Digital Library: The New Mantra of Information Infrastructure

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The word information infrastructure made by two words information+infrastructure. Information means Data that has been verified to be accurate and timely & infrastructure means the basic physical systems. So information infrastructure means that place where data can be store in physical foam. 'Information' is generally used in our daily routine. In today's competitive world, we are developing our information infrastructure on science & technology, research & development, social science & humanities, government information etc. An information infrastructure is defined by Pironti (2006) as all of the people, processes, procedures, tools, facilities, and technology, which supports the creation, use, transport, storage, and destruction of information. This paper discusses the definition, importance, advantage, & also emphasizes the components required to build well-equipped digital library.

Key words: Digital Library, information, infrastructure etc.

Introduction

Every digital library's goal is to meet the information need of its users. A bottomless web book exploration becomes a confront as the number of digital libraries increases, and so does the require of complicated users for searching necessities in excess of a number of digital libraries and search engines prior to receiving to the preferred book selections. Over the past two decades, libraries have become more and more responsive of the innovative impact of developments in information and communication technology on their explanation functions. The availability of right information at the right time and in the right form is of utmost importance to users for their knowledge and developmental activities .Developments in Information and Communication Technology (lCT) have greatly changed the methods of information handling A scalable, incorporated exploration infrastructure is desired to assist users to successfully search prearranged content information based on recognized name entities across various digital libraries. This approach allows continuing programs on digital collections and applications, which the library build on the technology acquired and implemented in earn stage and also providing internet service in libraries and opinion for professionally qualified and IT trained library staff and information service to the users in this age of information explosion and globalization. Now the information sand digital resource in various formats is produced on the web. We need to develop an infrastructure for managing, indexing and allocating multimedia content in digital libraries. This infrastructure follows the model of the web, and thereby circulated in nature. This paper discusses the design of the Libraries, the component that manages Meta data about the content.

Objectives of the Study

- The objectives of the study are:
- To explore the Various Modals of Digital Library
- To identify how Digital libraries manage Information.
- To investigate the challenges to Build Digital Libraries

Literature Review:-

A digital library is understood to have the information stored predominantly in electronic or digital medium. **Rawat, et al (2004)** Stats that Digital Library will be a library without walls or national boundaries. Digital libraries aim at unhindered access to contents over computer and communication networks and the information. digital libraries are built around Internet and web technologies with electronic journals as their building blocks. The increasing popularity of internet and development in web technologies are catalyst to the concept of digital library. **Gonsai & Soni (2004)** Explored model for library networks from low bandwidth application to the multimedia rich high bandwidth intensive library applications and also concentrating on library network security.. It must be on network to utilize the resources Vries, et al(2004) Stats that develop an information infrastructure for managing, indexing and serving multimedia content in digital libraries. This infrastructure follows the model of the web. In this Paper Author discuss the design of the Librarian, the component that manages meta data about the content and also introduce extensible data model .they evaluate their initial implementation using a relational database. Readdy (2009)

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observes that Building the digital libraries is a big Challenge cause of involving a wide variety of technological, social and policy issues. **Henry, G (2012)** examine the core infrastructure elements of systems that manage large quantities of digital materials that one would think of as a digital library, whether created through mass digitization efforts or through large-scale digital projects. they also focuses on large, noncommercial digital libraries, as the infrastructures of large commercial collections are not generally open for analysis.

Facilities & Services Provided by Digital Library

o   Software & Hardware Facility

o   Level 3 Technology Zone

o   borrow

o   Reference Services

o   Interlibrary Loan Services

o   copying and print Services

o   learning Places

o   E-Learning Lab

o   Student Study Centre

o   Electronic /Digital Information Resources

Digital Library Infrastructure

The Library digital infrastructure to ease to assemble, create, supervise, protect and make available on going admittance to the quickly increasing volume of digital information resources On the base, the term "obtain" is shown to hold all kinds of digital material such as discovery, searching, Selection, ordering and receiving each of the aforementioned five important ingredients which represent book, journals, films newspaper, pamphlets, or microforms .design and preservation of a digital library involves several independent parties. These parties include human annotators, software to extract Meta data automatically, and owners of multimedia footage. A digital library can only be success full if its infrastructure can connect these parties flexibly .The **'A.C.T.I.V.E.'** Strategy represents a policy framework that will guide in decision-making around libraries. dependable with the provisions Plan the guiding values espoused in this framework will also serve as the critical policy foundation for the development of a sustainable strategy for library infrastructure arrangement.

