Evaluation Of Cloud Computing Application In Technical College Libraries Of Maharashtra With Special Focus To Nagpur Vidarbha Region

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ABSTRACT:

Cloud computing refers to using the internet rather than a personal computer or hard drive to access, store, and run applications and data. Local storage and computing refer to when we keep our data or application on our local computer's hard drive, but cloud computing calls for accessing our data or application over the Internet. The present study dealt with the application of cloud computing in library services provided by leading technical college libraries of Maharashtra with special reference to Nagpur Vidarbha region. The study sought to explore the role of cloud computing in library services effectiveness and its benefits to the users. In this article, evaluation of cloud computing application in technical college libraries of Maharashtra with special focus to Nagpur Vidarbha region has been discussed.

Keywords: Cloud, Computing, Technical, College, Libraries.

INTRODUCTION:

A library is the beating heart of an institution. Libraries play a crucial function in institutions. The earlier books were guarded by librarians who also served as custodians; they were hidden away. Before the invention of ink and paper, information was saved in books, which later became the primary storehouse of the library. [1] Copper and metals were the storage mediums for information. [2]

Information is now widely available thanks to population growth and the explosion of information in sources like standards, serials, and patents. CDs, DVDs, and other electronic storage devices started to slowly enter the library and information center. [3, 4]

The library is a crucial component of education and learning, promoting economic progress, particularly in developing nations. [5] As learning employs more sophisticated technology on a daily basis, library patrons are now becoming more techsavvy. The adoption of cloud computing by libraries and information centers is due to the internet and virtualized resources. [6] Despite budgetary issues, pressure has been put on educational institutions and libraries to improve library services while using fewer resources and cloud computing. [7] A technology known as cloud computing makes use of the internet to share resources like servers, storage, applications, and services. Books have evolved into e-books, library patrons prefer online resources to print materials, and librarians have evolved into cyberarian. [8]

Although virtualization has been around for more than 40 years and is a critical technology for cloud computing, its use has been constrained by other technologies that do not allow for the effective usage of virtualization solutions. [9] Programs' runtime environments are replicated through the use of virtualization. [10] Virtualization is a methodology for dividing the computer resources into more than one execution environment by applying more concepts like partitioning, timesharing, machine simulation, and emulation. Virtualization enables the creation of various computing environments that are virtual because they simulate the interface that is expected by a visitor. [11] Virtualization comes in a variety of forms, including management virtualization, server virtualization, network virtualization, storage virtualization, desktop virtualization, and application virtualization. [12] The aim of the study was to the application of cloud computing have any impact on the Library services and the need for other useroriented services of the libraries of Maharashtra with special reference to Nagpur Vidarbha Region.

RESEARCH METHODOLOGY:

The phrase "research" is a two-word phrase that implies "search again." The goal of research is to identify solutions to problems through methodical, scientific application. All research starts with a problem. The goal of research is to discover new knowledge. Scientific inquiry, is a methodical, controlled, and critical examination of hypotheses about distinct occurrences. Research is a thorough examination of a subject, particularly with a view to obtaining new knowledge or coming to a fresh understanding.

Research Questions:

Are users and library workers familiar with cloud computing?

> What categories of cloud computing services is the top technical college in Maharashtra's Nagpur Vidarbha Region offering?

What benefits and drawbacks do cloud computing services offer to libraries?

> Is cloud storage beneficial for both library patrons and library staff?

Ten technical colleges were chosen as the research population in this study. Cloud-based library services are being used by all of the chosen technical colleges' libraries. As 10 college libraries were implementing cloud-based services in their libraries, the research study's final sample included 10 technical colleges. The initial sample size was 562 (library professionals 62 and library users 500). The final sample size was 512 (library professionals 47 and library users 465).

A research design is a set of procedures used by the researcher to provide valid, impartial, accurate, and cost-effective answers to questions.

The current research study takes a different approach to determining how cloud computing is used. The important factors include understanding cloud computing, its advantages and disadvantages, and the kinds of cloud-based services offered by the top institute in Maharashtra's Nagpur Vidarbha

Region. The study looks into user needs, whether library users are happy with cloud-based services or not, and the availability of various cloud-based application services in libraries.

