Biography". "Universe" and so forth. Interaction of this sort permits users to gain personal interpretations, or to read essential facts only.

Day-to-day application of multimedia can be visualized by considering activities that resemble the process of communicating information. Examples include education and training, reference, business presentations, manuals, databases, geographic information systems, advertising, documentaries and so on.

Many CD-ROM multimedia titles can be delivered using nothing more than a standard computer linked to a CD-ROM drive. A multimedia Encyclopedia, for example, might combine audio, illustrations, animations and motion video sequences. Typically, video sequences will occupy around 25 percent of the screen and run between five and 15 frames per second.

Multimedia is widely acknowledged as an environment with great potential in education. It is able to assist both the student and teacher in a number of ways, For the teacher it provides a means of putting across information and ideas, and for the student it can represent a one-to-one teaching environment which moves at the required pace. This is the best self learning aid. Using computers, multimedia represents a powerful solution to training, where employees can interact with video under computer control.

Communication

Technology will yield more than "multimedia" causing us to reevaluate the role of the computer. For example, through developments in digital video and real-time video compression, video-telecommunications using personal computers is well on its way to commercial viability. If cost should rule out video capture and delivery at 30 frames per second (fps), more economical 10fps, or even less, will suffice.

Video-teleconferencing is another application with immense potential. Imagine that you are using a computer and you wish to communicate with a colleague. Video-teleconferencing allows you to see your colleague in a window on your monitor screen and vice versa allowing you to talk face to face as if round a table. Voice-mail is another natural by-product of multimedia: the Multimedia PC, can record sound - thus providing a voice computer link. Such technology leads to more efficient use of personnel and in the longer term, could open the door to a far flung workforce.

Hypertext

The rationale behind the development of hypertext was a simple one: to optimise the processes of writing, storing textual information, and accessing that information. Hypertext improves accessibility of stored information by eliminating the need to follow rigorous set sequences. It allows the user to reference masses of related material through the pursuit of adhoc paths.

Advantages of this are easily understood when considering traditional methods. A word unknown to the reader of a book first leads to the index being searched. Failing this, the reader naturally attempts to find reference to the word in another book. The many references required to search a subject or satisfy curiosity is time consuming.

Hypertext is equally useful when writing or simply arranging gathered information. An appropriate hypertext tool, such as Brain Storm, can be used to implant and manifest links between related items of text automatically.

Hypermedia

Hypermedia consists of hypertext combined with still or moving images and sound. Unfortunately, "hypermedia" and "hypertext" are two more terms that may be wrongly interchanged. Strictly speaking, hypertext relies on text only.

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Database

Databases have become synonymous with computer technology, where in recent years information on the printed page has been transcribed to magnetic storage media. A further migration to optical media now looks inevitable, and the creation of many new databases will almost certainly involve a decision concerning whether or not the end-product should reside on CD-ROM.

Windows Multimedia Extensions

The sheer size of the PC installed laser base brings with it a potentially large market for PC multimedia products and falling PC CD-ROM drive prices do a great deal to speed up its arrival. Both the Multimedia PC and the Windows Multimedia Extensions, will also hasten the arrival of this market.

Microsoft Windows (a multi-tasking environment) has achieved a level of success which now makes it a reasonably common PC environment. Indeed a growing number of mainstream applications now require Windows to run. Multimedia Extensions 1.0 are an attempt to introduce a common environment for PC multimedia delivery, yielding a degree of compatibility which has evaded the PC thus far. It is hoped that they will convert much of the growing Windows user base to being a significant PC multimedia user base.

At the heart of the Extensions is the Media Player, which provides control over typical multimedia peripheral devices such as CD-ROM, audio CD and video disc players. It is also able to deliver image files, MIDI files and audio files. Audio files can be mono or stereo, 8- or 16-bit. Wave form audio files can be recorded using the sound Recorder. This also has several effects, such as echo, and it is also possible to reverse a recorded sound.

Multimedia CD-ROM Titles

Wonders of Learning from National Geographic

The National Geographic Society has created the wonders of Learning CD-ROM Library, produced in conjunction with Discis Knowledge Research, Inc. The work explores the wonders of natural science and geography in twenty-three separate books on five CD-ROMs; Each CD-ROM sells for \$89.95 to educators, \$99.95 retail. To order, call National Geographic at (800) 368-2728 weekdays, 8.00 am to 4.00 pm EST or fax orders anytime to (301) 921-1575.

Eduquest Markets New Picture Atlas

Eduquest, an IBM Company, announced it will market picture Atlas of the World, an electronic atlas developed for CD-ROM, picture Atlas of the world is sold at the national education discount price of \$100. It retails at \$143. For more information educators should contact their local Eduquest marketing representative.

