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LIBRARIANS VIEWS ON CLOUD COMPUTING AND DATA MANAGEMENT IN UNIVERSITY LIBRARIES IN RIVERS STATE

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Abstract

This study investigated librarians' views on cloud computing and data management in *University Libraries in Rivers State. Three objectives guided the study. Descriptive survey design was adopted. The population of the study comprised of 56 librarians in five university libraries in Rivers State. However, out of the 56 copies of questionnaire administered, 35 (63%) was successfully retrieved and used for the study. A 4-point scale structured questionnaire titled "Librarians' views on Cloud Computing and Data Management Scale" (LVCC) was used for data collection. A trial testing technique was adopted to ensure reliability of the instrument. Cronbach Alpha was used to analyze the data and a coefficient of 0.96 was obtained. The research questions were answered using mean and standard deviation while the hypothesis was tested using the independent t-test at 0.05 degree of freedom. Findings of the study showed that librarians are of the view that cloud computing is safe for storing and sharing of data in the University libraries. Findings also showed that inadequate power supply and slow internet connection as well as lack of adequate policies to support cloud use in the library are major challenges against the use of cloud for data management in university libraries. Conclusively, cloud computing impacted positively on data management. Based on the views of librarians, the researcher recommends that management of libraries should be encouraged to use cloud computing for storing and sharing of her data resources. Also, they should ensure adequate provision of power, internet, and training of staff as well as policies to support the architecture of cloud computing in managing library data resource.*

Keywords: Cloud computing, Data management, Data sharing, Data storing, Librarians' view

Introduction

Data information resources in the library increase continuously as users increases and the ability of the library to effectively manage its data has given rise to the adoption of some

innovative ways which include cloud computing. Cloud computing helps in the seamless storing and sharing of data, it is the delivery of computing services such as network, platform, software, infrastructure among others over the internet. Suman and Singh (2016) described cloud computing as process of providing computer system resources and services on demand delivery. It involves the delivery of databases, software, storage, networking, resources sharing and other internet enabled-services.

Cloud computing allows users to access resources on a central physical data that is in fact shared among many other users. According, to Wada, (2018) this is a network model that enable convenient scaled network access to a pool of configured electronic resources such as network, servers, storage applications and services that can be easily provided. This implies that instead of relying on local servers of the agency involve to handle these services, cloud computing allows users to access and utilize computing resources remotely through a network connection.

Activities of libraries and information centers involve the management of large volume of data especially the storing, and sharing of information resources. However, cloud computing in library allows librarians to provide information service to her patron without time or distance barrier. This functionality promotes knowledge sharing, dissemination of information, effective storage which can completely enhance service delivery in libraries.

In the views of Omehia and Tom-George (2020), cloud computing is a model of network computing where a program or application runs on a connected servers that can be accessed by any internet enabled devices. It is a shared resources software and services provided remotely to clients over a configured network. As the scope of library users and resources increase, the library faces different challenges of containing her growing resources and having a reliable platform to deliver her services efficiently. This calls for a large and secured storing capacity as well as a speedily sharing platform which cloud computing is known to perform.

Integrating cloud computing into delivery of library services can impact on the productivity of the library positively, basic library routines such as classification, organization, storing, security and dissemination using software, network and infrastructure provided in the cloud and delivered on demand saves time, and ensure security (Edam-Agbor and Ogunjimi 2018).

Cloud data storage in libraries involves to store extensive digital collections, including e-books, digitized archives and multimedia in the cloud without experiencing the limitations of on-site

storage. The same is applicable to cloud data sharing. Wu, etal (2010) opined that the use of cloud for data storage and sharing is advantageous in many ways as such expanding the library's reach beyond physical locations, long term preservation, providing reliable storage and backup in time of disaster.

The holistic integration of cloud computing enables the provision of infrastructure as a service, and software as service. However, this also has its own inherent challenges that is why the researcher decided to investigate what are the views of librarians on the use of cloud computing for data management in university libraries.

