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# CD-ROM PRODUCTS AND ACCESS A NETWORKING MODEL FOR C.B.I.T.

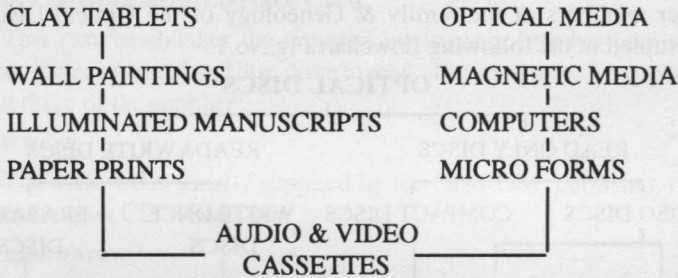
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## 1. Introduction:

The information storage medium has changed through the ages from Ancient Papyrus, Clay Tables & Wall Painting to Optical Storage Medium as follow:



In Optical media COMPACT DISCS (CDs) are the latest information storage devices. All types of Optical discs store information in digital form using pits of identical length on the surface of the disc, are read by a laser beam. Now the optical media is widely used for compact storage and speedy dissemination of information in text, audio, video form to the needy around the world.

## 2. What is a CD-ROM ?

- a. CD-ROM is an acronym that stands for "COMPACT DISC READ ONLY MEMORY".
- b. It is an optical disc of 12 cm in diameter and a hole of 1.5 cm at the centre and it has 0.12cm thickness.
- c. The CD-ROM disc is made of a tough plastic substance material called polycarbonate and as per ISO-9660 standard.
- d. It is a pre-recorded disc, you cannot erase or overwrite anything

- on it.
- e. Both the recording and reading of the data from CD-ROM by using the Laser beam.
- f. CD-ROM Data or Information can be read only by using a computer and an appropriate software.

**3. CD-ROM: Storage Capacity**

Information or data is recorded on one side of the disc only. In each disc we can store approximately 600 megabytes of information. That is equal to:

--1500 floppy discs, ---2,50,000 pages of text in ASCII format,--75 minutes of music, --18,000pages of computer graphics, --4500 hours of digitised voice and an entire text of 20 Vol. of encyclopedia.

**4. CD-ROM: Geneology**

CD-ROM is a one of the family member of the Optical Disc. The other members of the family & Geneology of the Optical Discs are illustrated in the following flowchart Fig.No.1.

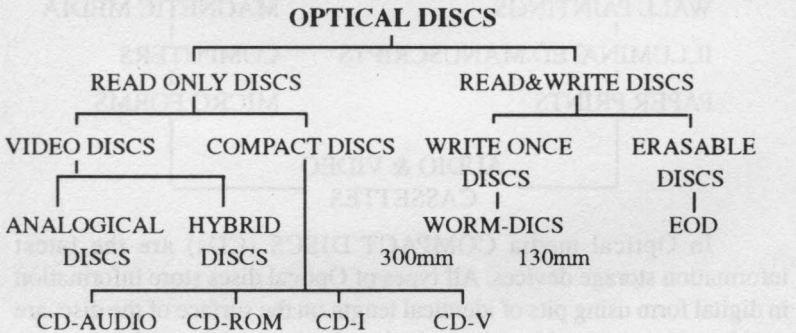


Fig 1: Optical Disc Family

**5. CD-ROM Based System Configuration:**

A CD-ROM based system consists of the following sub systems

1. Micro Computer
2. CD-ROM drive
3. CD-ROM data base
4. Disc control card
5. Software
6. Humanware

### **5.1 Micro Computer:**

A PC/AT configuration with IBM/RAM and preferably color monitor with a minimum RAM size of 640 KB or higher, a floppy disc drive of either 5-1/4" or 5-1/4" or 3-1/2" diskette, Hard disc and a Printer.

### **5.2 CD-ROM Drive**

It loads and runs a disc. It has a built in Laser Beam device, which scans and reads a CD-ROM Disc. The leading CD-ROM manufacturers are PHILIPS, SONY and HITACHI.

### **5.3 CD-ROM Database**

CD-ROM Disc stores a huge amount of information/data. Most of leading databases are currently made available on a disc. While ordering CD-ROM Databases compatibility should be ensured because all the CDs are not comparable to all drives.

