IMPACT OF CLOUD COMPUTING TECHNOLOGY FOR LIBRARY ACTIVITIES AND SERVICES

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Introduction:

Today we are living in the age of information. Information technology plays very vital role in library science i.e. for collection, Storage, organization, processing, and analysis of information. Library filed facing many challenges in the profession due to applications of information technology. New concepts are being added to ease the practices in the libraries is also accepting many new technologies in the profession as they suit the present information handling and they satisfy needs of the knowledge society. With the advent of Information technology, libraries have become automated which is the basic need towards advancement followed by networks and more effort are towards virtual libraries. The emergence of e-publications, digital libraries, internet usage, web tools applications for libraries, consortium practices leads to the further developments in library profession. The latest technology trend in library science is use of cloud computing for various purposes and for achieving economy in library functions. Since cloud computing is a new and core area the professionals should be aware of it and also the application of cloud computing in library science.

Cloud computing in Libraries:

Cloud computing is making it possible to separate the process of building an infrastructure for service provisioning from the library of providing end user services. Cloud computing provides people the way to share distributed resources and services that belong to different organizations or sites. Cloud computing share distributed resources via the network in the open environment. It is a virtual pool of computing resources through internet. Cloud computing provides people the way to share distributed resources and services that belong to different Organizations or sites. Many companies, such as Amazon, Google, and Microsoft and so on, accelerate their paces in developing Cloud Computing systems and enhancing their services to provide for a larger amount of users. Cloud computing is broken down into three segments: "application" "storage" and "connectivity." Each segment serves a different purpose and offers different products for businesses and individuals around the world. Libraries are using computers for running services such as Integrated Library Management Software (ILMS), website or portal, digital library or institutional repository, etc. These are either maintained by parent organization's computer staff or library staff. It involves investment on hardware, software, and staff to maintain these services and undertake backup and upgrade as and when new version of the software gets released. Library professionals in most cases not being trained in maintaining servers find it difficult to undertake some of these activities without the support of IT staff from within or outside the organization. Now cloud computing has become a new buzzword in the field of libraries, which is blessing in disguise to run different ICT services without much of a problem as third-party services will manage servers and undertake upgrades and take backup of data.

Cloud computing is a new technology model for IT services which many organizations and individuals are adopting. Cloud computing can transform the way systems are built and services delivered, providing libraries with an opportunity to extend their impact. Cloud Computing is internet based computing where virtual shared servers provide software, infrastructure, platform devices and other resources and hosting to customers on a pay-as-you-use basis. All information that a digitized system has to offer is provided as a service in the cloud computing model. Users can access these services available on the "Internet Cloud" without having any previous know-how on managing the resources involved.

Review of Literature:

Dunn (2012) prepared a draft for Cloud the management of the Upland Public Library to Library Systems and Services, Inc. (LSSI). He mentioned that LSSI was offering an increased level of service for less cost to the library and there was no evidence in support that LSSI could not effectively run the library. In addition, the Upland City Council retained all the library's assets, including the buildings, collection materials, furniture, fixtures and equipment, as well as control over the library's policies. Therefore, library manager need to negotiate a three year contract with LSSI for the management of the library.

Gupta and Sharma (2012) studied the status and future trend of Cloud in science and technology libraries in Delhi. They found that most of the Indian libraries had been using selective Cloud since many years, which had had favorable impact on these libraries. Further they reported that libraries wanted to continue and expand the use of Cloud in future too, especially for Digitization, RFID Tagging and Maintenance. However,

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maximum libraries outsourced professional-automated and non-professional activities and services as compared to professional-manual activities and services.

Cloud Computing Models:

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" National Conference on Library Information Science and Information Technology for Education ISBN 1-63102-455-8 215 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, Salesforce, Microsoft, Zoho, etc.

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.

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.

Cloud computing is defined to have several deployment models, each of which provides distinct trade-offs for agencies which are migrating applications to a cloud environment. NIST defines the cloud deployment models as follows:

Private cloud: The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

Community cloud: The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations).It may be managed by the organizations or a third party and may exist on premise or off premise.

Public cloud: The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services.

Hybrid cloud: The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability (e.g., cloud bursting for load-balancing between clouds).

Libraries Activities and Problem:

The existing literature it was found that the libraries tend to outsource their various activities and services to deal with shrinking budgets, lack of sufficient and / or trained manpower, to cope up with current technology and to enhance user services etc. Various authors have suggested from time to time that there is a need to do further research on practice of Cloud in libraries.The Indian library science literature gives just the reflections of Cloud being practiced in various libraries and no traces of survey(s) conducted in this area were found. It is first attempt to have a glance on this widely used concept in almost all types of libraries in one way or the other. This research may open discussions on practices which is being used by one and all libraries to cope up with the problems of shrinking budget, lack of sufficient manpower and to enhance user services, however, refrain to accept, considering Cloud as an anti-professional activity. Hence the study is taken up to find out the type, status of Cloud and staff attitude towards Cloud.

Web 2.0 in Libraries:

All the hype and optimism surrounding cloud computing Web 2.0, there are still significant fears and doubts Industry Challenges points out. security, privacy and reliability. These concerns are leading some companies to build their own private or hybrid clouds. A hybrid cloud is primarily based in a privately-owned and operated data center, but it can shift some of its traffic and data processing requests to public cloud vendors such as Amazon or Rack space on an as needed basis. This hybrid model would let e- libraries maintain more control over the applications and data stores that contain sensitive, private information about patrons. Moreover, digital libraries can continually adjust and fine-tune the balance between the tight control of a private Information Technology infrastructure, and the flexibility and savings of cloud-hosted infrastructure. Just as digital libraries presently cooperate with one another to buy Information Technology equipment, bandwidth and the services of Information Technology professionals, Digital libraries may soon cooperate in the building and management of data centers. Alternately, if enough digital libraries express interest, a company such as Google, Amazon, Microsoft, or another cloud vendor might create a digital library Cloud similar google's Government Cloud. Or, a library vendor with deep Information Technology resources (e.g. OCLC or SirsiDynix) might build digital library-centric cloud services on top of cloud infrastructure leased from one of the more established

Conclusion:

Cloud has given much information to today world; the web helps us to reach our point of information. It gives remedies as soon as possible to needy one .the cloud help the seeker of internet user find information without any geographical hurdles. Cloud computing play an essential part in human life if they do not have search engines they struggle a lot to get information. It is most essential part in the modern era and attractive experience.

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