The American Indian on CD-ROM

Facts on Files has created a comprehensive single reference source on American Indian history and culture. The CD-ROM product, The American Indian, covers more than 150 tribes of North America and includes rare maps, treaties, and other documents from the National Archives.

Quicktime: The CD 1994

Sumeria, \$49.95, 800/478-6374

The Viking Opera Guide

Penguin Books/Attica Cybernetics, \$99.95

J.F.K. Assassination: A Visual Investigation

Media Multimedia

2703 152nd Ave, NE, Redmond, WA 98052-5515

Encarta - 1994

Microsoft Corporation

1 Microsoft Way, Redmond, WA 98052-6399

The San Diego Zoo Presents... The Animals

The Software Toolworks, Inc..

60 Leveroni Court, Novato, CA 94949.

The 7th Guest

Virgin Games'

18061 Fitch Avenue, Irvine, CA 92714

Street Atlas USA Version 2.0

DeLorme Mapping

Lower Main Street

PO Box 298, Freeport, Maine 04032

Musical Instruments

Microsoft Corporation

Encyclopedia To Go

Microsoft Corporation

A Book Shelf On Disc

Microsoft Corporation

Music To Your Ears

Microsoft Corporation

International Mystery Tour

Broderbund 500 Redwood Blvd.,

Novato, CA 94948-6121

Covert with the animals

The Software Toolworks

Pass the Popcorn

Microsoft Corporation

Books that come alive for kids

Broderbund

Beyond Planet Earth

Discovery Enterprises

World Factbook 1994 edition

Wayzata Technology

Barrons Profiles of American Colleges on CD-ROM

Laser Resources

3-D Body Adventure

Knowledge adventure

Print shop deluxe CD ensemble 2.0

Broderbund

Leonardo the Inventor

Interactive Electronics Publishing

Map "N" go

DeLorme Mapping

Microsoft Golf Multimedia

Microsoft Corp., \$49.95

Mc Graw Hill Encyclopedia of Science & Technology

Mc Graw Hill \$ 1300

Microsoft Complete Baseball

Microsoft Corporation

Microsoft Art Gallery

The Collection of the National Gallery, London

Microsoft Corporation

Microsoft Cinemania '95

Microsoft Corporation

Library of the Future, third edition

World Library

Library Networking

Library collection includes Books and non-book materials. Modern Information Technology adds to the library the non book materials like Audio, Video tapes and CD-ROM Discs. CD-ROM database brings vast information resources into the library without extra costs of on line use. CD-ROM Local area network is cost effective and convenient for access to the readers of the library. University libraries find networked CD-ROM a good solution to the problem of providing in depth research tools. The network CD-ROM is the natural way to make available to many users within the Institution. Library user expectations for more timely information brought about in part by online services is demanding more information fast, accurate at the least cost.

LAN (Local Area Network) WAN (Wide Area Network)

A LAN is a group of computers linked together by cables and special software that allows to share data. Networks are designed in a straight line, a ring or a star structure. CD-ROM can be accessed in a networking environment using a LAN or WAN. If the work stations are within the range of 1km radius they can be networked through LAN or if the work stations widely scattered a few km they will be networked through WAN.

LAN has limits to the number of work stations that can be handled. Performance also impacted by the number of CD-ROM players in use, the number of work stations and the intensity of use.

A WAN allows several LANS to be linked through bridges.

However, any server is limited in the number of work stations it can support simultaneously and a WAN heavy use may require several LOCAL CD-ROM servers.

Decision for going LAN/WAN requires the following far reaching implications to be considered carefully.

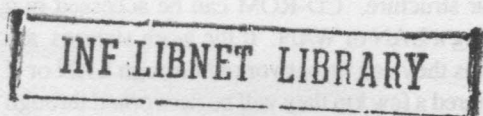
- * Type of network:- Ethernet? Tokenring? Archnet?
- * Type of Software:- Novel netware? Custom built?
- * Type of Cable:- COAXIAL? Fibre Optic? Twisted Pair?
- * Number, Types and locations of work stations.

Benefits of Networking

- Cost effective than online services
- Many users can simultaneously access database at one time
- Multiple drive system(CD-ROM server) help the users to have access to more than one database from each individual work station.
- Library can convert their databases to CD-ROM from Library catalogue and other information for the use of Network users.

Conclusion

The conversion from physical forms and magnetic media storage to optical media storage is fast approaching. CD-ROM is accepted to be the prominent, effective and efficient method for future database distribution. Many publishers have committed themselves to CD-ROM. The growth in use of personal commputers and LAN/WAN will make CD-ROM networks a promising information delivery systems.



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