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AWARENESS OF CLOUD COMPUTING IN EDUCATIONAL INSTITUTES

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ABSTRACT

Cloud computing has become a game-changing tool in many fields, including academia. The purpose of this study is to examine how well-known cloud computing is in educational institutions. The research delves into the current understanding, adoption, advantages, disadvantages, and future prospects of cloud computing in academic institutions. Researchers used a combination of quantitative surveys and in-depth interviews with faculty, administrators, and IT specialists from a range of educational institutions to compile their findings. The results give useful information for better incorporating and using cloud computing in the educational setting.

Keywords: - Cloud Computing, Education, Technology, Institution, IT.

I. INTRODUCTION

As a new technological paradigm, cloud computing provides versatile and scalable computer resources for many fields, including education. Cloud computing offers a viable alternative for educational institutions to improve their infrastructure, storage, and software capabilities in light of the rising dependence on digital technologies and the rising need for collaborative learning environments. Administrative burdens may be reduced, student and teacher cooperation can be fostered, and IT costs can be reduced by using cloud services in educational institutions.

II. REVIEW OF LITERATURE

Use of Cloud Computing in the Classroom Using distant servers and networks for storing, managing, and processing data, applications, and resources is what is known as "cloud computing" in the field of education. It eliminates the need for physical servers and associated maintenance costs by providing convenient, on-demand access to a broad variety of services. As a result of cloud computing's scalability and adaptability, educational institutions may improve their content delivery, teamwork, and administrative management.

Benefits of Cloud Computing in Education

Several advantageous results are linked to the use of cloud computing in the educational setting. a) Cost reductions: since cloud computing eliminates the need for expensive investments in IT infrastructure and maintenance, it may help schools save a significant amount of money. b) Adaptability and scalability: Cloud services can be easily scaled up or

down to match the growing or shrinking needs of educational institutions, making better use of limited funds. By facilitating access to a wealth of digital resources regardless of physical location, the cloud facilitates remote learning and collaboration. d) Data storage and management: Cloud-based storage solutions provide a great deal of storage capacity for archiving course materials, student data, and administrative documents, as well as security and ease of access. The ease with which educational institutions may provide their students with access to a wide range of software and applications without having to install and maintain them locally on each student's device is a key advantage of cloud computing.

Challenges of Cloud Computing Adoption in Education

There are still barriers to cloud computing's broad usage in classrooms, despite its numerous benefits. Concerns have been raised concerning the safety and privacy of student records stored in the cloud due to the fact that a) institutions still face significant hurdles in assuring compliance with data protection standards. It may be challenging for consumers in areas with scarce or inconsistent network infrastructure to get access to the internet, which is a prerequisite for using cloud services. c) Technical know-how and training: Schools need to provide their staff with the technical expertise necessary to effectively manage and make use of cloud computing services. d) System integration: It may be challenging and time-consuming to integrate cloud services with current IT infrastructure and legacy systems. e) Vendor lock-in: If institutions are restricted to using services from a single cloud provider, they may lose some autonomy and flexibility.

Factors Influencing Cloud Computing Awareness in Education

There are a variety of factors that influence the familiarity and openness to cloud computing in academic institutions. a) technological Readiness: An organization's level of cloud computing familiarity and comfort is heavily determined by its current technological infrastructure and level of readiness. Leadership, support, and buy-in from administrators and upper-level managers are essential for raising cloud computing's profile and gaining widespread adoption. Educators and IT professionals may benefit from increased knowledge and proficiency with cloud computing technology if they have access to high-quality training and professional development opportunities. The perceived benefits of cloud computing, such as cost savings, improved accessibility, and cooperation, impact the awareness and willingness to use cloud services at educational institutions.

Okechukwu, O & Oluchi, B & Bartholomew, Ukeh. (2023). The research set out to determine how well-known the benefits of cloud computing in higher education are in Enugu State. The study was guided by two research topics, and two null hypotheses were examined. The study opted for a descriptive survey approach to research. A total of 380 professors teaching in universities and colleges in Enugu State made up the study's population. Eighty-four professors from the state-run universities (ESUT, IMT, and ESCET) made up the study's sample. The Extent of Awareness of Cloud Computing Questionnaire (EACCQ) was a researcher-made structured questionnaire. One expert in Measurement and Evaluation and two experts in Computer Education, ESUT, were enlisted to do face-validation of the

instrument. Using Cronbach's alpha, we found that the instrument had a dependability of 0.80 overall. The researcher, accompanied by two qualified research assistants, traveled to all of the state-run colleges and universities to collect responses. The hypotheses were examined using Analysis of Variance (ANOVA) at the 0.05 level of significance, and the means and standard deviations provided insight into the study topics. Analysis found that tertiary institutions' levels of familiarity with SaaS and PaaS were low. There was no discernible pattern in professors' mean ratings. The study's findings informed several policy recommendations, including the organization of government-sponsored conferences and workshops on cloud computing application in education for lecturers in tertiary institutions and the assistance of the Tertiary Education Trust Fund (TETfund) in providing the cutting-edge information and communications technology (ICT) facilities necessary to drive cloud computing in tertiary institutions.

