LIBRARIES, APPLICATIONS OF CLOUD COMPUTING AND GOOGLE BOOKS

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ABSTRACT

Cloud computing is a technology that uses the Internet and central remote servers to maintain data, software, and applications. In other words, it is a computer style that delivers scalable and flexible IT-enabled capabilities as a service to external customers using Internet technology. This has been a boon for libraries and there are various opportunities available to libraries to connect their services to the clouds. After a thorough search of the material, the authors in this paper attempt to highlight the sections, types, and features of cloud computing. In addition to basic knowledge about cloud computing, this paper deals with cloud computing activities for libraries and cloud computing service providers. Attempts were also made to learn the applications of cloud computing in libraries with advantages in the LIS domain.

KEYWORDS: *Cloud computing, Internet and central remote servers.*

INTRODUCTION :

Cloud computing is a colloquial expression that continues to be used using a central remote server. Cloud computing utilities (like the power grid) rely on the sharing of resources to achieve the same degree of compatibility and economics. In the early stages of cloud computing, this is a broad concept of converted infrastructure and shared services. Simply put, cloud computing is a technology and a platform that provides hosting and storage services over the Internet. Information plays an important role in every field and libraries are no exception. This offers a lot of interesting possibilities for libraries that help reduce the cost of technology and increase capacity reliability and increase efficiency for certain types of automated activities. It has penetrated into other commercial fields and is now gaining more and more use in library science. This technology pushes the hardware to a more abstract level. Most of us are familiar with the delivery of fast computing power from systems we've seen and touched. Cloud computing is sharing a large amount of resources that are less efficient and location independent. Resources on the cloud work through clients and include Amazon, Google, IBM, Salesforce, Soho, Trial Rackspace, Microsoft, etc. can be extended by similar vendors. It also has the on-demand tools and software required for many IT businesses.

CLOUD COMPUTING:

The National Institute of Standards Technology and Technology (NIST) has developed cloud computing technology to enhance the capabilities of shared computer resources in a fast and secure way in various locations around the world. Cloud computing is the provision of computer services over the Internet. The name Cloud originates from the use of cloud-shaped symbols as abstracts for complex infrastructure. Cloud services allow users and businesses to use software and hardware that are run by

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third-party geographic sites. It provides a shared pool of resources that includes huge storage space, processing power, and networks and dedicated corporate and user applications.

In cloud computers, users use web interfaces like web browsers; however the software and data are stored on a remote server. A recent IBM report stated that the cloud is a new consumption and distribution model for many IT-based services and requires no knowledge of technology or implementation. The term cloud computing refers to the distribution of computer resources over the Internet. This allows users to keep their data on the Internet instead of storing it on a hard drive. Cloud resources are usually not only shared by multiple users but are also dynamically redistributed according to each demand. NIST defines cloud computing as a model for enabling access to a shared pool of ubiquitous, convenient, on-demand network configurable computer resources, application of cloud computing technology in libraries, servers, storage, applications and services and published with minimal management effort or with interaction of service providers.

MODELS OF CLOUD COMPUTING:
The following models are presented by deployment conditions:
1. **Hybrid Cloud:** The hybrid-cloud consists of assets from corporate providers and public providers that can certainly be a necessary choice for organizations. Hybrid-Cloud is a merger of both corporate-type cloud and public-cloud.
2. **Public Cloud:** A cloud computing environment is available to anyone who wants to sign up and use them. These are run by peddlers and remote users of the applications which may be cloud services, storage systems and networks e.g. Google's App Engine and Amazon will be connected to the amazon web services.
3. **Private Cloud:** Private-Cloud is a concept that is applied to provide authorized computer design authorized services on corporate networks. Large companies typically offer in-house services to their private network and information centre administrators that typically apply the type of cloud computing that serves users in the municipal sector.
4. **Community Cloud:** Community-Cloud is shared by many organizations and supports specific communities that have shared concerns e.g. Mission, Safety Requirements and Compliance Care organizations can manage community cloud or third parties and exit in advance.
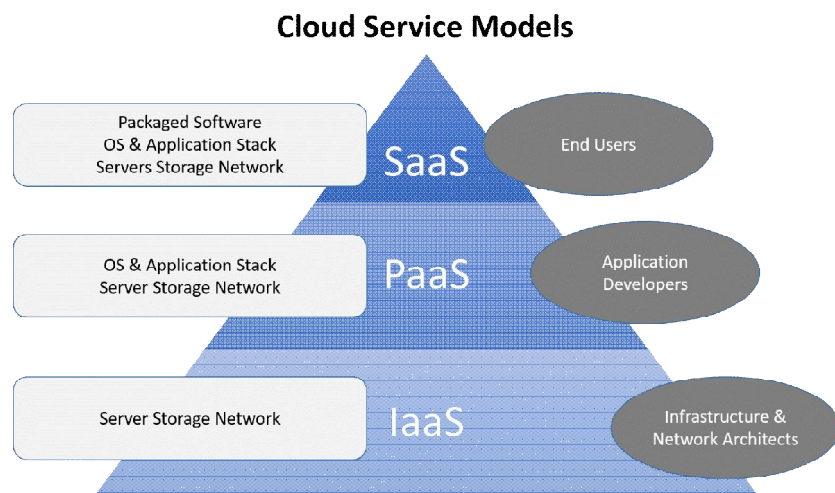
SERVICE MODEL:
The cloud provides the following three services
1. SAAS (Software as a Service): In these models, the entire application is offered to the user as a service on demand. A stream of service currently runs in the cloud and multiple users have direct investment in server or software licenses, for the provider, the cost is reduced, as only one application needs to be hosted and controlled.
2. PAAS (Platform as a Service): The main difference between PAS and SaaS is that SaaS can only host completed cloud applications, while PaaS provides a platform for completed applications and development for applications in progress. PaaS provides an area that developers can create and deploy in applications that need to understand how much memory is needed for applications that are not needed and how many processors will be used in their application.
3. IAAS (Infrastructure as a Service): In this model cloud providers offer infrastructure such as storage, firewalls, loads, balancers and networks. Service providers provide these resources over the Internet. The most common example of IAAS is Amazon.

