CLOUD COMPUTING FOR LIBRARY SERVICES

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ABSTRACT: - *Today we are living in the age of information. Latest technological development has brought a dramatic change in every field, and library science is not exception to it. Library field facing many challenges in the profession due to applications of information technology, Now-a-days information is available only on online and in digital format and the need of information is high. So the librarian should use the modern technology to store the digital information in a wide number which can be retrieving by various users. Such technologies are Web 2.0, server virtualization, cloud computing etc... And this technology can be used to store more information at libraries as content creation, storage, e-learning, archives etc. Data storage is the basic task of any library; hence in this paper gives the impact of cloud computing at libraries.*

KEY WORDS – *Cloud computing, Cloud Computing Models, Role of cloud computing at library, its applications.*

INTRODUCTION

Today in this technological era, Information is exploring in large scale and information needs of the users are also growing rapidly. To meet the peculiar information needs of the knowledge society and to provide better services libraries are adopting many new technologies. The recent technology trend in library and information centers is the use of cloud computing as a strategic tool for the purpose of providing seamless library services with quality in a cost effective or economic way. In Information technology industry cloud technology is the third revolution after Personal computer (PC) and Internet.

Cloud computing provides the user to use various applications without installation of that application in their own computer to access their personal files or official documents. Cloud computing is capable of bringing together collection of documents and resources stored in various personal computers, personal server and

other equipment in to one place and putting them on the cloud for the use of the user community. Cloud computing is so named because the information being accessed is found in the "clouds", and does not require a user to be in a specific place to gain access to it. In this era undoubtedly Cloud Computing is one of the hottest and value added term in the field of Computing and Libraries.

WHAT IS CLOUD COMPUTING?

Cloud computing is not a new technology that suddenly appeared on the web but it is a new form of computing. Cloud computing is a kind of computing technology which facilitates in sharing the resources and services over the internet rather than having these services and resources on local servers/ nodes or personal devices. The combination of servers, networks, connection, applications and resources is defined as 'cloud'. Cloud computing is acting as a resources pooling technology for accessing infinite computing services and resources as per demand of users and can be compare with models of pay as you use or utility model same as used for mobile services usages and electricity consumption.

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation.

Cloud Computing
Having secure access to all your applications and data from any network device
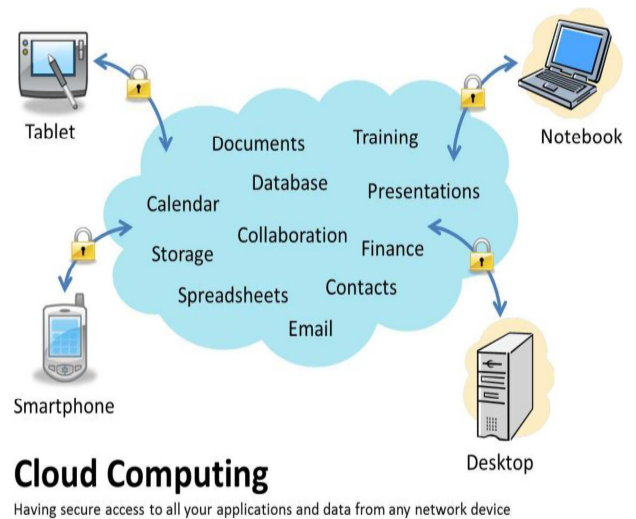
TYPES OR MODELS OF CLOUD COMPUTING:

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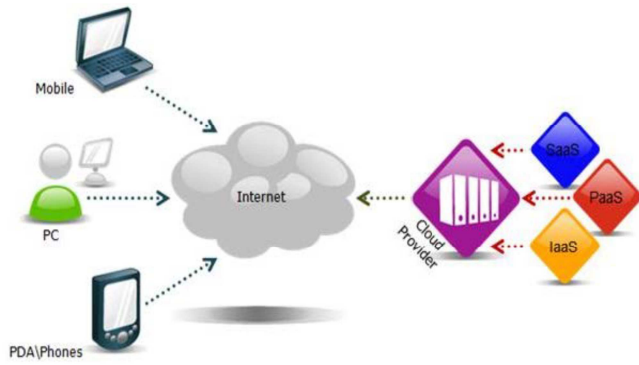
CLOUD COMPUTING MODELS:-

Cloud Providers offer services that can be grouped into three categories:-

1**. Software as a Service (SaaS):** In this model, a complete application is offered to the customer, as a service on demand. A single instance of the service runs on the cloud & multiple end users are serviced. On the customers side, there is no need for upfront investment in servers or software licenses, while for the provider, the costs are lowered, since only a single application needs to be hosted & maintained. Today SaaS is offered by companies such as Google, Sales force, Microsoft,Zoho, etc.

2. **Platform as a Service (Paas):** Here, a layer of software, or development environment is encapsulated & offered as a service, upon which other higher levels of service can be built. The customer has the freedom to build his own applications,which run on the provider's infrastructure. To meet manageability and scalability requirements of the applications, PaaS providers offer a predefined combination of OS and application servers, such as LAMP platform (Linux, Apache, MySql and PHP), restricted J2EE, Ruby etc. Google s App Engine, Force.com, etc are some of the popular PaaS examples.