Statement of the Problem

University libraries has very high contents of digital and print resources. These resources most times seems to deteriorate and get damage because of poor methods of storing and preservation. Also, service provision in most libraries appears not prompt because of inefficient means of resource sharing and dissemination.

Given the significant roles cloud computing is playing in improving service in organizations many firms with digital resources have adopted cloud computing for its data management but the challenges associated with its use appears unresolved dilemma. Hence, this work investigated librarians' views on the use of cloud computing for data management in University Libraries in Nigeria.

Aim and Objectives of the study

The aim of this study is to investigate librarians view on cloud computing and data management in university libraries in Rivers State, the specific objectives sought to:

i. examine librarians' views on cloud computing and data storing in university libraries.
ii. find out librarians' views on cloud computing and data sharing in university libraries.
iii. Ascertain librarians' views on the challenges of cloud computing and data management in university libraries.

Research Questions

1. What are librarians' views on cloud computing and data storing in university libraries?
2. What are librarians' views on cloud computing and data sharing in university libraries?

3. What are librarians' views on the challenges of cloud computing and data management in university libraries?

Hypothesis

Cloud computing does not significantly impact on data sharing in university libraries in Rivers State.

Literature Review

Cloud computing is the delivery of computing services over a network usually the internet. Its integration in the library involves giving access of library operations such as software and data via the internet. End users' access cloud-based applications through a web browser or mobile applications while the software and data are stored on remotely located servers, often provided by a third party. The software is provided on a subscription basis and the data is stored on a remote server. This differs from a traditional system that involves the purchase of software and installation on either a workstation or local server. Access to the cloud applications and data is controlled through user login access, as opposed to the physical location of the data files.

According to Ajayi (2023) cloud computing can be seen as an abstract collection of services, accessible from any location disposing of a device with internet connectivity, provided through a parallel and distributed system of virtualized computers that are interconnected, and can be dynamically supplied and presented as a computing resource, or group of resources unified, as agreed by the service provider and the user. Cloud data storage refers to storing data to an off-site storage system maintained by a third party. Zabiru, etal. (2021), Okwoli and Okpala (2023) all argued that migrating to cloud environment enhance the storage capacity and the remote accessibility of data via subscription to the service providers. Cloud technology is most relevant in preserving and storing academic libraries vast collections to users without time and space restriction. Cloud storage solutions are more scalable and efficient way to store data for immediate and future purposes.

A study conducted by Onwubiko, etal. (2021) revealed that cloud computing technologies can be used for various purposes in the library including storing and preservation of digital resources. They ascertain that most libraries use cloud to run the Integrated Library Management Software (ILMS) which covers major library services such as technical, users' services, acquisition, repository and storage of resources. It is an efficient backup mechanism for all online resources. Cloud computing helps in data sharing services. Data sharing is an

important function of library services which are prevalent for information dissemination with the potential to shape drastically the future of the learning ecosystem. Cloud computing facilitate data communication between systems and therefore becomes very significant in enhancing better service delivery (El-booz, 2017, Konala, 2019).

The merit of cloud computing in data sharing are numerous. Lan and Varadharajan (2016) itemized these to include preservation of data, easy access and retrieval of data, serving as reliable backup solution. The library is a growing organism her data warehouses and repositories grow exponentially hence, the need for integrating cloud into library data management processes becomes imperative. Cloud storage in libraries supports easy dissemination, digital preservation, enhances accessibility, and provides and secure solution for managing library data and resources. By adopting cloud for data storage and sharing libraries can meet the evolving needs of patrons, improve operational efficiency, and reduce the risks associated with physical data storage.

Numerous challenges impede on the smooth application of cloud computing in the library, these include lack of a clear policies statement directing the procedures and standards for integration. Ogunbodede, etal. (2021) stressed that the challenge of epileptic power supply, poor internet connection and inadequate ICT infrastructure can be said to be perennial problems facing the different categories of academic institutions in Nigeria. This assertion is true and greatly affects cloud computing in libraries. There has been continuous decry of poor security and privacy challenge in the uses of cloud computing in managing data. Alabi (2018), Aviamu, etal (2019), advised that there should strong security architecture for information stored in the cloud.

