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Automation of Libraries in North Eastern Region : Trends, Issues and Challenges

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D. D. Lal

on operating systems. A digital library must keep topics separately; otherwise it would be totally useless. A digital library should also have a user interface that is easy to use.

Digital Library - An Overview

By

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ABSTRACT

Digital technology is revolutionizing the traditional concepts of preservation and access in library and archive communities. Although traditional preservation methods have ensured the longevity of endangered research materials, it has sometimes been at the cost of reduced access. With digital technology, images are used to reproduce rare items, allowing for virtually universal copying, distribution, and access. The technology also makes it possible to bring collections of disparate holdings together in digital form, making resource sharing more feasible.

KEYWORDS : Digital, libraries, Internet, Search Engines, Web and E-publishing

0. INTRODUCTION

Digital library is a collection of digital objects that people can access from their desktops, such as electronic documents, electronic images or pictures, sound and video. The world wide web is a gathering of millions of documents which many would call this a huge collection of documents called digital library because they can read and use whatever they wish by accessing the web just as one can use technology to do banking in a "Digital Bank" or buy Compact Discs (CDs) in a "Digital record store".

A digital library is a collection of information that is stored and accessed electronically. The information stored in the library should have a topic common to all the data. For example, a digital library can be designed for computer graphics, operating systems, or networks. These separate libraries can be combined under one common interface that deals with computers, but it is essential that the information contained within each library remain separate. The purpose of a digital library is to provide a central location for accessing information on a particular topic. The last thing a user wants to happen when he searches for information about computer graphics is to get information

1. DIGITAL LIBRARY REQUIREMENTS

One of the first design issues in the creation of a digital library is to prepare a list of high-level requirements. This list includes what information the library will contain, how that information will be generated, what audience the information is intended for, and how the data will be accessed. Instructors throughout the world should be able to visit a web site and submit information about the labs they use in their classrooms. From this description we see that: the information for the library should be gathered through on-line submissions; the intended audience is computer science educators around the world; and the data should be accessible through the web. All of these issues must be considered in the development of a digital library. A clear plan must be developed before one starts the detailed design and development of the library.

Hardware

Another important issue that needs to be assessed before site development begins is the storage location of the digital library. The web server must have access to the Internet, ample hard drive space, and the ability to handle the expected access load. Preferably, a computer that has a better connection to the Internet. This will allow faster access for users. If a PC is used, it should be at least a minimum 250 MHz Pentium. We recommend at least 1 GB of free disk space. This will give your library plenty of room to expand. Once architecture has been chosen, a web server must be chosen. It is common for users who have opted to use a PC to be running Windows NT. Two of the most popular web servers for this operating system are Microsoft's Internet Information Server and Netscape's Enterprise Server.

Storage - Database or File Structure:

The next big decision to be made is how to store the files that will comprise the digital library. There are a number of options available. Two possible methods are using a database and creating a special directory and file structure. There are many databases to choose from. Examples: Oracle, MSQL, and Microsoft Access. If you use a PC, Access would probably be the database of choice, as it would be the most compatible with NT. Oracle is a good choice for a database on a UNIX machine. It is very reliable and fairly flexible. There are some problems that arise from using a database, however. The main problem involves the database's lack of flexibility. After creating a database, if a new field needs to be added, a new database needs to be created. On a number of systems, the transfer of data from the old database to the new one can be difficult and time consuming.

Access points:

Digital libraries can be accessed from anywhere at anytime, if one could have a computer system with Internet connection. For a digital library to provide equitable access to information, it is imperative that the same universal availability that is a characteristic of the telephone system is also a characteristic of the network. Digital libraries will provide more equitable access anywhere, anytime. The technologies on the desktop between computers for storing and processing information are dynamic. What is certain is that the management of technology for digital libraries are more complex as is the administration of licenses and user access.

Cost Effective:

A Common assumption among technology reporters about the costs of "Digital Libraries" is that digital is cheaper than paper. Now-a-days all libraries prefer online subscription because it is cheaper than print. Suppose, that if any library is subscribing any journals some publisher are providing also back volumes free of cost along with annual subscription. So users are more benefited due to back volumes. Publishers are providing articles or bibliographies in the format of PDF i.e. electronic / digitized version. The electronic serials may save the library money by offsetting the cost to users who must pick up the charge for document delivery.

