IMPACT ON HOW CLOUD COMPUTING APPLICATION EXPEDITE THE GROWTH OF LIBRARY SERVICES

Uma Devi S,[1] *Shelf Assistant,*

Kavya N,[2] *Assistant Librarian,*

Puneeth B M *[3]Documentalist,*

University Library, University of Agricultural Sciences, GKVK Bangalore

Abstract

Cloud computing a new breed of computing in the present era, renders various facilitating services over the internet. It has brought in various new arrives for organizations and business to offer services using hardware and software or third-party sources, thus saving on cost and maintenance. This paper has made an attempt in giving a clear data, of how adoption of cloud computing by libraries enables them to render better services and access to the resources that are available and also initiatives that are taken by cloud computing in LIS domain.

Keywords: Cloud Computing, Libraries, Internet, Technology, Application.

1. Introduction

In the present digenesis terminological upheaval and switching dynamics of computing technology are so rapid, that web-based technologies are being developed on essential platforms and erecting virtual parts to use their services for all purposes. Thirst of human being for "NEW" intensifies with evolving technologies, thus invariably bed one's time for 'next best thing '. One of such emergences is cloud computing. The ability to use services and tools over the internet without any close access to them is implied in basic cloud computing terms. The term 'Cloud' represents the whole of computing the services accessible via the internet. It is a perfect description of the impenetrable internet – connected networks that prevails in datacenters all around the cloud. It is not any new technology that has suddenly emerged on the web, rather it's the new form of computing. Libraries being an essential tool in the academic world, dispense their services and help to stimulate research among scientists and other communities. Due to information burgeoning and less financial blue print, it is difficult to handle all library activities viz., Acquisition, processing, storage, dissemination and preservation. Now a days, cloud computing has evolved as one of the voguish virtual technology, offering enormous advantages for the libraries to bridge its services in new format with further more ease. This technology not only salvage time and capital of the libraries but also their resources without any software, hardware installation in the premises. An attempt is also made to know the application of this technology to the libraries as beneficiary to the LIS domain. The cloud computing was basically instigated to serve the high-tech industries and corporate enterprises to ameliorate their business operation, it does not perpetrate libraries. Rather espousing cloud computing to the libraries, proselytize them in their core tools viz., Technology, Data hosting archives, information and community.

2. Cloud Computing

Cloud computing hottest catch phrase amongst Information Technology. It is nothing but cloud-based networking environs. The word cloud is an Internet metaphor. In other words, cloud is something i.e., present at remote location. The cyber optic group depict cloud computing as "Essentially, loud computing enables computer software and hardware resources to be accessed over the internet without the need to have any detailed or specific knowledge of the infrastructure used to deliver the resource's, much like utility model. You really don't need to know what the phone company or electric company does on their end to enable calls and allow the lights to go on when you flip the switch; and you really don't want to know as long as when you plug into it, its works".

Cloud computing is a kind of computer technology that doesn't get these facilities and tools on the local server or personal computers while transferring data and services over the internet. The information that a digitalized device has to say is made as a service in the cloud computing model; also, it can be managed with ease, without requiring any prerequisite experience on handling the resources.

3. Segments of Cloud Computing

Cloud computing composites of three different segments:

- **Application:** It is the original section without which it is difficult for cloud storage to persist. It is also a constructive paradigm, too.
- **Storage:** It's also known as infrastructure of cloud computing as it's the main concept and backbone
- **Connectivity**: The server and storage will not be used as the most important aspect of cloud computing without high-speed internet access.

All the three segments are catenated to build cloud-computing. It, anyone of these 3 is missing then the whole concept of cloud would remain unadorned.

4. Types of Cloud Computing

Cloud computing is categorized into two, namely,

- Based on services
- Based on usage

Based on the services:

Rendered cloud computing is classified into three service models.

IaaS: This service model has a wide range of features, services & resources that can be instigated between infrastructures on demand to support the creation of a virtual infrastructure for computer organizations. This service provides basic storage and computing capabilities over a wide range of networks as standardized services. Ex: -S3 Amazon (Amazon Simple Storage Service)

PaaS: It is a service that can be used to deliver facilities at a higher level. A platform as a service offers a complete or partial application creation environment that can be viewed and used digitally by accessors, even in conjunction with others. In other words, the deadline is achieved and handled by a bunch of computer programs developed and hosted on the cloud. Ex: - Google App Engine, Windows Azure (platforms)

SaaS: In this model, a complete turnkey application which is offered as service on ultimatum. The users can avail the facilities to access & use any software, available with cloud venders. The users also can access the program online using a web browser. This model is a membership model for which the programs are charged yearly or weekly. It is perhaps the most familiar and prolific of all cloud providers. Ex: Google docs.

Based on the usage:
Four deployment models of cloud computing are framed. These models refer to location & management of the cloud infrastructure.

Public cloud: It is intended for general public use and is open to everybody. The cloud computing agency has formed this deployment model and has its own strategy, importance, and profit. They are external clouds, usually provided by a service provider. These use 'pay as you go' model Ex: Google app, windows Azure.
Private cloud: As name suggests, it is one's own or private cloud computing infrastructure i.e., by a specific organization or a third party regardless of its location (in premises or off premises) key reasons of evolution of these include optimize utilization of existing in-house resources, security concerns etc. Ex: Google App Engine.
Hybrid cloud: This architectures include more than one cloud implementation platform that is linked together by standardized or proprietary technologies, allowing data & device portability, whether public, corporate, group or other models. This paradigm is commonly adopted by many organizations and companies as it is more scalable and makes it easy for consumers to make efficient use of resources to execute activities. Ex: Google Apps.
Community cloud: It is actually a joint effort with several organizations that work together to frame a rendering of the cloud. These models are beneficial in developing economic scalability & democratic equilibrium, in the infrastructure hosted by any third-party vendor or within one of the communities. Ex: Institutional Gmail of Google Apps.

