Review Article

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Cloud Computing in Academic Libraries – An Overview

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Abstract

This research paper is used to throw the light on how Cloud Computing is used in academic library systems and its application, Impact, prospects for academic libraries. It is a new technology for IT services which many businesses and organization are adopting. This paper provides brief information on cloud computing and its application for academic libraries. Cloud computing provides us virtually unlimited and on-demand computing resources. This paper provides some basic idea to choose evaluate Cloud services for the academic library.

Keywords: Cloud Computing; Cloud models; Academic libraries.

Introduction

The term cloud has been historically as a metaphor for the internet. This usage was originally derived from its common depiction in network diagrams as an outline of a cloud, used to represent the transport of data across carrier back bones which owned the cloud to an endpoint location on the other side of the cloud. Cloud computing is an application of traditional supercomputing, or high performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer- oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power larges, immersive computer games.

Review of Literature

Mitchell (2011) was talking about expresses what is cloud computing for libraries. Mitchell has concluded positive view of the role and potential impact of cloud computing in libraries. Luo (2012) conducted a survey to identify how reference librarians use cloud computing technologies. According to results, video services are the most used (~71%) cloud based applications. 59.7% of reference librarian had used information collection services and calendar services. Basically cloud is a metaphor for internet and is an abstraction for the complex infrastructure it conceals" (p.286). It is a style of computing in which IT-related capabilities are provided as a service allowing users to access technology enabled services from the internet without knowledge of, expertise with, or control over the technology infrastructure that supports them.

Types of Cloud Computing

There are different types of clouds that you can subscribe to depending on your needs.

1. *The Public Clouds:* The clouds accessed or used by general masses and hosted, are maintained as well as managed by cloud service providers, such as Amazon, Google, and Microsoft. In this type of cloud, the service providers charge the companies according to their usage.

2. *The Private Clouds:* In the private cloud, the cloud computing infrastructure is solely designed for a single organization and cannot be accessed or shared with other organizations. A private cloud can be either on-premise or hosted

externally. The general objective of private cloud is not to sell the cloud services (IassS/ PaaS/SaaS) to the external organizations, but to get the advantages of cloud architecture by not providing the privilege to manage your own data center.

3. *The Hybrid Cloud:* The cloud environment in which various internal or external service providers provide services to many organizations is known as hybrid cloud. In this clouds, an organization can use both types of cloud, i.e., public and private together. The organization using the hybrid cloud can manage an internal private cloud for general usage and migrate the entire or a part of an application to the public cloud during the peak periods.

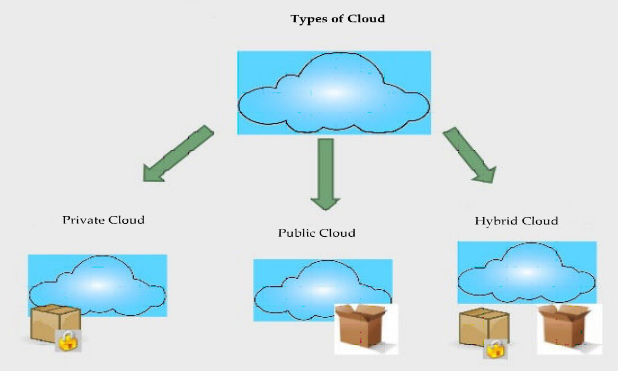

Fig. 1: Characteristics of Cloud Computing.

1. On-demand self-service
2. Broad network access
3. Resource pooling
4. Rapid elasticity
5. Measured service

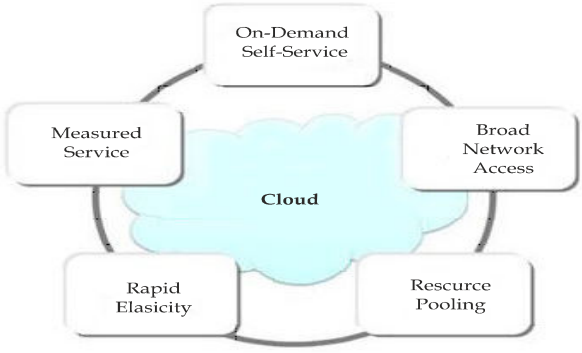

Fig. 2: Cloud Computing Services.