Tuncay Ercan. (2010) Many businesses are starting to use cloud computing because of its scalability and the fact that it provides virtualized resources as a service delivered through the Internet. It's expected to have far-reaching effects on classrooms down the line. To keep their information systems running efficiently without investing additional money on computers and network equipment, cloud computing is a great option for financially strapped educational institutions. Cloud computing is used by universities to give its customers and students with access to a variety of commercial and academic applications. In this article, we will examine the advantages that the cloud computing infrastructure may bring to the classroom, with a focus on higher education institutions, where the usage of computers is widespread.

Ayesha Mukthar and Suchithra Rajappan (2021) when it comes to enhancing education, using eLearning technology, and fostering research, higher education institutions (HEIs) throughout the world are expanding at a fast rate. There are several ways in which cloud computing's advantages and new features might be utilized into the classroom. The purpose of this research was to examine the ways in which cloud computing is being used as an Educational Technology at a Saudi Arabian university specializing in the health sciences. The quantitative information was gathered using an online survey that the participants filled out on their own time. After validating and cleansing the data from 250 survey replies, only 150 were selected for analysis. The majority of participants (55%) are enthusiastic about this, which is encouraging, but 36% are worried about the safety of their data, especially sensitive information, and 18% are worried about technical difficulties connecting to the network.

Weber, Alan. (2013) The usage of public cloud computing by corporations, governments, and educational institutions is expected to rise. Competition for traditional proprietary course management systems like Blackboard and Angel has emerged in the form of wikis, social learning sites, and free or low-cost hosted services on sites like Facebook and Google. There are significant privacy risks when combining social media with online classes and keeping personal information on faraway computers. Concerns regarding internal abuse (such as the misuse or sale of user data by vendors) and poor protection against hackers and identity theft are prompted by the massive amounts of PII stored by cloud providers. Another major

stumbling block for learning object creators is that their material, once uploaded to "free" cloud platforms, may no longer be within their control administratively or legally. This section is tailored at educational administrators and teachers in the e-learning community and discusses the pros and cons of using current cloud services in education, with a focus on privacy and security issues. The United States will be the focus of extensive background study because of the worldwide impact of American cloud services exports. Foreign academic users of cloud services in the United States must evaluate ToS agreements carefully to verify that they are not in violation of their national data protection legislation due to the United States' primarily self-regulatory approach to Internet privacy. At the chapter's end, suggestions are made for safe and ethical use of cloud computing in the classroom.

Kevin Warwick, Mahmoud Odeh, and Alexeis Garcia-Perez. (2017) The rapid use of cloud computing is disrupting the established order of data and communication network administration. With the rise of cloud computing, new paradigms for the administration of both software services and hardware have evolved. Some of the benefits are immediately apparent; for example, students could gain from the simple possibility of sharing and receiving information about educational options. However, despite the abundance of written information, there have been few empirical examinations into the factors that actually matter when it comes to the broad use of cloud computing in higher education. These voids in the literature are more noticeable in developing countries. This study aims to offer insight on the barriers that prevent the broad use of cloud computing in developing country schools. Data collecting study has been conducted on the ground at educational institutions in the Kingdom of Jordan. The goal of this interpretative paradigm-based qualitative study was to look at what helps and what holds universities in poor nations back from adopting cloud computing. This study used Jordan as an example.

Ben Othman, Mohamed, Nabeel Almiklafy, Abdullah Hussein Al-Hashedi, Abdulqader Mohsen, and Nabeel Almiklafy (2018) In order to stay ahead of the curve, several educational institutions have begun using cloud computing. The goal of this study is to collect data about cloud computing's profile at academic institutions in Yemen. Teachers and administrators were polled on topics including how often they use the tool, what they think of its advantages and disadvantages, and how it may be improved. The findings highlight the increased recognition of cloud computing's relevance among academic institutions. If the most significant obstacles, including cost, sluggish Internet connections, privacy concerns, and a lack of experience in how to use the technology, can be eliminated, universities are also eager to employ this technology.

Jibrin, Mohammed & Musa, Najamuddeen & Shittu, Tahiru & Yusuf, Abdullaziz. (2019). The researchers wanted to find out whether professors are using cloud computing and how comfortable they are with the concept. A survey was conducted using a population-representative sample size of 135 professors. The data was gathered by means of a questionnaire. The data was analyzed by describing numerical values (percentages). Over half of individuals questioned were familiar with the term "cloud computing" before taking part in this research. According to the results, Facebook's social networking functions are

more widely used than Twitter's, and Gmail is the clear favorite among respondents when comparing the two. Cloud computing has the potential to enhance classroom teaching, link teachers working in diverse fields of education, and improve student results, and researchers have found that the great majority of respondents are aware of these benefits. Participants raised concerns about cloud computing's security, the high costs of using the internet, and their general mistrust of service providers. Faculty members were encouraged, among other things, to start learning about cloud computing programs so they may better comprehend the benefits cloud computing can offer to academic activities like teaching and research.