Traditional Library Management Methods:
The traditional library was providing services based on print media and the development was based on manual energy. Traditional methods were mainly influenced by catalogues, classifications and indexing and reference services. The following are some important elements of the traditional method of library management.

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Figure 1.1 Cloud Service Model

Cloud Service Models

Packaged Software
OS & Application Stack
Servers Storage Network

SaaS

End Users

OS & Application Stack
Server Storage Network

PaaS

Application
Developers

Server Storage Network

IaaS

Infrastructure &
Network Architects

Components of Traditional Library Management System:

1. **Shelf Reader Moving:** Shelf-reading is an important part of stack maintenance. This includes reading each call number to make sure the books are properly shelved. Guardians often put books on the shelf without knowing exactly how to deliver them. It is inevitable that every worker sometimes accidentally puts the wrong cupboard of a book. After a day or two, it's easier to focus and make simple mistakes. When we are bored, we should try not to use bookshelves or shelf-reading. Move from left to right through the stack and up and down the small shelves.
2. **RFID Desktop Reader:** The RFID library management system contains books, each with an RFID tag, an RFID reader, and a computer network and software. Library staff lending, repaying, sorting, tagging, etc. Handles.
3. **Book Label:** The Cataloguing Labels program allows users of OCLC cataloguing products to easily print labels for library content. Free Windows software manages the creation, display, editing and printing of labels in Pocket and Spine lists.

Document Management System:

The Document Data Management System is a system based on computer programs in the management of digital documents used to track, manage and store documents and reduce paperwork. Many users are able to keep a record of various versions created and modified (track history). This term is somewhat intertwined with the concept of content management system. It is often seen as a component of enterprise content management (ECM) systems and relates to digital asset management, document imaging, workflow systems, and record management systems.

Server:

The library server is a key component of the IBM Content Manager system. It is called a library server because it performs library catalogue file functions in the actual library; we define the information stored in our library. The Library Server stores, manages, and provides access controls for objects stored on one or more resource managers. The Library Server processes requests (such as updating or deleting) from one or more customers and maintains data integrity across all components of the IBM Content Manager system.

Role of Cloud Computing Technology in Library Management:

Libraries have begun to use cloud computing services and facilities, leading to a new concept called the Cloud Library. The use of cloud computing in libraries has changed the distribution of

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resources and services. It provides shared access and a wide range of utilities. With the addition of the Library Cloud and the convenience of accessing these services anywhere and anytime, networking services are changing. In the library, the following potential areas were identified where cloud computing services and applications could be applied.

1. Structure of Digital Library: Maintaining a digital library is an effective way to manage resources, information and library related services. Access to the user can be facilitated through the network. Many open source software providers provide a platform for digital form, invest in hardware and back up MA.

2. Library Automation Activity: Cloud computing services support library automation and home maintenance activities. Most library automation are carrier local servers that use a variety of professional or open source integrated management software and are managed by internal IT / library staff. Nowadays software vendors offer this on the cloud which allows the library to invest in hardware and maintenance, software update backup etc.

3. Library Web-Hosting: Cloud computing services support library automation and home maintenance activities. Most library automation are carrier local servers that use a variety of professional or open source integrated management software and are managed by internal IT / library staff. Nowadays software vendors offer this on the cloud which allows the library to invest in hardware and maintenance, software update backup etc. Enables.

Google App:

Google Apps provides cloud services, a multi-tenant, InternetScale infrastructure, premises, hosted and quick access between software plus services technology, innovation, excellent reliability and security and maximum economy of scale. Google Apps is available free of charge to individuals and organizations (limited to 10 users), educational institutions, and US non-profits and businesses and organizations. Google Apps offers Gmail which is now the most preferred email service. It also provides Google Docs, Google Sites, Google Video and other services. Google Apps helps organizations move their e-mail services, web services and office applications. Google also has a Google App Engine service. With this service, organizations can create and host web apps on the same system that powers Google Apps. It offers rapid development and deployment; No need to worry about simple administration, hardware, patches or backups and easy scalability

Advantages of Cloud Computing in Library Service:

- **Cost reduction** - the ability to quickly and automatically increase or decrease the use of hardware or software resources in some cases.
- **Scalability** - "Pay as you go" by allowing more efficient control over costs.
- **Less investment, less risk** - quick access to proposed resource improvements (hardware and software) and debugging.
- **Support included** - enjoy the most advanced security process, availability and performance of providers with experience and knowledge in this type of service.
- **Great security and accessibility** - access to resources at any geographical point and the ability to test and evaluate resources at no cost.
- Portability - This service is available on the web and can be availed from any part of the world through a browser.
- **Just Digestible Storage**- If the server is less than you have in a traditional system. The server should be replaced with a new one. The storage capacity in this computer can be adjusted according to the needs of the library as it is controlled by the storage service provider.
- **Cloud OPAC** - Many libraries around the world have catalogues on the web. These catalogues are available in their library from local servers made available on the web. If the library's cattalo is made available through the cloud, it will be more useful to find out the availability of content.

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CONCLUSION:
Libraries are currently moving towards cloud computing technology and taking advantage of cloud based services especially digital libraries, social networking and information communication. So now is the time to think seriously about library services with cloud based technology and provide reliable and fast service to their users. Another role of LIS professionals in this virtual age is to provide cloud based services.

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