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AN EMPIRICAL INVESTIGATION ON THE JUSTIFICATIONS FOR THE ADOPTION OF CLOUD COMPUTING TECHNOLOGY FOR INFORMATION ACCESS AND USE IN THE NATIONAL OPEN UNIVERSITY OF NIGERIA LIBRARY

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Abstract
The purpose of the study is to look at the justifications for the National Open University of Nigeria Library's adoption of cloud computing technology for information access and use. Issues related to identify the Justifications for the Adoption of Cloud Computing Technology for Information Access and Use in the National Open University of Nigeria Library. And, to identify the quality of services using cloud computing technology for information access and use in the National Open University of Nigeria Library. Finally, to identify the extent to which the adoption of cloud computing technology affects information access and use the National Open University of Nigeria Library. The qualitative research approach was used. The study's sample size included a librarian from NOUN University and four IT staff members. The instrument for gathering data was a guided interview, and the descriptive approach was applied to its analysis. The results showed that NOUN Librarians may avoid technological hassles like computer infections, system failures, and data loss but also save time and money while streamlining productivity.
Keywords: Cloud Computing, Information Access Information, Use, National Open University of Nigeria, Library, Technology.

Introduction

Since businesses have begun to recognize the benefits of cloud computing, it has grown to be a significant technology solution for companies and organizations all over the world. It is not difficult to find successful examples of moving to cloud computing, failure tales, and a great lot of disputes about what cloud computing is or is not when looking across the information and broader technology environment. Some many reasons were provided for the acceptance of

cloud computing technology in the libraries. Zhang and Xie (2020) in the findings pointed out that libraries moving into the cloud have been discovery services, the need to disclose their vast collections on the Web. Combining systems into a cloud environment reduces the carbon footprints, making libraries greener. These improvements can be grouped into three basic areas: technology, data, and community. Each offers some general and some unique opportunities for libraries. Looking first at the technology that most current library systems use, several advantages of cloud computing solutions become apparent. For example, cloud computing solutions are fundamentally built on current technology and should be designed to accommodate changes in that technology. One can see how businesses, organizations, and libraries functioning in a cloud environment may adapt and supply their services to the new devices much more rapidly and less expensively by considering the expansion of mobile devices.

The mainstay of libraries is the library management system (LMS, also known as the integrated library system or ILS). Library management systems were developed before the Internet and Web existed and is generally closed proprietary systems. It has been difficult and costly for these closed systems to take advantage of new technologies as they emerge. According to Zhang (2019) in his findings asserted that research, integrating with external systems is also difficult, and libraries must rely on their sellers to do any such integrating. Libraries have needed to adopt more methods to manage their evolving collections as they transitioned from exclusively managing physical collections to combining physical, licensed, and digital resources over time. Since each of these systems has operated independently, merging them has proven challenging and occasionally impossible.

The prospect of an open service-oriented architecture would come first. With documented application program interfaces (APIs) that any programmer may use, many cloud systems provide this kind of openness. This implies that libraries won't always be dependent on a vendor or system if a new service or technology emerges. A set of procedures, protocols, and tools have been employed by existing library systems to create software applications. It is difficult to integrate APIs for connecting to external services into other external services since they have remained closed proprietary systems. With the aid of cloud computing, this makes it possible to combine two services once and reuse it throughout the community. Libraries can focus on collection development, patron services, and innovation instead of dealing with technology-related issues including hardware failure and software issues. Servers no longer need to be replaced every five years (or less) and can be decommissioned. Employees are no

longer required to manage the intricate software stack required to run local systems or worry about compatibility with upgrades. Technical expertise can instead be used to expand cloud services into existing environments and existing environments into other cloud services.