3. **Infrastructure as a Service (Iaas):** IaaS provides basic storage and computing capabilities as standardized services over the network. Servers, storage systems, networking equipment, data centre space etc. are pooled and made available to handle workloads. The customer would typically deploy his own software on the infrastructure. Some common examples are Amazon, GoGrid, 3 Tera, etc.

Also other types /Models of public cloud computing:

1. Storage as a service (STaaS)
2. Security as a service (SECaaS)
3. Data as a service (DaaS)
4. Database as a service (DBaaS)
5. Test environment as a service (TEaaS)
6. Desktop virtualization
7. API as a service (APIaaS)
8. Backend as a service (BaaS)

ROLE OF CLOUD COMPUTING IN LIBRARIES:

Cloud computing is a completely new in technology and it is known as 3rd revolution after PC and Internet. Cloud computing is an enhancement of distributed computing, parallel

computing, grid computing and distributed databases. Among these, grid and utility computing are known as predecessors of cloud computing. Cloud computing has large potential for libraries. Libraries may put more and more content into the loud. Using cloud computing user would be able to browse a physical shelf of books, CDs or DVDs or choose to take out an item or scan a bar code into his mobile device. All historical and rare documents would be scanned into a comprehensive, easily searchable database and would be accessible to any researcher. Many libraries already have online catalogues and share bibliographic data with OCLC. More frequent online catalogues are linked to consortium that share resources.

Data storage cloud be a main function of libraries, particularly those with digital collections storing large digital files can stress local server infrastructures. The files need to be backed up, maintained, and reproduced for patrons. This can strain the data integrity as well as hog bandwidth. Moving data to the cloud may be a leap of faith for some library professionals. It's a new technology and on the surface it is believed that library would have some control over this data or collections. However, with faster retrieval times for patron's requests and local server space it could improve storage solutions for libraries. Cloud computing or IT infrastructure that exists remotely , often gives users increased capacity and less need for updates and maintenance , and has gained wider acceptance among librarians.

CLOUD COMPUTING AND LIBRARIES:

In the technological era, libraries are improved constantly by adopting many new IT technologies. The theories of conventional libraries have been changed now a day. Introduction of new and innovative technologies like cloud technology helps libraries to provide better services to the user community. Though libraries have been using some of cloud computing services for over a decade like online database, large union catalogue as cloud applications, the library community can further adopt the concept of cloud computing to strengthen the power of collaboration or cooperation and to build a major, fused existence on the worldwide network.

Following are Some examples where Libraries are adopting Cloud Computing:-

1. OCLC
2. Library of Congress (LC)
3. Exlibris
4. Polaris
5. Scribd
6. Discovery Service
7. Google Docs / Google Scholar
8. Worldcat
9. Encore

ADVANTAGES OF COULD COMPUTING IN LIBRARY SERVICES

Following are the advantages of using cloud computing

1. **Service oriented architecture:** the cloud is provided which has access to resources,

software, networks, applications through web, which is controlled by remotely located

data centres.

2. **Pay per use model:** it works on demand. We can demand the service for certain period

like for few days or few weeks

3. **Cost effective:** The resources, services, software etc are shared by group of institutions

by cutting down the individual institutes cost. Comparing to the traditional method of

computing, cloud computing billing may be comparatively less

4. **Portability:** since the service is available over the web, the service can be availed

through browser from any part of the world

5. **Eco-friendly:** since it is pay for use model, consumption of electricity will be

minimum. Hence, it helps green computing

6. **Adjustable storage:** in the traditional system, if the server is less than what we have.

The server should be replaced with the new one. In this computing, the storage

capacity can be adjusted according to the needs of the institute, since the storage is

controlled by the service provider

7. **Flexible and Innovative:** new technologies will be informed as and when available

with the service provider and the service utilized will be more flexible when comparing

with the traditional computing

8. **Cloud OPAC:** Most of the institutes in the world are having the catalogue over the

web. These catalogues are available with their institutes local server made it available

over the web. If the catalogue of the institutes made it available through cloud, it will

be more benefit to the users to find out the availability of materials.

9. When the data comes to cloud, the data becomes cloud, which can be shared among

the users. The need for storage in local server, installation, maintenance and backup is

removed   so that the librarians can concentrate on innovative services9.

Present Situation of Indian Libraries:-

In India, cloud computing in libraries is in development phases. Libraries are trying to provide to users cloud based services but in real sense they are not fully successful owing to the lack of good service providers and technical skills of LIS professionals in the field of library management using advanced technology. But some services such as digital libraries, web documentation and using web2.0 technologies are running on successful modes. Some good examples of successful cloud computing libraries include Dura cloud, OCLC services and Google based cloud services. Nowadays many commercial as well as open sources venders (i.e. OSS) are clubbing the cloud computing technology into their services and products.

However, cloud computing technology is not fully accepted in the Indian libraries but they are trying to develop themselves in this area.

CONCLUSION

Cloud Computing technology came up as a boon for libraries and is offering various opportunities for libraries to connect their services with cloud. From the above view it is clear that Cloud computing has brought us a new perspective to look at the current resource-sharing problem, cloud computing can be applied to digital library resources to improve information sharing capabilities, improve resource utilization Therefore, it is the time to the librarian professional to understand more about cloud services and issues to cope up with the new technology.

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