

Digital Libraries: an Overview

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Abstract: - *A digital library is nothing but the transformation from traditional library. The digital libraries concept comes into existence in the 21st century. Virtual library, electronic library, library without walls and digital library are synonymous to each other. In this study, we have discussed the definition of digital library, its challenges and issues, etc. Using digital library, access is provided to anyone, anytime, and in any form.*

Keywords: Digital Library, World Wide Web, Email, FTP, Virtual Library

1. Introduction

Digital libraries are systems providing user with coherent access to a very large, organized repository of information and knowledge. Digital library is a global virtual library. Several terms have been coined at different times to represent the concept of library without books. Libraries having information in computer readable format or having access to information in digital format have risen to an unexpected high and thereby the traditional libraries were conformed to problems to meet the instant growing demands of the user communities for their multidimensional approaches. Recent advances in the information world have transformed the role of the library in disseminating information to users. Increase in the

number of users and their different needs have made modem libraries to apply new communication technology. As a result of this there is a worldwide need and trend to collect organize manage, protect and distribute information in digital form.

1.1. Concept of Digital Library

The terms, which have been in vogue at different times, include paperless library, virtual library, and electronic library online library, desktop library, and polyglot library, library without boundaries and more recently digital libraries.

- The term Digital library in a broad sense is a computerized system that allows users to obtain a coherent means of access to an

organized electronically stored repository of information and data.

- Collection in which complete contents of documents are created and converted to computer possible form for online access.
- Online databases and CD-ROM information products.
- Computer storage devices on which information repositories reside such as optical disc, Juke bases DVD ROM towers etc.
- Database including library catalogue accessible through the Internet.
- Computerized networked library system.

The digital library is making the library undergo a change in the paradigm of its role to create, organize and distribute information resources. A digital library is a distributed electronic collection that covers virtually all fields of human endeavor to serve the defined community.

Digital libraries are logical extension and augmentations of physical library. They extend and augment their physical counterparts by extending existing resources and services and enable development of new possibilities for information access and Retrieval in other worlds Electronic library based on digitalized data is text replacing the paper based records and that is why with the help of networking one can have access to resources round the clock. The advantage includes resources sharing, documents delivery services and data transmission in a minimal duration.

The collection of information image graphics etc. in a digital library without any geographical circumscribe are disseminated in all digitized form through internet which are accessed by the network services provider and millions of users connect their PC's through Digital collection services using Local Area Network (LAN) Technology to get a transformed authentic, pin pointed information.

1.3. Digital Library: A Brief Expression

Clifford Lynch, a well know expert on Internet and web technology, defined digital library as “System providing a community o f users with coherent access to a large organized repository o f information and knowledge. The digital library is not just one entity, but multiple sources are seamlessly integrated.

According to R. Smith digital libraries are “Controlled collection of information bearing objects (IBOS) that are in digital form and that may be organized, accessed, evaluated and used by means of heterogeneous and extensible set of distributed services that are supported by digital technology.”

According to E. A. Fox, the digital library may defined as the “ New way of carrying out the function of libraries encompassing new types of information resources, new approaches to acquisition, new methods of storage and preservation, new approaches to classification and

cataloguing intensive use of electronic system and networks and dramatic shifts in intellectual organizational and electronic practices.

According to computer professionals, a digital library may be simply a distributed text based information system a collection of distributed space, inters linked information or a networked multimedia information system.

According to researchers “The digital Library is a support tool of learning in both formal an informal manners for high technology users of world wide web (www), the digital library provides the enhancement in performance organization usability and functionality”.

Technical issues in the Development of Digital Libraries.

Some of the major Technological challenges and issues drawing the attention of workers in this area include.

- High band with computer network supporting efficient multi media document transfer
- Open communication protocols (client-sever, e.g. z39.50for IR)
- Information access tools (browse, display and search tools)
- Meta database (data based that describe and provide links to other databases/ Information sources
- Electronic publishing tools (personal, institutional, publisher)
- Data compression

- Digital storage
- Scanning and conversion technologies
- Media integration technologies (multi-media)
- Advanced retrieval, indexing, natural language processing, routing and filtering
- Document description and representation standards (e.g. SGML)
- Inter operability (how do multiple digital libraries interact) g
- Privacy, authentication and security.

A digital library is expected to support the following features.

- Provide access to very large information collection(s)
- Focus on providing access to primary (or complete) information not merely surrogates or indexes.
- Support multimedia content
- Network accessible Provide user-friendly interface
- Use declarative representation of document (e.g. tagged small text) in addition or as against image, postscript, etc. forms
- Unique referencing o f digital objects
- Enable link representation to local external object (hypertext)
- Clearly separate the digital library and the user interfaces by employing client server architecture.

- Support traditional library mission of collection development organization. Access and preservation.
- Support advanced search and retrieval
- Available for a very time
- Integrate personal group enterprise public digital library.

2. Services of Digital library

After converting a traditional library into a digital library the following services can be provided.

2.1. E-mail

E-mail can be used to communicate quickly with users and others.

2.2. File transfer Protocol (FTP)

File Transfer Protocol (FTP) is the standard mechanism provided by TCP / IP for copying a file from one host to another.

- Transferring files from one computer to another is one of the most common tasks expected from a network or internetworking environment.
- FTP differs from one other client server application in that it established two connections between the hosts.
- One connection is used for data transfer, the other for control information.
- FTP uses two well-known TCP ports: port 21 is used for the control connections and port 20 is used for the data connection.
- The FTP is client server architecture

- The client has three components user interface client control process and client data transfer.
- The server has two components the server control process and the sender data transfer process.