AFFORDABLE:

Library services and its facility infrastructure have to be reasonable, easy to get to and sustainable.

COMMUNITY Needs-Based:

Library Infrastructure must be provide a leadership role in the development and release of recreation and library services such as Demographic analysis, user needs and current and emerging training trends will direct service planning and provision.

TACTICAL Approach:

Library Infrastructure have to be strategically provided exercise, freedom and library services based on a tiered approach - regional, community and neighborhood.

INTEGRATED Service Delivery:

Library Infrastructure must be provide mix services with every calculated chance in order of versatile use and inter-generational services.

VIABLE Solutions:

Library Infrastructure must be get Opportunities for library users contribution so as to make sure that our calculated plans are practical from a society viewpoint and imitate its principles.

EFFECTIVE Services:

Library Infrastructure have to be provided efficient, modern and receptive library services .library facilities might be maintained in agreement with resonance asset principles.

Systems And Architecture

A digital library ARCHITECTURE is composed of a number of hardware and software tools, including the following

1.   Locally developed database

2.   Local library systems with adequate personal computers having LAN and CD-ROM Drives.

3.   Electronic mail service

4.   Network connection to have access to other databases

5.   Various functions to coordinate manage the entry and retrieve data.

6.   Multimedia Kit

7.   Well trained work force

8.   Computer Hardware with Audio-Visuals, Video Conferencing Kit, Pentium Web Server, Laser Printer, Scanner, Barcode Scanner, Barcode Printer, Digital graphic printer and UPS.

9.   Software and its accessories.

All are reliable through networks and gateway software and must be planned for Scalability, interoperability and consistency. A system that uses one speech recognition system for input must be designed so that the recognizer can be replaced with another very quickly.

Compilation Infrastructure: The data collection infrastructure collects runtime application performance data from hosts in a scattered environment data collection infrastructure should be started in order to assemble

performance data from running applications and tests. it hold all kinds of digital material such as discovery, searching, selection, ordering and receiving each of the abovementioned five important ingredients which constitute book, journals, films newspaper, pamphlets, or microforms ."Create", processing includes statistics, mathematical, calculation for payrolls, filling tasks and all traditional activities such as automated teller machine record and also convert the raw data into information.

Admittance Infrastructure

Every place there will be a group of "progressive" people who lead the way in online learning. Library electronic resources are available remotely for faculty, staff, students, and Library users via the Library Server.. Library users may right to use from off campus a multiplicity of Library subscribed resources e.g. e-books e-journals, databases, and e-learning materials etc.In order to admittance Library tenuously, user's computer have to an Internet connection

Digital libraries' constituents are

 (1) Collection acquire in digital form

 (2) Collection digitized in house

 (3) Buying access to electronic resource including e-journal and

(4) Subject gateways are the library

Browse

Browsing is defined as "to examine something in an easy and casual way" a new definition has arisen from the demand of technology, "to look for information on the Internet. Data browsing capabilities are essential in digital libraries. Browsing is most significant ways in which users look for information. A web browser is a compound piece of computer software that views web pages and it simply downloading and displaying the textual information of a web page, To enable well-organized browsing and interactive query of large collections, such as those found in digital libraries, it is essential to make available users with summaries of query result sets. Browsing or the term "providence", described as the ability of making unexpected discoveries by mistake, it really refers to the ability to differentiate the possible or immediate utility of information encountered whilst not actively being sought at that time. It is a traditional and sometimes very effective way a using generously.

Search

To make a careful examination or investigation of; query: search one's scruples for the right solution to the problem. Search is the act of a user, an information worker on the user's behalf, or automated system activated by the user or the intermediary, in the making of a systematic investigation to obtain data or information. In the age of World Wide Web, the information "search" has full-fledged to be an significant

commerce sector of a worldwide, violent and commercial market. In data base software, the procedure of seeking out an entry, keyword, or phrase is caved search for insurance use several keyword strung together and qualified by Boolean operators such as AND, OR, NOT and Links. Search engines are very dominant way of promoting libraries homepage online. The figures shown that 40% and 80% of users found their information by using the search engine .

