



## Libraries and Cloud computing Technology: An Overview

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### Abstract:-

*Cloud Computing technology allow libraries to do their library work at anywhere and anytime. By using this technology libraries can provide unlimited resources to fulfill the user's requirements. This module would enable libraries to maintain better control over the applications and data stores containing sensitive, private information. This paper will guide the librarians to provide a better service to the user community with the help of latest IT technology.*

### Introduction:-

Developments in Information technology almost affecting every walk of life. Specially, inventions in the field of computer networking set a net horizon in managing libraries and information centers. Libraries and information centers are dealing with huge amount of information selection, acquiring, managing and distribution to its users. Up to now they are managing their databases with local server. But to manage data themselves is now turning out to be a tedious job. It requires huge amount of technical knowledge & expertise and so, the librarian focusing more on to manage the database rather than the library user.

Above situation laid down a librarian to move toward cloud computing cloud computing is the use of network of remote server hosted on the internet to store, manage and process data rather than a local server. It avoids locally hosting multiple servers and equipment and constantly dealing with hardware failure, software installs upgrades and compatibility issues. Cloud computing simplify processes and save time and money. It can transform the way systems are built and services delivered, providing libraries with an opportunity to extend their impact.

### What is Cloud Computing?

Cloud computing is the delivery different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking and software. Rather than keeping files on a proprietary hard drive or local storage device has access to the web, it has access to the data and the software programs to run it. Cloud computing is a popular option for people and business for a number of reasons including cost saving, increased productivity, speed and efficiency, performance security. Cloud computing is named as such because the information being accessed is found remotely in the cloud or a virtual place. Companies that provide cloud services enable users to store files and applications on remote servers and then access all the data via internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely.

### Cloud deployment Models:-

There are four cloud deployment models that is public cloud, private cloud, communality cloud and hybrid cloud. A cloud deployment model is defined according to where the infrastructure for the deployment resides and who has control over that infrastructure. It indicates how the cloud services are made available to users. The four deployment models associated with cloud computing are as follows.

  
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## Public Cloud:-

As the name suggest, this type of cloud deployment model supports all users who want to make use of a computing resource, such as hardware, (OS, CPU, memory, Storage) or software (application servers, database) on a subscription basis. Most common use of public cloud are for application development and testing, non – mission critical task such as file sharing, and email service.

## Private cloud:-

True to its name, a private cloud is typically infrastructure used by a single organization. Such infrastructure may be managed by the organization. Itself to support various users groups, or it could be managed service provider that takes care of it either onsite or offsite. Private cloud is more expensive than public clouds due to the capital expenditure involved in acquiring and maintaining them. However, private cloud is better able to address the security and privacy concerns of organization today.

## Hyderabad Cloud:-

In a Hyderabad cloud, an organization makes use of interconnected private and public cloud infrastructure. Many organizations make use of this model when they need to scale up their IT infrastructure rapidly, such as when leveraging public clouds to supplement the capacity available within a private cloud. For example, if an online retailer needs more computing resources to run its Web applications during the dholiday eason it may attain those resources via public clouds.

## Community cloud:-

This deployment model supports multiple organizations sharing computing resources that are part of community; examples include universities cooperating in certain areas of research, or police departments within a country or state sharing computing resources. Access to a community cloud environment is typically restricted to the members of the community.

With public clouds, the cost is typically low for the end user and there is no capital expenditure involved. Use of private clouds involves capital expenditure, but the expenditure is still lower than the cost of owning and operating the infrastructure due to private clouds' greater level of consolidation and resource pooling. Private clouds also offer more security and compliance support than public clouds. As such, some some organizations may choose to use private clouds for their more mission critical, secure applications and public clouds for basic task such as application development and testing environment, and email services.

## Service Models of Cloud Computing:-

Cloud computing makes it possible to render several services, which can be defined according to the roles, service providers and the user companies. Cloud computing models and services are broadly classified as below:

### IAAS: Infrastructure as a Services:-

The infrastructure as a service (IAAS) means the outsourcing of the physical infrastructure of IT (network, storage and servers) from a third party provider. The IT resources are hosted on external servers and users can access them via an internet connection.