Zoltan and Milan (2019) added that when data is stored in the cloud, it offers several advantages such as common data can now be easily shared among services and users. The need for local storage, maintenance and backups is removed. Agreements can be forged to share data that normally would be considered private to a single library or organization. He also added that libraries can achieve Web scale when they massively aggregate data and users, sometime a cloud environment makes possible. Like the advantages of technology deployed and accessed as cloud solutions, data storage in the cloud brings many benefits for libraries. The easy one to recognize is the same data being stored hundreds and thousands of times across libraries. Consider how many copies of the cataloging data there are for a serial publication such as the Economist. And if a change is needed to the cataloging data to keep it current each library must perform that change. When this data is maintained in the cloud, maintenance and backup of this data is now done once and if a change is needed, once one library performs the change all share it.

The potential for cooperation and cooperative intelligence is another justification for cloud computing adoption, according to Zhu (2017) libraries may decide to share data pools for cooperative collection development, preservation or digitization, material sharing, etc. Additionally, new services can be developed using massively aggregated data, such as recommender services based on extensive usage data.

Statement to the Problem

Despite the quick development and widespread use of cloud computing, empirical research on the size and value of the market for cloud computing services is rather limited. Most of these initiatives have been devoted to tackling technical issues, even while certain academic and industry efforts aim to capitalize on these markets and identify potential obstacles and solutions affecting adoption (Geoffrey, 2017; Goldner & Birch, 2016).

It has been observed that cloud computing is not all together a new technology but an adaption of existing technologies and paradigms. The National Open University of Nigeria Library utilized cloud computing in the provision and management of its resources in response to these difficulties facing automation of library services. The institution's focus on open and distance learning is more

significant. This suggests that learning is largely online and virtual. As a result, most of the materials are digital and online. The National Open University of Nigeria has 102 Study Centers dispersed across the country, in contrast to conventional institutions where teaching and learning take place in a single location. As a result, the library must secure a platform where access must be unrestricted and not location-specific to deliver its services and access to its users. This study examined An Empirical Investigation on the Justifications for the Adoption of Cloud Computing Technology for Information Access and Use in the National Open University of Nigeria Library.

Research Objectives

1. To identify the Justifications for the Adoption of Cloud Computing Technology for Information Access and Use in the National Open University of Nigeria Library.
2. To identify the quality of services using cloud computing Technology for information Access and Use in the National Open University of Nigeria Library.
3. To identify the extent to which the adoption of cloud computing Technology affects Information Access and Use the National Open University of Nigeria Library.

Research Questions

1. What are the Justifications for the Adoption of Cloud Computing Technology for Information Access and Use in the National Open University of Nigeria Library?
2. What is the quality of services using cloud computing Technology for information Access and Use in the National Open University of Nigeria Library?
3. To what extent has the adoption of cloud computing Technology affects Information Access and Use the National Open University of Nigeria Library?

Methodology

The qualitative methodology technique was used in this investigation. The population of this study consists of five (5) members of National Open University of Nigeria Library. The target population of the study includes the University Librarian and the (4) staff of the Information Technology (IT) unit of the National Open University of Nigeria Library who are responsible for the administration of cloud computing technology.

Data Presentation, Analysis and Discussion

In this section, data collected in respect to research questions raised in the study were presented, analyzed, and discussed using descriptive and statistical analysis. This involved the description of adoption of cloud computing technology for library services in NOUN library as derived from the interview administered. The research question is to determine the rationales for the adoption of cloud computing in NOUN Library. Hence, the researcher investigated the rationales behind NOUN Library going to the cloud. In line with this, several possible options we.re made available for the respondents.

Table 1: Justifications for the Adoption of Cloud Computing Technology for Information Access and Use in the National Open University of Nigeria Library.