An introduction have been given attention upon emphasizing the common economic concerns linked with having an IT infrastructure in order to demonstrate the significance and benefits of cloud computing technology for educational and research institutes and its enormous potential benefits. More emphasis have been placed on the most recent services provided by libraries in the Nagpur Vidarbha Region of Maharashtra with the aid of cloud computing, in addition to a number of typical examples being used to illustrate the growing popularity of cloud computing with some educational and commercial establishments. In order to determine the services offered by top institute libraries, this study used a survey research approach that included a questionnaire method for data collection. The survey research technique is used to gather data by choosing random samples from a broad population. This information applies to all populations. The survey research approach was used to collect data from the target group rather than the entire population. A tiny portion of the population was chosen for this study, and results were then applied to a large population. The survey research approach is labor, time, and resource efficient. To learn about cloud services and other connected topics, a questionnaire will be emailed to library patrons and librarians. Two categories of study have been created in order to perform in-depth research. Perspective from a librarian on cloud computing and that of library patrons on cloud computing services.

Tools for Data Collection:

Data gathering comes next after the research design. The systematic collecting of data required for statistical research is divided into two categories: primary data and secondary data.

Primary Data:

The researcher himself gathers primary data for a particular topic. These statistics come from independent research that was done by organizations or people.

Secondary Data:

When a researcher uses information that has previously been gathered by others, the information is referred to as secondary data. Secondary data refers to information that is occasionally needed but is already present in reports, magazines, journals, and information that has been extracted for study.

A small group is chosen at random from a huge population, which increases in size. Incredibly significant data gathered through sampling. The characteristics of all populations are represented by a sampling. Sampling is helpful and required in these situations because it is difficult to collect data when the population is very vast. The sampling method is time, money, manpower and resource-efficient.

A sample is a subset of a population from which information is gathered and parameters for the entire population are subsequently estimated. A sample is a portion of the population that is chosen to represent the study population and is the subject of the research problem. A sample is made up of a small number of people from the information gathered. After gathering data from surveys and Google forms, statistical analysis software was employed, and numbers were imported into Excel spreadsheets.

Cross-validation of the data was done using information obtained from a survey of top technical college libraries in the Nagpur Vidarbha Region of Maharashtra.

A pilot study conducted by a researcher. The purpose of the pilot study was to determine how long it takes to gather information from respondents and how they reply, in order to take into account their insightful suggestions. An experiment testing a hypothesis. When the research area is broad and complex, a pilot study is conducted in addition to the main survey. Data pertaining to the primary research are collected through a pilot study. It is advised to do the primary test of the final research by conducting a pilot study since it provides a basic understanding of the final study.

The questionnaire method is employed in this pilot project to gather data. Survey results were focused on cloud-based library

services. The understanding and adoption of cloud computing is quite young in Nagpur Vidarbha Region, Maharashtra. The library staff and students of all three institutes were surveyed twice using separate, closed-ended questionnaires. The data were then processed using the most recent version of Microsoft Excel for statistical analysis and description.

The information is examined and interpreted in light of the feedback and recommendations gathered from the questionnaire, and it is then presented in the manner below. 90 copies of the surveys were distributed across the three institutes, 15 to library employees and 75 to users. Out of the 15 assignments given to library personnel, 15 (100%) were finished and brought back. Similarly, 70 (93.33%) of those given to students. Simple percentages and frequency counts were used to assess the data.

Information on student characteristics, such as student category, branch, computer proficiency, and gender, was gathered and examined. According to the student category, the majority of respondents (74.29%) and P. G. students (25.71%) are undergraduate students. The distribution of students by semester was found. The majority of the students were enrolled in the third (48.57%), fifth (28.57%), and seventh (22.86%) semesters at the time of the survey because it was an odd semester. The EE branch makes up the majority of the respondents. 100% of kids have computer literacy.