### The Benefits:-

- Time and cost savings: more installation and maintenance of it hardware in-house.
- Better flexibility: on-demand hardware resource that can be tailored to your needs,
- Remote access and resource management,





This cloud computing service model is ideal for large accounts, enterprises or organizations capable of building and managing their own IT platforms. However, they want the flexibility to amend their infrastructure according to their needs. (YUVARAJ, 2013)<sup>1</sup>

#### **PAAS: Platform as a Services:-**

Platform as a service (PAAS) allows outsourcing of hardware infrastructure as well software environment, which includes databases, integration layers, runtimes and more.

#### **The Benefits:-**

- Mastering the installation and development of software applications.
- Time saving and flexibility for development projects: no need to manage the implementation of the platform, instant production.
- Data security: You control the distribution, protection, and backup of your business data.

It is ideal for companies wanting to maintain control over their business applications. However, they wish to get rid of constraints to manage the hardware infrastructure and software environment.

#### **SAAS: Software as a service:-**

Software as a service (SAAS) is provided over the internet and requires no prior installation. These services can be availed from any part of the world at a minimal per month fee.

#### **The Benefits:-**

- You are entirely free from the infrastructure management and aligning software environment no installation or software maintenance.
- You benefit from automatic updates with the gurantee that all users have the same software version.
- It enables easy and quicker testing of new software solutions.

SAAS model accounts for 60% sales of cloud solutions. Hence, it is applicable and preferred by most companies.

#### **Library Initiatives by using Cloud Computing Technology:-**

There are some organizations and business houses who functions as cloud computing venders for library software, search engines and digital libraries etc. and offer the use of cloud computing platform for these purposes. Some of these are:

#### **OCLC's Web scale:-**

OCLC's is perfectly using cloud computing for libraries and set an example for others. Years together OCLC has been functioning as a cloud computing vendor because they provide cataloguing tools over the internet and allow member institutions to draw on their centralized data store. OCLC has implemented the plan of library management system world share management services (VMS). This has services for many areas like acquisitions, analytics, and resource sharing, cataloguing and license management components. It offers the entire library collection management in a cloud based application. The main purpose of web scale is that libraries can share their resources, data, and innovation with ease.

#### **Ex-Libris Cloud:-**

Ex-Libris is a lending library software vendor from USA. It provides cloud based solutions to automate the library operations. It developed most products for locally implemented solutions and adapted them to a hosted environment later. It allows libraries to

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enhance their efficiency and lower the cost operations and extend their value through launching new services. It has changed the way to provide traditional management of library resources through its library based system, Alma.

### **Dura space's Dura Cloud:-**

Dura space provides open source repository solutions by undertaking turnkey project for organizations and libraries to enable them to share scholarly literature using Dspace and Fedora Commons. It is particularly devoted to improve and sustain Fedora and DSpace. These open source repository solutions are very famous for IR solutions. Its new service Dura Cloud provides digital preservations support services in the cloud, which is cost effective and simple for libraries. Dura Cloud helps libraries move content to the cloud and store with it different service providers to eliminate the risk of data loss.

The cloud solution offered includes online backup, preservation and archives, media access online sharing and cloud broker.

### **OSS Labs:-**

OSS labs from India is using Amazon's elastic cloud computing platform owing to the various capabilities of Amazon such as high durability of data, ISO standards based strong information security and flexibility. It is expected that the OSS labs will be able to provide robust open based solutions to demanding customer. OSS Labs use Amazon's cloud services. Library operations have become very cost effective and the library staff need not to worry about maintenance of software etc.

### **Enhancement of Library services by the use of cloud computing:-**

#### **E-books Lending Service:**

Cloud platform is now becoming popular to lend the E-books.

#### **Union/Shared Catalogue/OPAC:**

Network Libraries can use same platform and give access to their collection on one platform. Through cloud computing creation of union catalogue becomes very easy.

#### **Document download service:**

One can download documents easily if permit access in the network.

#### **Digital preservation/ Scanning Service:**

Digitization and Scanning work can be done centralized and so one can avoid duplication of such time consuming work. Libraries can preserve the collection in digital form in the form of archive.

#### **Information Common:**

Information common like bibliographical data, content pages, cover pages, question papers, syllabus and other reading material we can share one platform. It helps in improving economy of library and avoids duplication of library purchase.

#### **Conclusion:-**

Cloud Computing is not a new technology today we may all using this technology directly or indirectly. We all are using Gmail service for decade it is one of the example of cloud computing in which we are managing our messages through simply by opening an Gmail account without loading the software of Gmail to our local machine. The core objective of this technology is to work anyone from anywhere and anytime.

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