Justifications for the Adoption of Cloud Computing Technology for Information Access and Use in the National Open University of Nigeria Library.	**Indications**
Need to disclose their vast collections on the web	
Amplify the power of cooperation with another developed library	√
To build a significant, unified presence on the web	√
Save time	√
Save cost	√
Simplifying workflows	√
Makes work more effective and efficient	√
Local storage, maintenance and backup is removed	√
Opportunity for collaboration and cooperative intelligence	√
Cloud computing is the latest trend	√
To meet the information, need of large number of students spread all over the country	√
Make work faster and much easier	√

Key: √= Applicable x = Not Applicable

Table 1 reveals that all the options justifications for the adoption of cloud computing technology for information access and use in the National Open University of Nigeria Library include Need to disclose their vast collections on the web, amplify the power of cooperation with another developed library, to build a significant, unified presence on the web, save time, simplifying workflows, makes work more effective and efficient, local storage, maintenance and backup is removed, opportunity for collaboration and cooperative intelligence, and to meet

the information, need of large number of students spread all over the country among others. The finding agrees with Abdelaziz & Alhelali (2019) who stated that the justifications for the adoption of cloud computing technology for information access and use in the National Open University of Nigeria library should go cloud computing is "to disclose their vast collections on the web, amplify the power of cooperation with other developed library, build a significant, unified presence on the web, save time, save cost, simplify work flow, makes work more effective and efficient, local storage, maintenance and backup is removed, NOUN library also see cloud computing as also the latest trends". And more important NOUN library went cloud computing to meet the information needs of its students who are spread across the nation. It implies that information services will be highly effective and efficient.

Furthermore, the researcher attempted to find out how the adoption of cloud computing technology has helped NOUN library to improve its quality of services to its users. The detail of the finding is in table 2 below:

Table 2: Quality of services using cloud computing Technology for information Access and Use in the National Open University of Nigeria Library.

Quality of services using cloud computing Technology for information Access and Use in the National Open University of Nigeria Library.	**Poor**	**Low Quality**	**Moderate**	**High quality**
Cloud- based mailing services	X	X		X
Cloud-based forums	X	X	√	X
Cloud –based social networking	X	X	√	X
Cloud-based information collection	X	X	√	X
Cloud-based calendar services	X	X	X	X
Cloud-based file sharing service	X	X	√	X
Cloud based- video services	X	X	X	X
Cloud-based software and supplication	X	X	X	X
Cloud-based storing and supplication	X	X	√	X
Cloud-based operating services	X	X	X	X

Key: √= Applicable x = Not Applicable

The finding on table 2 shows that to provide quality services using cloud computing technology for information access and use in the National Open University of Nigeria Library, it is not possible to use cloud-based calendar

services, cloud-based video services, and cloud-based operating services. The findings also discover that the quality of services in these areas may not be completely realized. The researcher concluded that in order to provide effective library services, NOUN library needs make sure that each of these services is available there. Having seen the extent to which the adoption of cloud computing technology affects information access and use in the NOUN library, the following possible options were made available for the respondents in table 3 to identify the extent of the adoption of cloud computing in NOUN Library.

Table 3: Extent of the adoption of cloud computing

Extent to which the adoption of cloud computing Technology affects Information Access and Use in the National Open University of Nigeria Library.	**Low Quality**	**Moderate**	**High quality**
Web-mail services	X		x
Store personal photos	X	√	x
Online application	X	√	x
Store personal video	X	√	x
Pay to store computer file online	X	√	x
Back-up hard drive to an online site	**X**	**x**	√

Key: √= Applicable x = Not Applicable

Table 3 reveals that cloud computing is used for web-mail services in NOUN library, it is also used to store personal photos, online application, and storage of personal video, pay to store computer file online and back-up are all applicable in NOUN library. The finding agrees with Ahmat (2019) that stated that library community can apply the concept of cloud computing to amplify the power of cooperation and build a significant, unified presence on the web. It implies that data sharing in NOUN library will be highly efficient.

Conclusion

The idea of cloud computing can be used by the library community to boost the effectiveness of collaboration and create a strong, unified online presence. Based on the study's findings, it can be stated that NOUN Library should use cloud computing to offer library and information services to its students, who are dispersed across the nation and require unrestricted access to material that is not location specific. Additionally, to help NOUN Librarians avoid technology problems like computer viruses, system failures, and data loss while saving time, money, and streamlining workflow. Libraries can access a low-cost environment

or infrastructure thanks to cloud computing. Employees won't have to worry about upgrading the intricate software stack that is required to run local systems anymore. As an alternative, technical talents could be used to expand cloud services into both their environment and other clouds.