Methodology

Descriptive survey design was adopted. The population of the study comprised of 56 librarians in five university libraries in Rivers State. However, out of the 56 copies of questionnaire administered, 35 (63%) was successfully retrieved and used as sample for the study.

A 4-point scales structured questionnaire titled "Librarians' views on Cloud Computing and Data Management Scale" (LVCC) was used for data collection. A trial testing technique was adopted to ensure reliability of the instrument. Cronbach Alpha was used to analyze the data and a coefficient of 0.96 was obtained. The data was analyzed using mean and standard deviation for research questions t-test statistics used to test the hypothesis.

Presentation of Results

Table1: Librarians' views on cloud computing and data storing in university libraries Rivers State

	What are librarians' views on cloud computing and data storing in University libraries?	SA	A	SD	D	M	SD	Decision
1	Cloud data storing is safe and enable fast information provision	22	11	1	1	3.5	0.53	Agree
2	Cloud storing help in data preservation	20	11	4	0	3.4	0.51	Agree
3	Cloud storing enable easy retrieval of data and saves time of users	21	10	2	2	3.5	0.50	Agree
4	Cloud computing provide reliable backup and recovery solutions.	18	16	1	0	3.4	0.54	Agree
	Grand mean					**3.45 > 2.50**		

Source: Researcher's Field Survey Data (2024)

Table 1, shows librarians' views on cloud computing and storing of data in university libraries. All the items 1-4 have mean scores above the weighted mean of 2.50. Item 1 has a mean score of 3.5 with a standard deviation of 0.53. This means that the librarians agreed that cloud storing is very safe and make service provision fast. Item 2, has a mean score of 3.4 and standard deviation of 0.51. This shows that cloud data storing help in data preservation. In item 3, mean score is 3.5 and SD 0.50, this means that respondents agreed that cloud storage enable easy retrieval of data and saves time of users. Item 4 showed a mean score of 3.4 and SD of 0.54. This means that librarians are of the views that cloud computing provide reliable backup and recovery solutions. The grand mean of 3.45 is greater than the weighted mean of 2.50 meaning that librarians are of the view that cloud computing enable libraries to store large volume of data safely.

Table 2: Librarians' views on cloud computing and data sharing in University libraries

	What are librarians' views on the use of cloud for data sharing and information resource provisions in university libraries?	SA	A	SD	D	M	SD	REMARKS
1	Cloud is very safe for data sharing and makes information service provision easy	22	12	1		3.6	0.55	Agree
2	Using cloud for data sharing help in preserving the document	18	13	3	1	3.3	0.053	Agree

3	Cloud-based data sharing enable easy retrieval	19	12	3	1	3.3	0.053	Agree
4	Cloud data sharing provide reliable backup and recovery	22	11	0	1	3.5	0.055	Agree
	Grand mean					**3.40> 2.50**		

Source: Researcher's Field Survey Data (2024).

Table2, shows librarians' views on the use of cloud for data sharing and information resource provisions in university libraries. All the items 1-4 have mean scores above the weighted mean of 2.50. Item 1 has a mean score of 3.6 with a standard deviation of 0.055. This means that the librarians are of the views that cloud is very safe for data sharing and makes information service provision easy. Item 2, has a mean score of 3.3 and standard deviation of 0.053. This means that using cloud for data sharing help in preserving the document. In item 3, mean score is 3.5 and SD 0.055, this means that cloud-based data sharing enables easy retrieval. Item 4 showed a mean score of 3.4 and SD of 0.054. This means that librarians are of the views that cloud computing provide reliable backup and recovery solutions. With the grand mean of 3.40 which is greater than the criterion mean of 2.50, it means that librarians' are of the views that the use of cloud for data sharing promote information data management in University libraries.