5. Characteristics of Cloud Computing

Some of the important characteristics of cloud computing are as mentioned below

- Pooling of Resources
- Self-service on demand
- Easy to Maintain
- Scalability and fast elasticity Scalability
- Economically affordable
- Service Measured & Monitoring
- Security
- Automation
- Resiliency & accessibility
- Large Access to Networks

5.1 Among these characters the National Institute of Technology describe few essential characteristics, they are:

- On-demand self service
- Accumulating of resources
- Scalability and rapid elasticity
- Measured and reporting service

6. Different Cloud Computing Initiatives

Amazon, Google, Microsoft and others are working out many cloud infrastructure programs providing diverse types of software, several services provided for governments, organizations, companies and individuals. Some are:

- Amazon web services (AWS)
- Google Apps
- Microsoft Windows Azure
- Rackspace cloud
- NetSuite
- Oracle
- Sales force

7. Clouds and libraries

In steering library services from information acquisition, storage, organization, retrieval and study, information technology plays a significant role. Owing to the application of information technologies, libraries face many challenges with their career. With expanding technologies, i.e., cloud computing, libraries are not left vacant. By researching the factor in assessing with this ICT, Furthermore, it also lubricates workflows synchronously, thus empower the libraries to improve end-user customer services with highly developed library find means & assist them online via a large network of collaborating librarians globally, and also accessible 24/7 all year around. The bone of contention is moved out to the service provider for computing, network security, operating system updates, hardware costs and other assorted tasks similar to running a local computer infrastructure. Libraries should cooperate with cloud computing to reduce infrastructure tariff spending, allowing them to invest efforts on other fields that were formerly cost-prohibited.

7.1 Application of Cloud Computing in Libraries

The transition of library services to access their services anywhere and at any time through cloud connectivity and networking with facilities. The following potential fields where cloud computing technologies can be implemented have been established in libraries of all services.

- Search library data
- Building digital library/repositories
- Library automation
- Build community power
- File storage
- Searching scholarly content

7.2 Cloud Computing Initiatives for Libraries

- OCLC's web scale
- Ex-Libris Cloud
- Open Source Systems Labs (OSS Labs)
- Amazon and Google
- Kindle
- Dura space (DSpace)
- OAIster

7.3 Advantages of Cloud Computing in Libraries

- Cost saving is enabled, as cloud computing technology is paid incrementally thus reduce costs for organization, institutions, etc.,
- Cloud computing is easy on installation and maintenance
- Cloud computing is much more flexible than any other local network computing systems. Thus, enable libraries to expand their service anytime.
- Cloud being highly automated, keeps the software up-to-date, thus disabling the library staff from worrying about software updates.
- Cloud helps the user to connect from any place or from anywhere, i.e. greater mobility, to the servers
- Cloud computing's most significant elements are that it encourages one to distribute resources inside and beyond the organization.

7.4 Disadvantages of Cloud Computing in Libraries

- Privacy and data security
- Bandwidth connectivity
- Reliance upon external agencies
- Flexibility cost is restrained

Peroration

Though cloud is a new form of computing in the computer system technology evolved owing to the blossoming in internet and kindred technologies. This study has assessed how cloud computing allows libraries to handle infrastructure so that they can concentrate on developing collections, enhancing facilities and creativity. This allows libraries and their users to participate in library networks and communities by reusing data and socializing with content.

References

1. *https://en.wikipedia.org/wiki/Cloud_computing*
2. *Khan, Shazia ; Khan, Saima & Galibeen, Surraya (2011), Cloud Computing an Emerging Technology: Changing Ways of Libraries Collaboration, International Research: Journal of Library & Information Science, Vol. 1 (2) pp.151-159.*
3. *NANDKISHOR, G., SEETAL, S., & BHAGYASHREE, D. (2012). USE OF CLOUD COMPUTING IN LIBRARY AND INFORMATION SCIENCE FIELD. International Journal Of Digital Library Services, 2(3), 51-60. Retrieved from http://ijodls.in/uploads/3/6/0/3/3603729/51-60.pdf*
4. *Application of cloud computing at library and information centers. (2013). Research Journal Of Science & IT Management, 2(5), 43-46. Retrieved from https:// www.researchgate.net/ publication/282312870_Application_of_cloud_computing_at_library_and_information_centers*
5. *Saptarshi, G. (2012). How Worthy is Cloud Computing for Libraries. In 8 th Convention PLANNER-2012 (pp. 419-422). Sikkim University, Gangtok: INFLIBNET Centre, Ahmedabad. Retrieved from https://ir.inflibnet.ac.in/bitstream/1944/1694/1/51.pdf*
6. *Swapna, G & Biradar, B.S (2017), Application of Cloud Computing Technology in Libraries, International Journal of Library and Information Studies, Vol.7 (1) pp.52-61.*
7. *Kaushik, A. & Kumar, A. (2013). Application of cloud computing in libraries. International Journal of Information Dissemination and Technology, 3(4), 270-273.*
8. *Rupali, V. (2017). Application of Cloud Computing in Libraries. An International Journal In English, 8(7), 87-96. Retrieved from http://www.the-criterion.com/V8/n7/Rupali.pdf*
9. *Eric, K., & Gruman, G. (2008). What Cloud Computing Really Means. Retrieved 20 January 2021, from http://skysolutions.co.zw/docs/What_Cloud_Computing_Really_Means.pdf*