

Chapter 39

Cloud Computing, Smart Technology, and Library Automation

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ABSTRACT

As technology continues to change, the landscape of the work of librarians and libraries continue to adapt and adopt innovations that support their services. Technology also continues to be an essential tool for dissemination, retrieving, storing, and accessing the resources and information. Cloud computing is an essential component employed to carry out these tasks. The concept of cloud computing has long been a tool utilized in libraries. Many libraries use OCLC to catalog and manage resources and share resources, WorldCat, and other library applications that are cloud-based services. Cloud computing services are used in the library automation process. Using cloud-based services can streamline library services, minimize cost, and the need to have designated space for servers, software, or other hardware to perform library operations. Cloud computing systems with the library consolidate, unify, and optimize library operations such as acquisitions, cataloging, circulation, discovery, and retrieval of information.

INTRODUCTION

Libraries today face many challenges presented by the continuous development of technology and the rapid dissemination of information. With these challenges, the work of libraries and the methods for retrieving and using information are affected by technology. The rapid development of technology affects all libraries, in which they are experiencing a change in how the communities they serve, and society perceive them. Libraries today are seen by many as an anchor, the center of academic research, and community activities. Libraries are no longer identified as a place for books but as cherish spaces. The spaces within libraries are used to make connections, come together to learn, find information, use technologies, exchange ideas, and collaborate (Howard, Huber, Moore, & Carter, 2018). However, the

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effects of user expectations, in addition to changes in higher-education pedagogy, data management, scholarly communication, and the rapid developments in technology, have forced academic libraries to create new services and resources (Saunders, 2015). In doing so, libraries are transforming their campuses, offering information literacy and technology workshops, 24/7 virtual access to digital materials, e-Books, and adding innovative technologies. In this Web 2.0 fast-paced society library, users are no longer just carrying pencils and paper to the library. Library users are bringing their own mobile devices, including smartphones, iPads, and laptops. These trends are increasing the dependency on the Internet, and the need and desire for sources that are reliable and accessible. With the advancement in technology, patrons using the library no longer desire a quiet, isolated space for reading or studying. Instead, they have a growing need to be connected and collaborating with other users. Whether library patrons are visiting the library for research or studying the traditional library space with study carrels and endless rows of stacks does not appeal to users of today. Neither does standard Internet services meet the need of library patrons. Library user desire services that are available and accessible twenty-four hours seven days a week, anywhere and at any time.

With the continuous advancements of Internet services and technology, academic libraries and institutions are more visible on the web. It is resulting in a tremendous improvement in teaching and learning that provides an opportunity for libraries to be instrumental in facilitating the services and resources needed to support users' research needs. However, libraries must simultaneously offset traditional services, such as collection development and instruction, with new initiatives. The library environment is further affected by an increase in online programs, online resources, open-education resources, and a need for library instruction (Collins & Quan-Haase, 2012; Stvilia & Gibraedze, 2017). Distributed computing is referred to as a synonym of cloud computing over a network. The word "cloud" can be referred to as a blend of networks, hardware, storage, and interfaces to deliver a service. The main features of cloud computing are agility, reliability, scalability, pay-per-use, on-demand service, resiliency, performance, security, and resource pooling (Ali & Haseebuddin, 2015; Basu, 2018).

Often, users are not aware of the resources and digital innovations the library provides, nor do they know how to use these tools. Many times, users categorize libraries, thinking that they only have books. The need for libraries continues to change as users, and their perception evolve. Technological advances, digitization of collections, cloud-based, and the evolution of electronic resources are some of the many changes and developments within the library structure. Libraries are seeking ways to enhance services. Also, with the availability of free, unrestricted access to information, libraries are not the only organizations that provide information. Nor are libraries thought of as the first source for information. These changes make it very important for libraries to adapt and utilize new, evolving technology. As technology and information continue to advance rapidly, libraries are developing new avenues to connect with their stakeholders. Many industries have already deployed a hybrid approach of cloud; therefore, they believe moving to the cloud makes sense. Even the social media platforms libraries and their institution's today use the cloud. Social media has become one of the libraries' go-to tool for promoting these resources. Web-based life is a vital part of how students speak with their colleagues, families, companions, and other external entities. As libraries continue to experience significant changes, and technology development continues to increase, to keep current and competitive libraries must utilize the most modern tools for sharing library resources. Although libraries are challenged to anticipate and address the need for future innovative initiatives, academic libraries are also responding to current trends (Saunders, 2015; Stvilia & Gibraedze, 2017). With these changes, libraries are shifting their focus to more patron-centered services. In response to the changes in library services and technological advancements, many libraries are adapting

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