Digital Library" for collections of electronic materials is new, such collections have been in subsistence Searching literature digital libraries efficiently and effectively is becoming more and more important as the size and use of digital library collections expand at a very high rate A new market research service is now available in library via the Internet, according to an announcement from Global Infrastructure Resources. It is a new service, Emerging Markets online, is an Internet- based information research Center that provides daily news, newsletters, "off-the shelf" market studies and customized consulting services focuses exclusively in library.

DIGLIB uses a software agent which is a unique combination of filtering and information agent to facilitate intelligent search. The information agent performs a general search on various sites rigorously based on a keyword and phrases. The filtering agent further subjects the short listed sites to a specific search. The information agent performs a breadth first search on the links ahead and provides navigation recommendation. A rule-base is maintained by the filtering agent using premises like broad area of interest, specific area of interest, type of article, book, magazine, journals, periodicals etc. to be searched for further narrowing the search domain and suggesting URNs of digital libraries of user's interest. An attempt has been made to design a digital library interface using an intelligent agent, which continually runs in the background and facilitates the task of finding a suitable match between the desired library service and user's requirement.

Computer Network and Infrastructure

Networking is a link of functioning procedures for the switch over of information resources. Library network is defined as a type of procedure, whereby multiple participants having the similar objectives to shares information resources. The Windows NT server provides user authentication and library management services to the various clients connected to it. While Internet server provides Internet services with remote online libraries, and Internet services. The Final aim of networking is to reach utmost results with lowest effort.

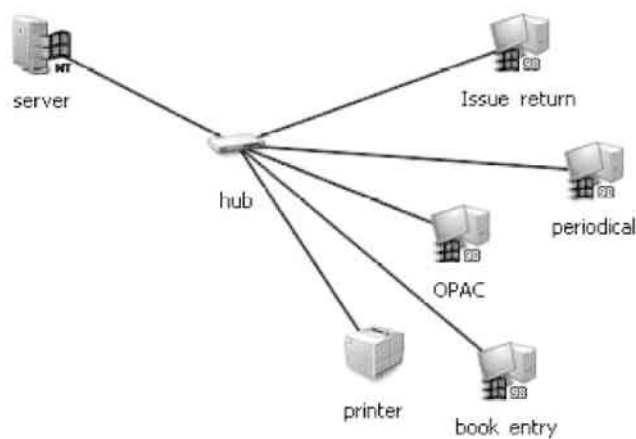Presently, there are three types of computer networks:

• LAN   • MAN   •WAN
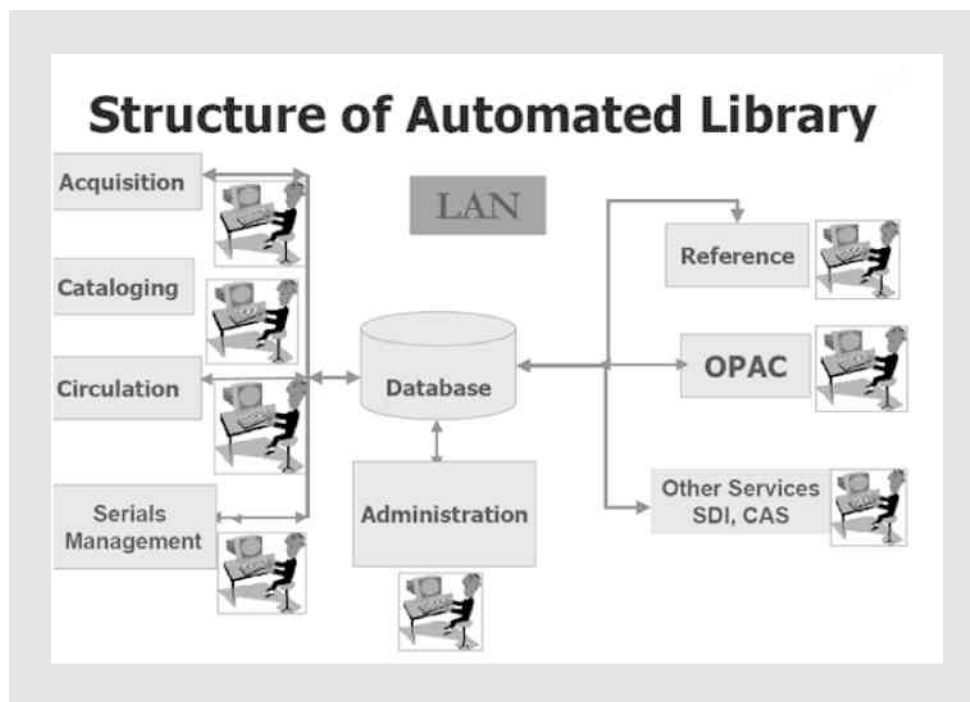
Categories of Network in library

