THE IMPACT OF CLOUD COMPUTING ON THE FUTURE OF ACADEMIC LIBRARY PRACTICES AND SERVICES

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THE IMPACT OF CLOUD COMPUTING ON THE FUTURE OF ACADEMIC LIBRARY PRACTICES AND SERVICES
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**Objective**
The objective is to discuss issues involved in navigating the modern information environment where the relevance of cloud computing is unavoidable. This is a way of shifting from the hardware and software demands of storing and organizing data, to information access concerns. That is because with the exponential growth in information sources and all accompanying complexities, the limited capacity of libraries to best their own in its entirety necessitates opting for alternatives in the cloud.

**Method**
A review of current literature about the topic was performed.

**Findings**
Literature reveals that currently, libraries are using the cloud for putting together user resources, i.e., using Software as a Service (SaaS), such as in library catalogs, WorldCat, Google Scholar, and the aggregated subject gateways like Summon, and others. The web platform as a Service (PaaS) as in the use of GoogleApp Engine, or Infrastructure as a Service (IaaS) as in the use of AWS, and others. The cloud is confirmed as a facilitator in storing and accessing information in addition to providing a unified web presence with reduced local storage capacity challenges.

**Introduction**
- **What is cloud computing?**
- **Why does it matter?**
- **Types of cloud services**
- **How academic libraries are using the cloud**

**Examples of cloud services**
- Adobe Photoshop
- Oracle
- Zoom
- Wikia
- Amazon EC2 (Amazon Elastic Compute Cloud)
- minced
- Amazon S3
- Microsoft Azure
- BING
- Delicious.
- Flickr
- SlideShare
- Box.net.
- Google Apps Engine
- Amazon, Iaas
- Twitter
- Facebook

**Importance of cloud computing: why does it matter?**
- Information and communication technology revolution
- The modern information environment has produced a need for an approach for a visual and interactive learning environment rather than traditional teaching.

**Types or models of cloud services**
The models that are in use are Software as a service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) (Czar Robinson, Kohar, and Schindler, 2012). The extent to which the end user has control varies in terms of applications, hosting environment, storage, operating systems, servers, network, and cloud infrastructure. This explains the variation in public, private, and hybrid types of clouds.

**Significance of cloud models to library services and practice**
1. Software as a Service (SaaS)
   - Consider LibGuides
   - Library catalogue
   - WorldCat
   - Ovid/Elsevier e-book vendor
   - Aggregated subject gateways that support systematic unified web-scale resource discovery such as SUMMON (a ProQuest business), Elsevier Discovery Service, Primo Central (Ex Libris), Free and Open Source Software (FOSS)
   - Citation Management software

2. Platform as a Service (PaaS)
   - Consider GoogleApps
   - Library catalogues
   - Subject catalogues
   - Ovid/ Elsevier
   - WorldCat

3. Infrastructure and/or Hardware as a Service (IaaS)
   - Consider infrastructure that makes open-source software for running repositories, e.g., AWS, Google, Fedora, Sprints, or even hosted software packages such as Digital Commons and Simplicity.

The end result is translated and demonstrated in Figure 1.

**Figure 1: Unpacking Cloud Computing Terminology and Implications**

**Issues to consider:**
- **Advantages**
  - Libraries have to be conscious of bandwidth requirements, backup storage costs, and loss of control
  - Libraries may have to accept that it is the consumer who bears the cost of the cloud, and that this costs are not always guaranteed.
- **Disadvantages**
  - Libraries have to service costs, carefully crafted Service Level Agreements crucial whenever possible.

**Implications:**
- Shift of focus towards which devices provide the easiest access to data and applications
- Librarians in many instances are addressing issues relating to the use of digital media tools such as smartphones, iPad, e-book readers, and other handheld devices
- Considerations about digital rights management, fair use, information security, ownership and control of data, privacy, scholarly publishing, copyright guidance, and licensing that the libraries is beyond the technical issues

**Types of clouds**
- **Public clouds**
- **Private clouds**
- **Hybrid clouds**
- **Community clouds**

**Reasons for proliferation of cloud services usage**
- Availability and accessibility of social networks
- Availability of interest-enabled devices
- Satisfying user expectations
- Reduced costs because it is possible to choose to pay as you consume

**References**

**Self-service capabilities**
- SaaS
- Paas
- IaaS

**Self-manageability**
- Libraries and other end users have more self-service capabilities in the IaaS environment
- IT Architects have more self-manageability in the SaaS environment

**Developers**

**IT Architects**

**Libraries**

**End users**

**Availability of broad bandwidth requirements, backup storage costs, and loss of control**

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**References**