

## DIGITAL LIBRARIES : AN OVERVIEW

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### Abstract:

*During the past recent years, there has been tremendous development reaming the concept of digital libraries-a knowledge base that can be stored and retrieved through on-line networks. Digital libraries are the most complex form of information systems that support digital document preservation, distributed database management, hypertext, filtering, information retrieval and selective dissemination of information. This has really overcome geographical barrier offering wide range of academic, research and cultural resources with multimedia effects which can be accessed around the world over the distributed networks. The paper examines the concept of Digital library, the technology that has enabled its emergence & architecture of digital library system. It also highlights the digital library projects undertaken in USA, UK and India. Here the authors explored the unique feature of digital library and possible challenges ahead for library and information professionals in the digital environment.*

### Introduction

With the advancement of science and technology, country has witnessed an unprecedented growth of information resulting in information explosion and the information being generated in different formats has further created havoc in providing cost-effective information services to the user community. As a result, libraries have been constantly facing the problems of space, escalation in cost of books & journals, budget shrinkage, inability to provide multiple copies and most important is retrieval efficiency of user being endangered for want of information. The urge to overcome these problems has called for adoption of technology in libraries. These technologies includes

- CD-ROMs and Digital Video Disk Read Only Memory ( DVDROMs)
- Networking of Computers
- Image/Text compression
- Multimedia technology
- Powerful processors

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The powerful technology has enabled Library/Information Centres to create multimedia information databases which provides easy retrieval & access with personal computer connected to the network. This has led to the concept of “ Digital Library ” . In digital libraries, the question of loss of documents is overruled while the searching of information is effective and efficient due to global indexing & search engines.

### **Digital Libraries: Features**

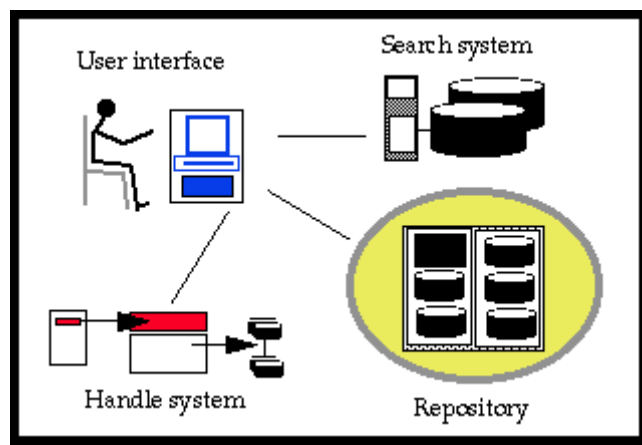
Digital library is a collection of textual, numeric data, scanned images, graphics, audio & video recordings that provides access to digital collection for ease of retrieval of information to the users.

### **Digital library is characterised by :**

- Library is at the disposal of users that facilitate access of information by just push of a button.
- Information sources is digitised, compressed and stored in textual/numeric, audio, video,graphic form.
- Time saving device for user community
- Computer assisted search
- Geographically distributed creating the concept of world as a global village
- Alerts users based on their subject interests.

### **Architecture of Digital Library System**

Digital library system represents the richness and wealth of information which provides the unsophisticated users with flexible access to rich and complicated information. The key components of digital library system are represented in the following chart.



Major system components

## **User interfaces**

Both the pilot and the prototype have two user interfaces: one for the users of the library, the other for the librarians and system administrators who manage the collections. Each user interface is in two parts. A standard Internet browser is used for the actual interactions with the user. This can be Netscape Navigator, Microsoft's Internet Explorer. The browser connects to client services, which provide intermediary functions between the browser and the other parts of the system. The client services allow the user to decide where to search and what to retrieve; they interpret information structured as digital objects; they negotiate terms and conditions, manage relationships between digital objects, remember the state of the interaction, and convert among the protocols used by the various parts of the system.

## **Repository**

Repositories store and manage digital objects and other information. A large digital library may have many repositories of various types, including modern repositories, legacy databases, and Web servers. The interface to this repository is called the repository access protocol (RAP). Features of RAP are explicit recognition of rights and permissions that need to be satisfied before a client can access a digital object, support for a very general range of dissemination's of digital objects, and an open architecture with well defined interfaces.

## **Handle system**

Handles are general purpose identifiers that can be used to identify Internet resources, such as digital objects, over long periods of time and to manage materials stored in any repository or database. When used with the repository, the handle system receives as input a handle for a digital object and returns the identifier of the repository where the object is stored.

## **Search system**

The design of the digital library system assumes that there will be many indexes and catalogues that can be searched to discover information before retrieving it from a repository. These indexes may be independently managed and support a wide range of protocols.

## **On going Digital Library Projects:**

Various digital library projects are in operation in different countries. Some of the major projects are:

**I.** National Science Foundation ( NSF ), Advanced Research Projects Agency ( ARPA ) and National Aeronautics & Space Administration ( NASA ) jointly funded digital library project of US Federal Internet Infrastructure Technology includes Six universities viz.,

University of Michigan;

Carnegie Mellon University ( creating digital video library of educational videos & BBC video courses)

Stanford University;

University of California, Berkeley ( Multimedia databases )

University of Illinois ( Database of Science & Engineering journals ) ; and

University of California, Sant Barbara ( Database of Maps & Images information )

**II.** The Follett Report [1] has tremendous influence in United Kingdom (UK) that has led to the release of funds especially for libraries which have provided a window in digitisation projects. Under the auspices of FIGIT, thirty five Electronic library (Elib) projects have been started. Eg. Beazley Archive Project, UK

## **Where do we stand in Digital Library Projects ?**

In India the work of converting conventional libraries into digital ones was still in the formative stage, as the Planning Commission has taken the first & major step towards connecting all the libraries and to provide a linkage through programme called “**Vikas Vahini**”, which is expected to complete by five years. The Indian Institute of Science, Bangalore has set up a digital library, the first of its kind in the country, which uses IBM Digital library software. With good communication links, the IISc’s digital library will be accessible from anywhere in the country and around the world. The IISc produces about 1,000 papers a year and around 200 doctoral theses available from digital library alongwith scientific journals published by the institute. The digital library can be accessed over the net from the URL <<http://www.iisc.ernet.in>> .

## **Conclusion**

The Library/Information Centre 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 & 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 takeover the library & 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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