Data on the specifics of the library staff, such as professional degree, computer proficiency, and professional experience, were gathered and analyzed. A doctorate is held by 6.67% of the library employees, while the majority of them (93.33%) have postgraduate degrees in library and information science. The majority of library employees (60%) is computer literate; of this 60%, 53.33% have a certificate and 6.67% have a postgraduate degree; the remaining 20% have not taken any computer courses. The majority of the library employees (53.33%) have professional experience ranging from 0 to 5 years. The data showed that 20% of the library employees have 5–10 years of experience, and 20% have 10–20 years. A small percentage of people (6.67%) have more than 20 years of professional experience.

Most students and library staff's use the most basic cloudbased library services. 15 (100%) library staff provided mailing services to 68 (97.14%) students, 14 (93.33) library staff provided social networking services to 34 (48.57%) students, 10 (66.67%) library staff provided video services to 36 (51.43%) students, and 10 (66.67%) library staff provided file sharing to 46 (65.71%) students. 19 students (27.14%) and 6 (40%) library staff data collecting, Event calendar: 3 library staff (20%) and 19 (27.14%) students; online presentations: 3 library staff (20%) and 16 (22.86%) students; online file editing services: 10 library staff (66.67%) and 13 (18.57%) students; and very few other Online picture shop with 2 (13.33%) library personnel and 11 (15.71%) students. The study so demonstrated that library employee's use cloud computing technology in libraries and that they have a favorable view toward its usage.

DATA ANALYSIS, INTERPRETATION AND RESULTS:

The technical college in Nagpur Vidarbha Region, Maharashtra, is the setting for the current study's goals to identify and investigate the uses of cloud computing in library services. The data were gathered by sending questionnaires to librarians and information professionals via Google Forms and handing out printed surveys to library users as part of the current study's survey methodology. In order to gather the required data, a structured questionnaire was created with the current research's goals in mind. 62 surveys were given to librarians and information specialists. After distributing 500 questionnaires to library users, 47 responses were received, totaling 465 responses. The most recent version of Microsoft Office Excel was used to analyze the collected replies and perform the necessary statistical analysis and description.

The present study assessed respondents in two parts:

- Data Assessment of Library Professionals
- Data Assessment of Library Users

Data Assessment of Library Professionals:

A detailed assessment of library professionals as following different headings, which are as follows:

- Basic Information of Respondents
- Library Software and Services
- Cloud Computing in Library Services
- Effect of Cloud Computing in Library Services

Storage, Open Source Software and Threats of Cloud Computing

Feedback

Data Assessment of Library Users:

Responses from library users at the technical college in Nagpur, Vidarbha Region, Maharashtra, were gathered using printed questionnaires. For the purposes of the study, 50 printed questionnaires were given to each of the ten technical colleges in the Nagpur-Vidarbha Region of Maharashtra. The technical college in Nagpur, Vidarbha Region, Maharashtra, responded to the survey with 93% accuracy (465 useful questionnaires out of 500 distributed questionnaires).

In the current survey, it was shown that while 81.94% of library users and professionals are aware of cloud computing, only 80.85% of these individuals are aware of the service and deployment models of cloud computing. Cost savings, ubiquity, and scalability, and storage, ease of use, paperless environment, multi-user access, reliability, and security are benefits of cloud computing. The majority of librarians and library users used Google's cloud-based services. The survey discovered that both librarians and library users used Google Drive and Dropbox for cloud-based storage. The majority of library professionals trust cloud computing and haven't had any problems with data loss there. The majority of library users believed that cloud-based services were simple to use, and 90.54 percent of users were satisfied with cloud-based library services. It is advised that all librarians utilize cloud computing and integrate it into their services.

CONCLUSION:

Based upon data analysis carried out on collecting data with

respect to the application of cloud computing in library services in leading technical college of Nagpur Vidarbha Region, Maharashtra, some of the major findings have been summarized as follows:

