Cloud Computing and Library Services

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ABSTRACT

This paper provides an overview of cloud computing. Cloud computing enables the seamless integration of companies or libraries. Cloud computing provides user-centered, multilayer services. Most libraries are now relying on cloud computing technologies to sustain digital libraries and social networking with multiple capabilities. This paper discusses the various characteristics, benefits, service models, and forms of cloud storage, as well as the necessity for and application of cloud computing.

KEYWORDS: Cloud Computing, Software as a Service (SaaS), Platform as a Service (PaaS), Cloud OPAC.

INTRODUCTION

Today we live in the information age. Information Technology plays an important role in literary knowledge i.e. for collection, storage, association, processing and data analysis. The reference library in this field faces many challenges due to the use of information technology. Nowadays, new ideas are being added to facilitate working in libraries that accept new professional technologies because they are related to the use of information and meet the needs of the scientific community. Library automation, with the use of information technology, has become an important factor in the development of the network, and more and more efforts are being devoted to library systems. The emergence of e-publications, digital libraries, internet usage, web tools applications for libraries, and consortium practices lead to further developments in the library profession. The current technology trend in library science is the use of cloud computing for various purposes and for achieving economy in library functions. Since cloud computing is a new and core area professionals should be aware of it and also the application of cloud computing in library science.

WHAT IS CLOUD COMPUTING

Cloud computing is a technology that uses the web (Internet) and central remote servers to maintain data, software and applications. Cloud computing allows users to use applications without installation in their local machine to access their personal and official files on any computer with internet access. This technology though not a new one but associated with the inception of the web, allows users to access much more efficient computing by centralized storage, memory and processing. In the libraries, cloud computing is used to build a digital library and to automate housekeeping operations using third-party services, both software and hardware. Cloud computing refers to both applications delivered as a package over the internet and the systems software in the data centers that provide services. In simple words, the data centers, hardware and systems software is what we can call a 'cloud'. A simple

example of cloud computing is Yahoo mail, Gmail, etc. One does not need any software or server to store them. These services are free to all users to a certain limit, beyond any extra storage capacity and advanced services are available at a cost. The origin of the term cloud computing is ambiguous, but it appears to originate from the practice of using drawings of stylized clouds to denote networks in diagrams of computing and communications systems. The word cloud is used as a metaphor for the Internet, based on the standardized use of a cloud-like shape to denote a network on telephony schematics and later to depict the Internet in computer network diagrams as an abstraction of the underlying infrastructure it represents. The cloud symbol was used to represent the Internet as early as 1994. Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). Cloud computing uses web technology to give shared resources, programs, and information to multiple computers and devices on demand. As a result, cloud computing is carried out using a set of web-enabled programs installed on a server with appropriate access privileges.

DEFINITION

According to the Gartner Group cloud computing is "a style of computing in which massively scalable and elastic IT-enabled capabilities are delivered as a service to external customers using Internet technologies."

According to Douglas Gourlay, "People are coming to grips with Virtualization and how it reshapes IT, creates service and software-based models, and in many ways changes a lot of the physical layer we are used to. Clouds will be the next transformation over the next several years, building off of the software models that virtualization enabled."

According to the Forrester defines cloud computing as "A pool of abstracted, highly scalable, and managed compute infrastructure capable of hosting end-customer applications and billed by consumption."

TYPES OF CLOUD COMPUTING

There are three main types of cloud services available.
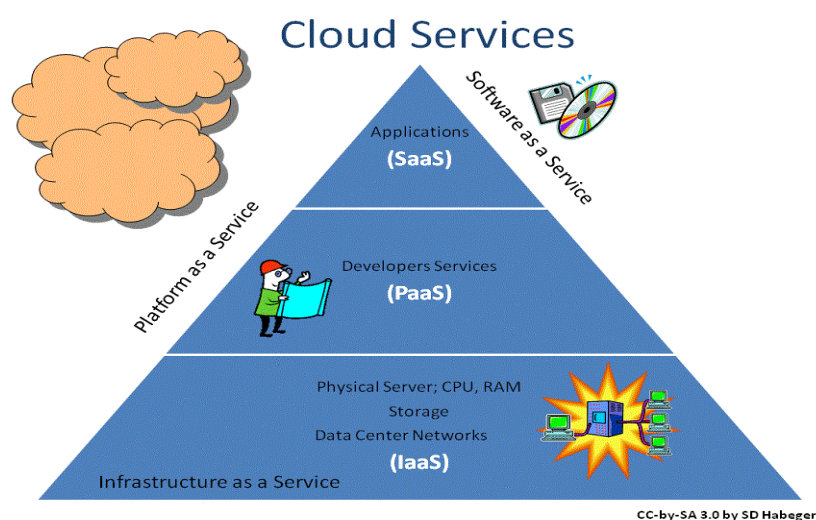
1. Software as a Service (SaaS)

Software packages such as CRM or CAD/CAM can be accessed under a cloud computing scheme. Here a customer upon registration is allowed to use software accessible through the net and use it for his or his business process. The related data and work may be stored on local machines or with the service providers. SaaS services may be available on a rental basis or per-use basis. Today SaaS is offered by companies such as Google, Salesforce, Microsoft, Zoho, etc.