2.3. Remote login

- When a user wants to access an application programs utility located remote login.
- Here the planet (TELNET) client server programs come into use.
- The users send the keystrokes to the Terminal deliver where the local operating system accepts the characters but does not intercepts them.
- The characters are sent to the PLANET client, which transfer from the characters to a universal character set called network virtual Terminal character and deliver them to the local TCP/IP Stack.

2.4. World Wide Web

- The World Wide Web is a repository of information spread all over the world and linked to other.
- The www has a unique combination of flexibility portability and user-friendly features that distinguish it from other services provided by the Internet
- www today is client sever service in which of client using a browser can access a service using a server.
- The service provided is distributed over many locations called websites.

2.5. Automated Web Search (Search engines)

- It is technique of document searching
- For document searching the system is used is called search engine.
- The software will help for retrieve the documents of specific information fast by using broken logic operators and truncation of search terms.

The some main Internet search engines are gophers, google etc.

3. Digital Library Importance

3.1. Implementation of I.T. environment

It is a important factor in the respect of library information technology, through the melding of computer technology with communications, digital imaging, and full-motion video and sound, can be a powerful ally to improving education and thus improving skill for grain full employment. But in order to do this libraries and libraries will have to change. Changing the traditional to digital is improving the education and skill.

3.2. Speed

As we go from traditional to digitalization concept we feel that the speed becomes faster the speed factor may be realized in respect of working of office worker or students/ user working. By digitalization the user retrieves information faster.

3.3. Accessing Power

Digital Library provides accessing power to user. In digitalization environment the user accesses the latest information. User can interact with larger no of datasheet. The user also accesses the worldwide information through digital library.

3.4. Supporting Power

In Digitalization concept, The Digital library support wider range of material. It also increases the ability to deal with large datasheet.

3.5. Space power

The Digital Library increases the space power. It means that we are making portable system for materials. As the Technology increases the portability also increases AS example like compact disk, DVD system minimize the larger data and store it larger. So there is no storage problem.

4. On line Reference Books

Educational software enhances the knowledge experience if it is designed well and developed by expert group. The quality of digitized reference materials today is a huge leap. Forwarded From even the best leering programs available in 1990s it is due to the contribution of I.T. and the advances in computer hardware and software. Lighting fast microprocessors, large memory, super quick high-resolution video display cards, sophisticated soundboard. Which deliver digital

audio and the storage medium the CD ROM which holds as much data as 450 high density diskettes materializes the provision of reference facility for thousand of multi volume encyclopedia and other materials.

The convergence for the digital audio, video and accelerated processing speed has led to the computing concept 20 denoted by the term multimedia. Most of the online reference books are designed to take advantage of these new technologies By offering faster and more colorful animation, audio narrative and feedback, video clips and often huge variety of activities in one program software publishers and developers are creating some truly ground breaking learning aids.

5. Challenges Before Digital Library

5.1. Cost Limitation

To establish a digital system in the traditional Library system is costlier in initial stage.

5.2. Skill person

If we want to work in digital system we need skill person in respect of working and maintaining

5.3. Effect of Technology

Today there is advancement in software and hardware. The digital library is wholly dependent on telecommunication and computer. As new technology comes in the market the digital system should change or adopt that technology.

5.4. Security problem

When our digital system is connected to Internet the major problem is the security to prevent the unauthorized access and to prevent the information from virus is the major task in digital system.

6. Digital Library Advantages and Disadvantages

6.1. Advantages

The advantages of digital libraries as a means of easily and rapidly accessing books, archives, and images of various types are now widely recognized by commercial interests and public bodies alike. Traditional libraries are limited by storage space; digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library can be much lower than that of a traditional library. An important advantage to digital conversion is to highly increased accessibility to users. They also increase availability to individuals who may not be traditional patrons of a library, due to geographic location or organizational affiliation. Some advantages are as follows:

- **No physical boundary:** The user of a digital library need not to go to the library physically; people worldwide can gain access to the same information, as long as an Internet connection is available.

- **Round the clock availability:** A major advantage of digital libraries is that people can gain access 24/7 to the information, i.e., users can access the information anytime provided the proper network connectivity.
- **Multiple accesses:** The same resources can be used simultaneously by a number of institutions and patrons.
- **Information retrieval:** The user is able to use any search term (word, phrase, title, name, and subject) to search the entire collection. Digital libraries can provide very user-friendly interfaces, giving clickable access to its resources properly.
- **Preservation and conservation:** Digitization is not a long-term preservation solution for physical collections but does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use. Preservation and conservation of data in the digital library are one of an important issue.
- **Space:** Whereas traditional libraries are limited by storage space, digital libraries have the potential to store much more information; simply because digital information requires very little physical space to contain them and media storage technologies are more affordable than ever before.
- **Added value:** Certain characteristics of objects, primarily the quality of images, may be improved. Digitization can enhance

legibility and remove visible flaws such as stains and discoloration.

- Easily accessible.

6.2. Disadvantages

There are some disadvantages of digital libraries also, which are as follows:

- User authentication for access to collections
- Digital preservation
- Equity of access
- Interface design
- Interoperability between systems and software
- Information organization
- Training and development.

Conclusion

Libraries around the world have been working on this daunting set of challenges for several years now. The library information center has to overcome the inhibitions and look ahead for the betterment of information services to the user community by successfully adopting the digital technology - the need of the hour and keep pace with world. It seems that the days may not far when the whole world would have digital libraries interconnecting all libraries to meet the academic and research needs within the short time. However, before digital libraries took over the library and information network, the country's archives laws needs to be changed to meet the current challenges in the areas of copyright protection of data and prevention of corruption of data.

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