Resource Discovery:

Digital information on the Internet is characterized by the fact that digital documents can exist in several formats, possibly in several versions in locations that are not yet fixed. The services such as Alta Vista, Excite, Infoseek, Lycos, Yahoo, and other WWW services are increasingly popular. These indexing services provide an essential service in assisting users to find information. Librarians collect published information in a variety of formats, such as books, journals, CD-ROMs, Audio and Video-tapes and disks to this growing set of media. Libraries are adding repositories of digital information online databases of documents and images in various formats. It will not generally be the case that libraries will replace older media with digital media, but that they will collect them in addition to established media. The reasons this substitution will not easily occur are many: user resistance, limitations on use, poor digital product design or the medium may not be effective to satisfy the user requirements. The challenge here will be to span both print and digital materials and to provide a coherent view of a very large collection of information.

The Web and Digital libraries:

Let us consider the search engines on the web today and conclude that they continue to use indexes which are very similar to those used by librarians a century ago. Three dramatic and fundamental changes have occurred due to modern computer technology and the boom of the web. Firstly, it becomes a lot cheaper to have access to various sources of information. This allows reaching a wider audience than ever possible before. Secondly, the advances in all kinds of digital

communication provided greater access to networks. This implies that the information source is available even if distantly located and that the access can be done quickly in a few seconds. Thirdly, the freedom to post whatever information useful has greatly contributed to the popularity of the web. For the first time in history, many people have free access to a large publishing medium. Fundamentally, low cost, greater access, and publishing freedom have allowed people to use the web as a highly interactive media. Such interactivity allows people to exchange messages through email / chat, photos, documents, software, videos, and to chat in a convenient and low cost fashion.

E-Publishing

For years, computers have been used to assist in the preparation of text for print publication. Whether a document is printed on a dot matrix printer or a laser printer computer hardware and software is likely to play a major role in the preparation of printed matter. Electronic publishing is not just a theoretical concept in the internet but serious scholarly journals are being offered to internet readers in electronic form. Some of these journals follow a formal editing regimen that includes peer review. Publishers of newspapers and others popular periodicals are also finding ways to publish via Internet. E-publishing offers a way for researchers, scholars and other authors to disseminate their writings quickly. As prices for print materials in particular journals are costly, electronic distribution of information over the internet offers the prospect for disciplines to avoid the high costs. There is a distinction between electronic publishing and more conventional online databases. With online databases, the emphasis is upon searching and random access. The user is hunting for a particular piece of information across a vast database or set of databases. E-publishing seeks to deliver actual documents intended for more-or-less sequential reading. Documents to be read electronically have authors, editors, and definite titles and often are delivered as part of online magazine or e-journals.

Suppose that you want to send a monograph to a friend which is a pdf format through internet and that your friend does not have the software Acrobat installed at his computer, he might face a problem to access the pdf format that you had sent. Then he may download / install the required Acrobat Reader Software from the Internet free of cost. Assume your friend uses Corel Word Perfect and that you send your document in Doc format to your friend, he will have a bit of problem seeing what you wrote online, or printing it locally. The problem of formats extends to all examples of electronic publishing. Despite numerous attempts to devise 'the' standard for e-document interchange, the practical reality is that none of these standards are universally accepted.

2. CONCLUSION

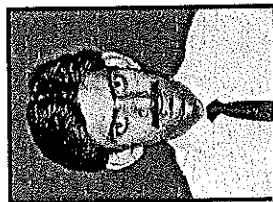
There are a number of issues that need to be accounted for when creating a digital library. The most important issues are security and flexibility. If a site is not secure, important data can easily be lost or corrupted. If a site is not flexible, hours will be spent making small site changes. Another important issue is maintaining the quality of the data in the digital library. If a digital library accepts all submissions, it will probably contain a lot of useless information. The way we tackle

this issue is by having either the editor of the site or a group of peer reviewers critique the newly submitted information. Finally, the most important issue is the ever-changing technology. The World Wide Web is still very young and advances continue to make developments much easier. It is important to keep up with all of the standards that are being made for the web which are being created by agencies like the World Wide Web Consortium.

Important and useful Links:

1. The History of the Internet: URL : <http://www.davesite.com/webstation/net-history.shtml>
2. Free Internet! Guide / Tutorial: URL : <http://www.davesite.com/webstation/inet101/>
3. Internet Tutorials: URL : <http://library.albany.edu/internet/>
4. How to Choose a Search Engine or Directory: URL : <http://library.albany.edu/internet/choose.html>
5. Internet Search Engines: URL : <http://library.albany.edu/internet/engines.html>

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