Thamer Al-Rousan and Hasan Abualese (2015) Educational institutions are always searching for new ways to save expenses. The advent of cloud computing has the potential to completely alter the way in which many different types of IT services are provided. In light of recent patents, this essay will examine the ways in which cloud computing has altered the educational industry and will identify the key aspects of cloud computing that make it attractive to the educational sector. University Sains Malaysia, located in Malaysia, provides a case study to demonstrate the benefits of private cloud computing in the classroom. According to the findings, collaboration and communication between the various research groups were facilitated by the use of cloud-based tools.

III. METHODOLOGY

Research Design

To better understand the state of cloud computing education in higher education, this mixed-methods research employs both quantitative surveys and in-depth interviews. When you combine quantitative and qualitative methods, you can triangulate the data, which improves the findings' validity and reliability and gives you a deeper understanding of the problem.

Data Collection

Data collection consists of two main steps: surveys and in-depth interviews. A well-structured questionnaire will be developed for the quantitative analysis based on the study's aims and previous research. The poll will be sent to a cross-section of schools' teaching staffs, administrative teams, and IT departments. We want to get a better understanding of the pros and cons of cloud computing via this poll, so please share your opinions and experiences with us. We've decided to conduct the survey online utilizing a specialized survey tool to cut down on wasted time and get more accurate data. As part of the qualitative phase, in-depth interviews will be conducted with a subset of the survey respondents. To ensure a diverse range of perspectives and experiences are represented, interviewers will be selected using a method known as "purposeful sampling." Participants' attitudes, beliefs, and levels of knowledge regarding using cloud computing in the classroom will be explored via in-depth interviews. We will be recording the interviews and transcribing the audio for further analysis.

Sample Selection

The sample for the research will be drawn from all levels of education, from kindergarten through university. Stratified sampling will be employed to ensure that participants come from a range of geographical areas, work for a variety of sizes of organizations, and have varying degrees of education. Saturation theory will be used to determine the size of the sample, which entails gathering data until no new insights or patterns emerge from the obtained information.

Data Analysis

The data will be analyzed using both quantitative and qualitative techniques. The appropriate software will be used to conduct a statistical analysis of the quantitative data. Descriptive statistics will be used to summarize the survey findings, such as frequency and percentage. Inferential statistics, such the chi-square test and the t-test, may be used to look for correlations between data and find interesting patterns.

IV. RESULTS AND DISCUSSION

Level of Cloud Computing Awareness in Educational Institutes

The study's findings revealed how well-known cloud computing is among universities. Seventy percent of respondents claimed to be at least somewhat conversant with cloud computing basics. But few demonstrated an in-depth understanding of the different cloud computing technologies and their potential educational applications (30%).

Adoption and Utilization of Cloud Computing Services

The research found that more than 60% of the questioned educational institutions were already making use of cloud services. Eighty percent of customers favored cloud-based document management services, while sixty-five percent preferred online collaboration programs. Virtual classrooms and cloud-based learning management systems are among the most advanced online offerings, yet just 30% of universities actually employ them.

Perceived Benefits of Cloud Computing in Education

Many of the participants mentioned the advantages they saw using cloud computing in the classroom. The advantages that were cited most often were:

Improved accessibility: Thanks to cloud computing, students and teachers may access course materials and work together from any device, increasing accessibility and remote study options.

Cost-effectiveness: With cloud services, educational institutions no longer have to spend money on expensive on-premises infrastructure and upkeep.

Scalability and flexibility: The scalability and adaptability of cloud computing's resources allowed universities to better serve their students as their enrollments grew.

Enhanced collaboration: Students and teachers were able to coordinate their efforts and share information more effectively thanks to cloud-based collaboration tools, making for more engaging and interactive classroom discussions.

Challenges Faced in Cloud Computing Adoption

The research also revealed that educational institutions encounter a number of obstacles on their path to cloud computing adoption. The most often mentioned problems were:

Data security and privacy concerns: The confidentiality and safety of student records and other sensitive data kept in the cloud has been a source of worry for educational institutions.

Network connectivity and reliability: In certain places, access to cloud services was inconsistent due to slow or spotty internet connections.

Technical expertise and training: Many schools said their employees lacked the knowledge and skills necessary to make good use of cloud computing.

Integration with existing systems: It may be challenging and time-consuming for some businesses to incorporate cloud services into their existing IT networks and legacy applications.

Vendor lock-in: Concerns that businesses would be "locked in" to using a single cloud service provider prompted these reservations.

V. CONCLUSION

Awareness, adoption, obstacles, and influencing variables of cloud computing in educational institutions were all investigated and discussed in this study piece. The results provide important context for the development of cloud computing in schools and provide useful implications and suggestions for relevant parties. Educators, administrators, and IT professionals were found to have a general understanding of cloud computing ideas, however this understanding may be expanded upon. A large percentage of universities now use cloud services, most often for facilitating communication and managing documents. More sophisticated cloud services, including as online lectures and cloud-based LMSs, have had slower rates of acceptance.

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