DIGITAL LIBRARY
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Definition

Ray R. Larron says "Digital Library is a global Virtual library. The library of thousands of networked electronic libraries.

"Digital libraries are libraries with some purpose, functions & goals as traditional libraries-collection development and management subject analysis, index creation, provision of access, reference work and presentation. A narrow focus on digital formats alone hides the extensive, behind the scenes work that libraries do to develop and organize collects and to help users to find information."

Requirements

The Components of digital library are

- Local library system with adequate PC's having LAN Connection
- Local databases, CD-ROM, Servers, Provision of E-mail
- Networks including networks of networks
- A variety of systems functions to co-ordinate manage the entry to retrieve data
- Well trained manpower
Functions

- To manage large amount of digital contents (ex) Images, Audio Clips
- To manage contents from multiple locations
- To enable greater access to information
- To enable one to perform searches that are not practical manually
- To preserve unique collections to digitalization
- To provide means to enrich the teaching and training environment
- To protect content owners of information

Networks

The networks can be Local Area Network (LAN) or Wide Area Network (WAN) across multiple cities.

The Client & Server machine communicate through standard Application program Interfaces (API) and remote procedure calls. The language through which RDBMS based C/S environment communicate is known as Structural Query Language (SQL).
Data Capture / Content Creation

Content creation is the process of converting non digitized data in the form as printed document, photographs, video and audio recordings using digital cameras. The data can be stored in text or image form.

Optical Character Recognition

OCR

Data \text{ --------------------> Text Format}

Text files are directly searchable because they are small compare to Image Files

Data Storage/Management

Server machines store & retrieve data, RDBMS (Relational Database Management system like SYBASE, Oracle & DBS are being used popularly for organizing and managing the digital data.

Server machine has to retrieve data from various resources, networks to the users irrespective of time & geographic location.

Client machine controls by users stored in the server. It also maintains indexing information. It include organisation and filtering tools. It different forms of data. The role of client machine and the server can be played a single computer for small collection. The query is routed in the client.
**Digital Publication/Distribution**

An important demand of digital library solution is "network computing. Most of the digital libraries use Internet for electronic publication & Distribution. It promises universal and unified access for information.

Electronic environment enables editors to send the manuscripts of scholarly articles to reviewers & to receive responses more quickly and to publish the journal expeditiously. In electronic form the type setting cost of a paper is low compare to other forms. Publication of University Journal can be done by mounting it on the network as soon it clears the editorial review. The subscribers else where can retrieve them from network.

**Right Management:-**

It is an important issue which includes ownership designation, billing requirement (or) royally management. It are technological, sociological and all the issues that effects rights management. Billing cost & pricing policies are other important factors to be considered. The fee may be pay-per use, pay per a preset number of user for a specified period of time. Collecting money for use of a particular piece of item such as diagram or image within a large item may be more expensive than to simply grant permission to use it.
Technological used:-

Non technical factors affecting right management such as laws, legislation, regulations and licenses are developed to data improper access & use of information & to product intellectual property rights.

Technology has developed some methods for right management. IBM has developed visible and hidden marking techniques that enables designation and ownership of digital content and data misuse variable watermarks utilising a patented process called Variable Random Brightness Alteration (VRBA)

Least significant Bit Coding (BC) techniques is implemented by hiding data by adjusting one of the light bits representing a byte of information of an image. The unlicensed user can only see the image and does not have access to the information encoded with the image. “Trusted system” technology is being developed by a group of companies namely IBM, Folio & Xerox.

Nuromedias Rocket book says

“The development of trusted system following software is although critical for collection maintenance, statistical information & maintaining good relationship with publishers libraries need to be able to prove that we are lending out only the copies for which we have paid”.

Advantages

- Information is always available and not limited by physical location
- Electronic documents can be many
- Quick, accurate and easy to locate information
• Acquisition, cataloguing or indexing facilitated easily

Limitations

• Information in digital library can be accessed only through computer
• Digital library demand dust free centrally air conditioned atmosphere for perfect performance
• Digital data is too unstable. The durability of a single CD-ROM is for only 25 years
• A lot of time is consumed in the retrieval process
• Lack of global organisation

Acquisition of Digital Resources

Availability of CD-ROM, and more recently DVD-ROM, as a media with high-storage capacity, longevity and ease of transportation, triggered production of several CD-ROM-based information products including several bibliographic databases which were earlier available only through online vendors or as abstracting and indexing services in printed format. Thousands of CD-ROM databases are currently available from multitude of CD-ROM producers including Silver Platter, which alone produces more than 200 CD-ROM information products.

More ever several full-text databases also started appearing in late 1980s and early 1990s launching the beginning of a new digital era. Some of the important full-text digital collections available on CD-ROM include: ADONIS, IEEE / IEE Electronic Library (IEL), ABI/INFORM, UMI's Business express and Library and General Periodicals, Espace, World, US Patents, etc. CD-ROM networking technology is now available for providing web-
based simultaneous access to CD-ROM databases on the Local Area Network (LAN) as well as Wide Area Network (WAN). More evolved technology allows caching the contents of CD-ROMs on to a server, which, in tern, provides web-based simultaneous and faster access to the information contents of CD-ROM on LAN/WAN. The libraries have an option to subscribe to these full-text databases as a part of their digital resources.