### **5.4 Disc Control Card/Interface Card**

This card establishes the required intelligence link between the micro computer to search and disc drive to read. This card usually supplied with the drive of the supplier.

### **5.5 Software**

The software is usually supplied by the CD-ROM publisher, the data accessing on CD-ROM Disc.

### **5.6 Humanware**

A person should have knowledge and training in operation of the CD-ROM system.

## **6. CD-ROM Advantages and Disadvantages**

### **6.1 Advantages**

- a. It has a permanent, durable, large storage capacity.
- b. It has data protection, nobody can enter or erase the data.
- c. The production cost is low.
- d. Many can search data as many times as they want with or without paying any additional charge.
- e. We can transfer /mail it to anywhere and to any other medium such as paper, magnetic disc etc. through Personal Computer.
- f. It can be accessed by a Personal Computer.
- g. It is ideal for library storage and it reduces the shelf space.
- h. It can be useful as mass media in dissemination of information.

- i. It is a useful tool for training programme before entering into Online search.

## **6.2 Disadvantages**

- a. A number of sources are not yet available in CD-ROM.
- b. Multiple file searching, cross tailing is difficult.
- c. Hardware and software compatability problems are evidenced in Local Area Networks.
- d. Update frequencies are less frequent and delayed sometimes.

## **7. CD-ROM: Library and Information Retrieval Applications :**

- a. Collection development.
- b. Reference Service.
- c. Indexing and Abstracting.
- d. Cataloguing.
- e. Online Public Access Catalogues.

### **7.1 Collection Development :**

Leading publishers are bring out their paper prints in CD-ROM discs, notable among are BOOKS-IN-PRINT PLUS, ULRICH's PLUS from Bowker, LASER SEARCH from Ingram, EBSCO Serials Directory, McGraw-Hill, Pergmon and Wiley are releasing their titles on CD-ROM. Thus CD-ROM is emerging as a successful collection development tool.

### **7.2 Reference Services :**

Some of the important reference sources are now available on CD-ROM Disc. Search for the information from CD-ROM reference source facilitates the reader in saving search time. And also in less cost we can acquire more reference sources on CD-ROM discs. Important reference source which are available on CD-ROM Discs are MICRO SOFT BOOK SHELF (Which is a whole set of ready reference materials namely : AMERICAN HERITAGE DICTIONARY, US ZIP CODE DICTIONARY, ROGETS THESAURUS, WORLD ALMANAC etc.) and indexes such as READERS GUIDE, LIBRARY LITERATURE, GROLIER'S ELECTRONIC ENCYCLOPEDIA, FACTS ON FILE etc.

### **7.3 Indexing and Abstracting :**

Most of the leading abstracting and indexing journals are now available in computer databases. This facilitates search for the data and information. The Bibliographic databases were now available on CD-ROM. Now DIALOG & WILSON are the leading publishers of CD-

ROM, who are also in ONLINE business are offering a combined package of access to CD-ROM for back files and Online access to current years including current updates. The major databases available on CD-ROM are : INSPEC , COMPENDEX (Computerised Engineering Index), MEDILINE (Medicine), AGRIS and AGRICOLA etc.

#### 7.4 Cataloguing :

This is an exciting application area that CD-ROM entered Library profession's environment. Libraries are increasing day by day in using of CD based system for retrospective conversion. Some leading companies are now bringing cataloguing back to the local level with CD cataloguing support data bases. They are :

BIBLIOFILE by Library Congress, LASERCAT by New England Library Network, CAT CD-450 by OCLC, LASER QUEST by General Research Corporation, BNB, EBSCO and FAXON etc.

#### 7.5 Online Public Access Catalogue (OPAC)

OPACs are said to be the recent applications for CD-ROM technology. CD OPACs are now developed by many firms because of the increasing switch over from online catalogue to OPAC. The CD-OPAC are

- Cheaper in terms of hardware and software investents
- It can be accessed online in a LAN environment
- Its production cost will be less

The leading firms which are creating CD-OPACs are : BRODART, AUTO-GRAPHICS, LASER CAT and WLN.