Research Question 3: What are librarians' views on the challenges associated with using cloud computing for information resource provisions in university libraries?

	What are librarians' views on the challenges associated with using cloud computing for information resource provisions in University libraries?	**SA**	**A**	**SD**	**D**	**M**	**SD**	**REMARKS**
1	Insecurity and privacy as a result of third parties involvement	21	11	1	2	3.4	0.054	Agree
2	Poor internet connectivity	23	11	1	0	3.6	0.055	Agree
3	Poor power supply	16	15	3	1	3.3	0.053	Agree
4	Lack of supporting policies	21	11	1	2	3.4	0.054	Agree
	Grand mean					**3.42> .50**		

Source: Researcher's Field Survey Data (2024).

Table3, shows librarians' views on the challenges associated with using cloud computing for information resource provisions in university libraries. All the items 1-4 have mean scores above the criterion mean of 2.50. Item 1 has a mean score of 3.4 with a standard deviation of 0.054. This means that insecurity as a result of third parties' involvement is a challenge.

Item 2, has a mean score of 3.6 and standard deviation of 0.055. This means that poor internet connectivity is also a challenge. Item 3, mean score is 3.3 and SD 0.053, this means that unauthorized access and network glitches is a challenge. Item 4 showed a mean score of 3.4 and standard deviation of 0.054. This means that librarians are of the views that lack of supporting policies is also a challenge associated with using cloud computing for information resource provisions in university libraries.

Hypothesis

Cloud computing does not significantly impact on data storing in university libraries in Rivers State.

Table 4 Cloud computing and data storing in university libraries

SN	Groups	n	x	t.cal	t.crit	df	decision
1	Upper bound	22	6.3	4.203	2.042	33	Significant
2	Lower bound	13	4.8				

The hypothesis above shows that the calculated value of 4.91 and a critical value of 2.042 at 0.05 degree of freedom. Since the calculated value is greater than the critical value (4.91 > 2.042) there is sufficient evidence to conclude that cloud computing significantly impacts positively on data storing in university libraries. Therefore, the null hypothesis which stated that cloud computing does not significantly impact on data storing in university libraries in Rivers State is rejected and its alternative is accepted.

Discussion of Findings

The findings on the views of librarians on cloud computing and storing of data in university libraries shows that cloud data storing is safe and make service provision fast. It helps in data preservation and easy retrieval as well as saves time of users. This result is in consistent with the findings of Onwubiko, et al (2021) who in earlier study found out that cloud computing technologies are used for repository, storage of digital resources among others. On the use of cloud computing for data sharing, librarians are of the views that cloud computing is an efficient medium for sharing data. This is in line with the findings of Lan and Varadharajan, (2016) whose studies revealed that cloud computing immensely enhances data sharing between individual and organization. On the challenges associated with using cloud computing for data management in university libraries, librarians are of the views that poor power supply, poor internet connection, lack of adequate policies on the integration in the library. This is congruent

with the studies of Ogunbodede eta'l (2021) whose findings indicated that the problem of epileptic power supply and inadequate ICT infrastructure, poor internet service are perennial problems facing the different institutions in Nigeria. The result of the hypothesis tested shows that there is significant relationship between cloud computing and data management in university libraries in Rivers State.

Conclusion

Cloud computing technologies has come to stay in the library because of its usefulness. It enhances safe storing of data because its wide capacity and it promote data sharing therefore, it should be given required attention by the management of university libraries.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Library management should encourage the use of cloud computing in the storing of data resources because of it carrying capacity and ability to preserve resources.
2. University libraries management should implement the use of cloud computing for data sharing because it is fast, easy and has the ability to recover data in case of technological glitches or virus attacks.
3. The University should strengthen technological infrastructure, improve power supply and internet connection in its libraries as well as train library staff to adequately handle and use of innovative technologies including cloud computing for data management in university libraries.

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