There are two types of Library networks

Network Models for Library and Security Issues
Atul M Gonsai Nilesh N Soni

Traditional library network setup with one server and four client machines. Traditional library network setup was established with Ethernet technology and fewer clients and server machines.

2 High Speed Network Model (specialized network).

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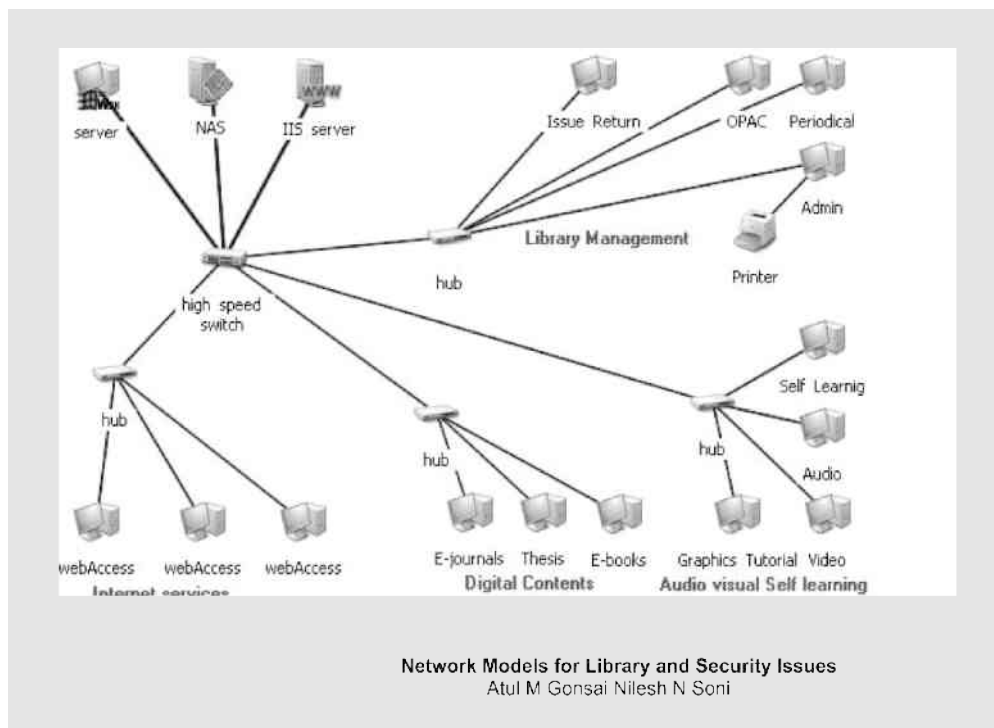
High speed library network model with three servers and one high speed layer-2 switch supporting four subnets The high-speed model as shown in figure-3 shows the server farm to switch connection is of 1000Mbps Gigabit t Ethernet.

Digital collections, resources

The library should expand an information resources collection and development policy reliable with the objectives of its organization or society .The infrastructure includes necessary hardware, software, communication channels and other physical equipments. For the successful implementation of the project the hardware and the software should be managing the Digital Library compatible with each other. Other telecommunication equipments should be supportive to the selected hardware and software, which in the long run helps in providing strong security and reliability to the system and hence improve the overall performance of the digital library services. Selection and development of the infrastructure is a time consuming project and cannot be done overnight. The emphasis of the library system must be on the required minimum level of hardware and software for the users to correctly and efficiently interact with the digital library. Support of the management is crucial at this stage.