### 8. CD-ROM vs ONLINE.

Both CD-ROM and ONLINE are electronic media for information delivery with different delivery and cost mechanisms. The two media become targets of speculative comparison. After the CD-ROM technology entered in the market, there was a decline in the usage of ONLINE in Academic Market. In the Library environment with CD-ROM data bases becoming available, online usage is declined in some segments. The comparison of CD-ROM and ONLINE advantages are as follows.

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CD-ROM	ONLINE
- It is a storage technology	- It is an access technology
- It is an Optical storage	- It is a Magnetic storage
- There are 600 + databases on CD-ROM discs	- There are 4500+ data base on ONLINE

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CD-ROM	ONLINE
- Own or lease the databases	- Share the databases
- You have to pay before use	- You have to pay after use
- More use and less pay	- More use and more pay
- Special training for search is not necessary	- Special training for search is required
- Searching is slow	- Searching is fast
- Single file searching	- Multiple file searching
- Updating of data is slow	- Updating is fast and real time
- A PC system is necessary	- A main frame super mini based system will require
- First pay, get and search the data	- First search get and pay

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### 9. CD-ROM Products/Titles:

By seeing advantages of CD-ROM storage technology most of the leading Publishers/Companies are started CD-ROM business. They are bringing out their publications in disc media. Some of the CD-ROM products mainly in Engineering, Science and Technology are listed below.

#### 9.1 Applied Science and Technology Index:

It is brought out by the H.W.Wilson Company as a Monthly. It provides timely Scientific and Technical information, with indexing of 391 key science and technology periodicals from 1983 to the present. It covers major subject areas of Aeronautics, Space Science, Computer technology, Civil, Electrical and Mechanical Engineering, Physics, Chemistry and much more.

#### 9.2 Concise Engineering and Technology Index :

It is broughtout by Engineering Information Inc., as a Bimonthly. It is a selective subject of the noted engineering database, EI-Compendex Plus. It provides abstracts and indexing to some 425 international journals and key conference proceedings from 1987 to the present. Its broad subject coverage includes Chemical Engineering, Civil Engineering, Manufacturing Engineering and more.

#### 9.3 ICONDA :

It stands for INTERNATIONAL CONSTRUCTION DATABASE. It covers construction and construction related topics. It is endorsed by International council for Building Research studies and Documentation and the International Union of Building Centres. Recently construction

Index is added from Architext. The database covers 1974 to the present and contains over 300000 records from over 800 periodicals world wide. The main covering subjects are Architecture, Civil Engineering, Construction, Science and Technology.

#### **9.4 Intelligent Technologies :**

It is from the Turing Institute as a Quarterly. It provides information on the areas of Artificial Intelligence Expert systems and Advanced Robotics. It covers data from 1983 to the present.

#### **9.5 ISMEC Mechanical Engineering Abstracts on Silverplater**

It is brought out by the Cambridge Scientific Abstracts as a Quarterly. It provides summaries of the World Literature in Mechanical Engineering, Production Engineering and Engineering Management. It covers 1973 to the present.

#### **9.6 RSWB :**

It is brought out by Regional Planning and Building Construction as a Semi-annual, with over 4,00,000 records. RSWB is a unique and expensive source for construction, Engineering, Computer Aided Design, Regional Planning, Housing, Architecture, and more. It covers from 1976 to the present. It provides important research for individuals concerned with building, civil engineering, architecture and urban planning.

#### **9.7. SIGLE :**

It stands for SYSTEM FOR INFORMATION OF GREY LITERATURE IN EUROPE. It is brought out by European Association for Grey Literature Exploitation (EAGLE) as a Semi-annual. It provides information about the research and important advances in Science and Technology generated in Europe, which is not available through normal literature distribution channels. It is very useful for the Engineering, Pharmaceutical, Chemical and Medical fields. It contains over 2,50,000 records.

#### **9.8 INSPEC on Disc:**

It is a leading database of Physics, Electronics and Computing Information. It provides abstracts and indexing to over 4,300 technical journals dissertations, reports and conference proceedings. These are available in 3 editions. INSPEC complete'd, INSPEC Electronics and Computing and Third one INSPEC Physics. Information available on this discs from 1989 to the present.