2. Platform as a Service (PaaS)

Platform-as-a-Service (PAAS) can be defined as a computing platform in which web applications can be created quickly and easily without the need to purchase and maintain the software and infrastructure required for it. In this hardware, operating systems, storage and network capacity are hired over the Internet. In PAAS, the virtualized servers and associated services are rented by the customers to run the existing applications or to develop and test new applications. It is a software distribution model in which hosted software applications are made available to customers over the Internet. With PAAS, it becomes feasible to change and upgrade the operating system features frequently.

3. Infrastructure as a service (IaaS)

Infrastructure as a Service (IAAS) provides cloud computing infrastructure, including servers, storage, networks, and operating systems, on demand. Organizations utilize IAAS to outsource equipment used to support operations, such as storage, hardware, servers, and networking components. The service provider owns the equipment and is responsible for its housing, operation, and maintenance. Clients often pay per use.

Some common examples are Amazon, GoGrid, 3 Tera, etc

CLOUD COMPUTING IN LIBRARY AND INFORMATION SCIENCE

Cloud computing can benefit libraries by reducing technology costs, increasing capacity reliability, and improving automation performance. Cloud computing has made significant inroads into other commercial industries, and it is also finding new applications in library science. Cloud computing pushes hardware to higher abstraction levels. Most of us are familiar with the fast computing power offered by systems that we can see and touch.

Cloud computing has significant possibilities for libraries. Libraries may add more content to the loud. Using cloud computing, a user can browse a physical shelf of books, CDs, or DVDs, pull out an item, or scan a bar code with his mobile device. All historical and rare documents would be scanned and stored in a complete, searchable database that would be available to any scholar. Many libraries currently use online catalogs and share bibliographic information with OCLC. More frequent online catalogues are related to resource-sharing consortiums. Libraries, especially those with digital collections, should prioritize data storage on the cloud. Storing huge digital files can strain local server infrastructure. The files must be backed up, maintained, and replicated for patrons. This can put a strain on data integrity while also using up bandwidth. Moving data to the cloud may require some library personnel to take a leap of faith. It is a new technology, and on the surface, it appears that the library will have some control over the data or collections. However, faster retrieval times for patron requests and local server space have the potential to improve library storage options. Cloud computing, or remote IT infrastructure, frequently provides users with enhanced capacity and reduces the need for updates and maintenance, and has gained wider favor among librarians.

ADVANTAGES OF COULD COMPUTING IN LIBRARY SERVICES

1. Cloud computing provides access to resources, software, networks, and applications through the web, which is controlled by external data centers.

2. Pay per use model: This is a service that can be requested for a set period of time, like a few days or a few weeks.

3. Cloud OPAC: Most universities around the world have their catalos on the web. These catalogues are available on their university's local server and are available on the web. If the university catalos were made available through the cloud, users would have a better understanding of resource availability.

4. Adjustable storage: In the traditional system, if the server is less than ours. Replace the old server with a new one. In this computing, the storage capacity can be altered according to the needs of the institute, because the storage is managed by the service provider.

CHALLENGES OF CLOUD COMPUTING IN LIBRARY SERVICES

1. Switching to a reliable cloud computing service can be a daunting task.

2. The library works with information and has a big collection of material. To use cloud computing, data must be uploaded to the cloud machine. As a result, before beginning the procedure, a strict service level agreement should be established.

3. Intellectual property rights and data backup are the other issues that need to be addressed beforehand.

CONCLUSION

Although cloud computing is a relatively new phenomenon, and its implications for libraries are still in their infancy. However, it is likely to become a significant area of interest shortly, given the numerous advantages it offers over traditional computing. Cloud computing in libraries will enable librarians to focus more on information services, as they will no longer be required to perform tasks such as installation, maintenance, troubleshooting and upgrading. Although cloud computing offers considerable flexibility, several issues must be addressed before it can be fully implemented. These include security, legal considerations, data privacy and the reliability of the cloud service provider. In light of this, librarians must gain a deeper understanding of cloud computing and the associated challenges to effectively navigate the transition to this new technology.

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