Digital Recourses

1 Hardware Requirements

2 Computer systems

There are two components to any modern distributed client/server system:

(1)PCs (Stand-alone/client machine) or

(2) Network computers

Stand-alone computers have been replaced by computers in networks for most of the processing task. The use of multiple computers linked by a communication network for processing is called distributed processing and widely used form of distributed processing is client-server computing. The advantages of the PCs are that they are very familiar to the users and the major disadvantage is that they should be individually upgraded.

Capturing Devices

The following are the main capturing devices useful for developing digital library.

- Text: Keyboard, Mouse, Bar-code reader, OCR etc.

- Images: Digital camera, Video scanner. Slide scanner, Sheet scanner, Flatbed scanner, Drum scanner etc.

- Video: Video cards

- Audio : Audio cards

- The benefits from resource sharing are the following:

- Preparation of amalgamation catalogues; grounding of the cataloguing cards for publications accessible in network libraries;

- Provision of bibliographies; most advantageous utilization of atypical collections; supportive replace and sharing and storage of documents; reserves - of both mechanical work and collections;

- Decrease the cost of library services.

Open Access .Open Access Literature is a Literature that is accessible in digital libraries for everyone to use without expense open access requires provision with the monetary, technological and permissible barriers that are planned to limit access to technical research articles to paying clients. The only restriction on copy and sharing, and the only function for copyright in this field, ought to be to give authors manage over the honesty of their work and the right to be correctly recognized and cited. Even though most of our resources are open-access, some resources must be placed under access control. Ideally, the access control mechanism should be as close to the repository as possible, so one mechanism can handle all of our uses, but this may not be the most efficient solution. The information below outlines the broad types of access control we would like to enforce, to give us an idea of features we will need to build into an access control system. Actual policies will differ between collections.

Access Control

The information below outlines the broad types of access control we would like to enforce, to give us an idea of features we will need to build into an access control system. Actual policies will differ between collections .We will need to control access at the level of:

➢ A collection - while most collections are open-access, some are only available to certain groups of users.

➢ An object - some collections distinguish between objects that are copyrighted and objects that

➢ are Public Domain.

➢ a data stream - we often want to restrict access to master files

Challenges Faced by Digital Libraries:-

To build and maintain the digital library there are lot of Challenges faced by Libraries. The major Challenges are the follow:-

1   **Infrastructure Constrains:**-The major barrier to build a Digital Library is the weak computer infrastructure in libraries and also be short of high

capability bandwidth for network and internet access.

2   **management Issues:**-inappropriate conduct enables the digital resources towards harm and obliterate their readability. Through numerous digital media provide the idea of strength and durability; they can be spoiled by too informal an approach to use.

3   **Support from the organization:**-To build up and maintain the digital Libraries scheme and services depends on the financial support, human resources and IT Staff. For this support from the management is the must.

4   **Lack of specialized & high class contents**:-the big Challenge faced by the librarian that lack high quality Contents. Unused and rare books are complicated to use cause of bad Condition of paper so that the information is not dispersed. As the usages and reach to content in digital form are far more wide reaching than the printed text. Simultaneously another Challenge is the lack of professional Expertise in the present era, where the technical power, forces us to accept the Challenges.

5   **difficulty in Data set-up:**-Most of Publishers put their materiel in their own Proprietary e-book reader formats, from which the text extraction becomes almost impossible .A majority of the scholarly Contents ret in journal literature and due to copyright issues they cannot be easily find its way into the local repositories of the digital libraries.

6   **Copyright issues:**-In Digital libraries, issue of copyright, intellectual property and fair use concerns are affectation exceptional array of troubles in frontage of Libraries.

7   **Copying Services:**-Digital libraries provide the required Document Directly to the users on the Screen, when they Search Digital Libraries instead of Providing photocopy Services to the users which is done in earlier days. Librarians are left out as non entities in the digital environment when user interactas with the digital information through internet.

Conclusion

The New Invention in Library Reformates is Digital Library-The key to Success for Every Higher Educational institute in the 21ˢᵗ Century. The most important shift in building digital collection is greater interoperability among information's systems across the country and outside country. The digital library movement in India is fast increasing and the traditional libraries are now on their way to digitization in a phased manner. The financial constraint of different institutions and government departments creates problem to acquire necessary

IT equipment and infrastructure. Today's digital libraries are built around Internet and web technologies with electronic journals as their building blocks.

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