Out of 47 library professionals (38, 80.85%), library professionals have an awareness of cloud computing and out of 465 library users (381, 81.94%) library users have an awareness of cloud computing. (16, 34.04%) Library professionals know about service models of cloud computing and (14, 29.79%) have no experience about service models of cloud computing. (193, 41.51%) library users have no experience and (162, 34.84%) only heard about service models of cloud computing. (14, 29.79%) Library professionals have knowledge about deployed models of cloud computing and (14, 29.79%) have no experience of it and (11, 23.40%) only heard about deployed models of cloud computing. (206, 44.30%) library users have no experience and (149, 32.04%) only heard about deployed models of cloud computing. According to users of the library, the library provides cloud-based services are (462, 99.35%) cloud-based mail services, (300, 64.52%) cloud-based file sharing, (287, 61.72%) cloud-based social networking etc. One of the significant findings of the present study is (41, 87.23%) library professionals used cloud computing in their library and information centre, most of (19, 40.43%) used cloud-based mail services to their Library. In another finding of present study, in advantages of cloud computing (38, 80.85%) library professionals were agreed for cost saving, (38, 80.85%) ubiquities, (35, 74.47%) scalability, (41, 87.23%) agree for storage, (40, 85.11%) easy in use and (42, 89.36%) agree for paperless environment, (42, 89.36%) multi-user can access, (28, 59.57%) were agree for reliability and security. In yet another appealing finding regarding disadvantages of cloud computing, (39, 82.98%) of library professionals, were agreed for dependent on service provider, (27, 57.45%) vendor lock-in, (28, 59.57%) agree for technical problems, (26, 55.32%) were agreed for high bandwidth, (23, 48.94%) leakage of confidential data (data security) and (16, 34.04%) library professionals were agreed high cost disadvantages of cloud computing. Another finding of the study is related to web-based library management software, most of all, 93.62% library professionals

used web-based LMS and used cloud computing in library function such as 76.60% classification and cataloguing, 63.83% acquisition, 78.72% cloud-based online resources, 80.85% storage of data and files, 74.47% back up and 65.96% data import and export. According to 85.11% of library professionals, library user using cloud-based services for online database access and 78.72% thought that the user uses it for reference purpose. (299, 64.30%) library user using cloud computing services for Online database access followed by reading a national / International article, reference purpose. 59.57% of library professionals have campus access for accessing cloud-based library services, 55.32% were accessed through user authentication, (280, 60.22%) of library user accessed cloud-based library services through campus access. One more worth noting finding of the present work, 57.45% of library professionals were used service of third-party cloud computing provider, most of 74.08% used cloud-based service of Google. 42.55% of library professionals were not using thirdparty cloud computing services, 36.17% did not use it because of privacy. A remarkable finding of the present study has revealed that 89.36% library professionals were opined that cloud computing useful for the library, 65.96% were agreed that cloud computing changed a pattern of work and 89.36% believed that cloud computing improves existing library services. 95.05% of library users were opined that cloud computing useful for them and 94.41% agreed that cloud computing improves existing library services. It was found that 78.72% library professionals found that user increased through cloud-based library services, 59.57% have no specific IT team to manage cloud-based library services, 70.21% said that cloud computing creates no any complication in library services. (372, 80%) library users said that cloud computing creates no complication in library services. The study found that 61.70% library professionals used service for cloud storage providers, in it, most of 89.66% used Google drive and 55.17% used Dropbox. (355, 76.34%) library users used service of cloud storage providers, most of all used Google Drive and Dropbox. 63.83% of library professionals used cloud-based open source software, most of the 66.67% were using Google Docs. (318, 68.39%) library users using open source software, most of them used Google Docs and Google App Engine. 85.11% of library

professionals have trust in data storage in cloud computing, 82.98% have no experience of data lost in cloud computing, 59.57% have no experience of cloud computing threats like a backup problem, virtualization, hacking, access control etc. 65.96% of library professionals have agreed with no misuse of data in cloud computing, 55.32% did not collect feedback from the user about cloud-based library services. (344, 73.98%) of library users visit library for improve knowledge, (222, 47.74%) library user asking for help to librarian, (415, 89.25%) library users have reading room, (432, 92.90%) library users have computer lab in library, (270, 58.06%) library users have no RFID technology in library, (452, 97.20%) have Wi-Fi network in library. (202, 43.44%) of library users have the remote login facility, most of them (68, 33.66%) used it occasionally. (420, 90.32%) library users were interested in data sharing and storing in cloud computing, (421, 90.54%) library users satisfied with cloud-based library services, (412, 88.60%) library users believed that cloud-based library services easy to use.

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