### **9.9 IEEE/IEE Publications on Disc :**

It is a monthly. It enables users to search retrieve and print original pages. It covers over 1600 titles from 1988 onwards.

### **10. Networking of CD-ROM Products :**

The term "NETWORK" takes a new meaning when CD-ROMs are concerned. It is now possible to Network CD-ROMs, which are previously one drive one user policy. If the PC is networked across the organisation, it enables multiple user access to databases for the price of single subscription in a Local Area Network (LAN) environment. Some of the important CD-ROM Network products are :

- i. CD-net
- ii. OPTI-net
- iii. LANtastic
- iv. JUKEBOX

The first CD-NET was developed by the MARIDIAN DATA INC., USA. SILVER PLATTER is the first database publisher to market a CD-NET for the Libraries known as MULTI PLATTER, the stand alone system which allows works stations or nodes to access any one of upto 21 (twenty one) discs that can be loaded on the Network Server and also several users can access the same disc simultaneously.

The CD-net information system performs as a leader in a PC Local Area Network (LAN) and it provides upto 4.8 GB of CD-ROM based information in a single cabinet to access by the network nodes or departments. The CD-net gives security in two levels. First, it provides a locking door to prevent unauthorised physical access to or removal of valuable or sensitive information. Second as a passive device (without a local keyboard or display), access to information is controlled by the administrator and existing network security mechanisms. CD-net is simple to install in any location on network. CD-net works with all PC LANs, including those provided by NOVELL, BANYAN, MICROSOFT and IBM.

### **11. A Model CD-NET for CBIT :**

CBIT stands for CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY. CBIT is one of the leading Engineering Colleges in Andhra Pradesh. It was started in 1979-80 academic year. It is located at Gandipet (near Osman Sagar) 16 KM away from the Hyderabad city on a pleasant peaceful site of 30 acres of land. The Institute has on its rolls



nearly 90+ well qualified Teaching Staff and 120+ Non-Teaching Staff. The strength of students of various courses is nearly about 2000. The Institute is offering B.E. Four-year course with Civil, Mechanical, Production, Electronics, Electrical & Electronics and Computer Science Engineering branches, Three-year B.E. course for Diploma holders in Civil and Electronics branches and a Three-year M.C.A. programme. The Institute is planning to start new courses in B.E. Chemical Engineering, B.Pharm and M.B.A.

In CBIT, except non-engineering departments, all the engineering departments have their own computer hardware. The available hardware can be used to plan for a BUS type of LOCAL AREANETWORK (LAN) as shown in Fig. No.2 with thick Ethernet cable from Library to the other Departments including Computer Centre. The CD-net can be on the thick Ethernet as stand alone and the Library Database be connected with thin Ethernet separately to the LAN.

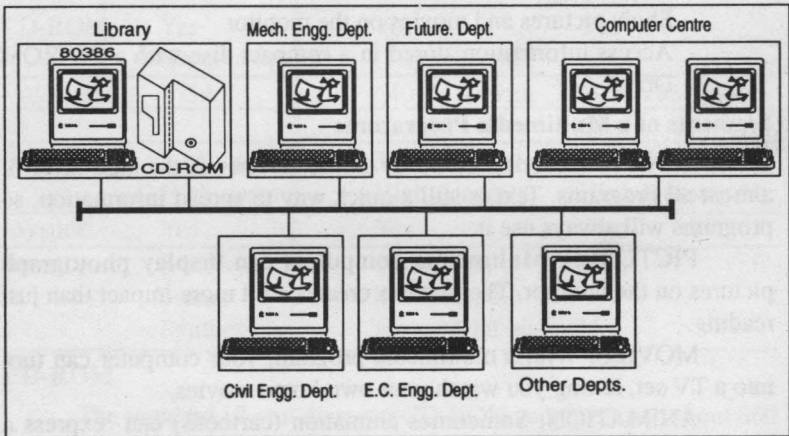


Fig. 2. : A Model BUS type LAN for CBIT

## 12. Conclusions

Taking the above model of the CBITNET it is possible to connect other Engineering and Technology Libraries of Hyderabad for better resource sharing. The plan envisages a nodal centre with the common databases pooled for sharing by the participating Engineering and Technology Libraries. This will lead to better utilization of available limited resources with more benefits to the users.