1. *Software as a Service:* SaaS, a single application is delivered to thousands of users from the vendor's servers. Customers don't pay for owning the software rather, they pay for using it. Users access an application via an API accessible over the web.

2. *Platform as a Service:* The development environment is offered as a service. The developer uses the building blocks of the vendor's development environment to create his own custom application. It's kind of like creating an application using Legos, building the application is made easier by use of these predefined blocks of code, even if the resulting application is somewhat constrained by the types of code blocks available.

3. It delivers infrastructure as a service with good examples including server CPU cycles, data center space, storage resources, and database capacity.

4. *Communication as a Service:* Cloud computing delivers granular communications applications as a service including voice, conferencing, and video services.

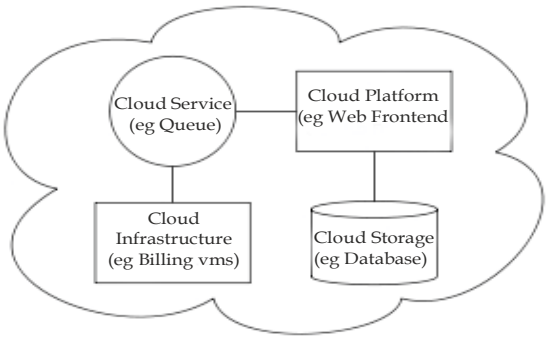

Fig. 3: Advantages of Cloud Computing in Libraries.

1. Cost saving
2. Flexibility and innovation
3. User centric
4. Openness
5. Transparency
6. Interoperability
7. Representation
8. Availability anytime anywhere

9. Connect and Converse
10. Create and collaborate

Examples of Cloud Libraries

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

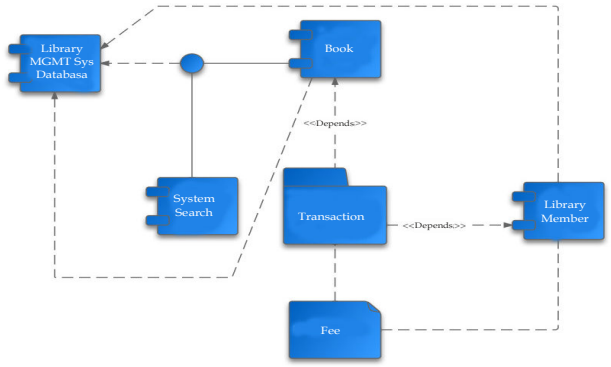

Fig. 4: Usage in Academic Libraries.

- Cloud computing offers cost effectiveness, flexibility, data safety, high availability.
- Using cloud based SaaS tools in academic libraries will be explained with some examples.
- Social networks also use in academic libraries to refer to marketing their services.
- The most known applications are Facebook and Twitter are used in academic libraries.
- In academic library, the most preferred Web 2.0 tools are social network libraries can market their services, make announcements, share document as information literacy programs, subject guides via Blog.
- University libraries have been using cloud computing platform. Several information resource providers offer free bibliographic management applications for library users through cloud computing.
- Science Direct's product is which provide storage via internet are used through cloud computing.
- Academic library has an account on one of the cloud-based video sharing tools, can add library lectures, library video, and catalogue searching.

Disadvantages of Cloud Computing

1. Requires constant net connection
2. Not working with low speed connection
3. Sometimes may be slow
4. Features might be limited
5. Stored data might not be secure

Conclusion

Cloud computing helps libraries to deliver its resources, services and expertise at the point of need, within user workflows and in a manner that users want and understand. Cloud computing can cut down the library costs dramatically one way and can provide a broad spectrum of convenient web based library services on the other. It is inevitable because of its special potential and important features. It is strongly suggested that library professional should connect each other and share useful information, personal success stories, alerts, risks, new adoptions, solutions, good recommendations etc within professional community to make a successful, easier, economic, productive, effective and user-centric cloud of academic libraries of the nation.

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