Recommendations

1. To promote remote access and a more inclusive user experience, the university administration of the National Open University of Nigeria should improve accessibility and convenience. Cloud-based solutions allow users to access information from any location with an internet connection. Furthermore, data backup and security need to motivate cloud service providers to supply strong data backup and security procedures, lowering the possibility of data loss and increasing defense against online attacks.
2. Collaboration and sharing can also be a benefit because cloud technologies make it easy for library NOUN employees to work together on projects and effectively exchange resources.
3. University Librarian should work hand in hand with the IT heads to build a cloud-based solutions that will integrate various digital initiatives, enabling NOUN libraries to embrace digitization and provide innovative services like digital archives, virtual collections, and online exhibitions.

References

Abdallah, N. (2020). Issues in cloud computing: Challenges, threats, and security concerns. *Aldar research journal for sustainability,* 4(2), 3-64.

Abdelaziz, A., & Alhelali, H. M. (2019). Security of cloud computing in libraries: Issues and solutions. *In 2019 2nd international conference on new paradigms in teaching and research* (NPTR-19). DOI: 10.15224/978-1-63248-179-8-27

Abidi, F., *et al* (2012). *Cloud libraries: A novel application of cloud computing. 2012 International conference on education and e-learning innovations.*

Adepoju, S. A., *et al* (2018). *A survey of research trends on university websites usability evaluation*. A paper presented at the 2nd International conference on information and communication technology and its applications (ICTA) organised by the Federal University of Technology, Minna, Nigeria.

Ahmat, K. A. (2019). *Emerging cloud computing security threat*: University of New York New York.

Al-Issa, Y., Ottom, N.A. & Tamrawi, A. (2019). eHealth cloud security challenges: A survey. *journal of healthcare engineering*, 23, 1-15.

Armbrust, M., *et al* (2020). *An empirical investment of cloud computing for personal use*. Proceeding paper 24, http/aise1.org.on the 6/8/2021.

Bansode, S.Y., & Pujar, S. M. (2017). Cloud computing and libraries. *Journal of library and information technology*, 32(6), 506-512. 4.

Fishbein, M., & Ajzen, I. (2018). *Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, mass; don mills.* Ontario: Addison Wesley pub. Co.

Furht, A. & Escalante, I. (2019). Cloud libraries: A novel application for cloud computing. *International journal of cloud computing & services science, 1(3), 79-83.*

Gbaje, E. S, & Aliyu. M. (2014). Cloud computing opportunities for academic libraries Nigeria. *Jewel journal of librarianship*. 6 (1). 19.

Geoffrey, M. (2017). "*Cloud computing exit strategy"* in *computer world servers and* data center.

Goldner, M. & Birch, K. (2016). Resource sharing in a cloud computing age. Interblending & Document Supply. 40(1).4-11.

Yuvaraj, M. (2013). *Cloud computing applications in Indian central university libraries:* A study of librarians' use. Banaras Hindu University, Varanasi.

Zhang, H. (2019). *Study on security strategy research, learning.* Library of digital library under the cloud platform.1 (3). 42 44.

Zhang, J., & Xie, K. (2020). Security concerns and solutions for cloud computing Adoption in libraries. In Proceedings of the 2020 10th International conference on cloud computing, data science & engineering (Confluence) (pp. 358-362). IEEE. DOI: 10.1109/confluence50645.2020.9049538

Zhu, L (2017). *Cloud computing in library automation*: Benefits and drawbacks, Bottom line; managing library finances 25(3), 35.

Zoltan, B. & Milan, T. (2019). Modeling of data security in cloud computing. University of oregon: *applied information management journal. 3 (2),* 54.