Security and Privacy in Digital Libraries: Challenges, Opportunities and Prospects

Mohammed Nasser Al-Suqri, Department of Information Studies, College of Arts and Social Sciences, Sultan Qaboos University, Al-Khoud, Sultanate of Oman

Esther Akomolafe-Fatuyi, Morgan State University, Department of World Languages and International Studies, Baltimore, MD, USA

ABSTRACT

Technological advances have led to a proliferation of digital libraries over the past decade or so. These offer valuable opportunities for convenient access to information and data, regardless of an individual’s location. For librarians though, the transition from physical to digital library collections brings many new challenges, not least in the areas of security and privacy. The purpose of this article is to examine the nature of these challenges and the opportunities available for overcoming them, so that libraries can continue to fulfill their important role of providing accurate, secure and timely information to users, while protecting their privacy and the confidentiality of their personal information. The article addresses in particular the following issues: protecting the information infrastructure; identification and authentication in security and privacy; standards and policies; access and control of digital information; ethical decision-making in design, implementation and evaluation of digital libraries; and privacy, anonymity and identity. The article concludes with consideration of the future prospects for security and privacy in digital libraries.

Keywords: Challenges, Confidentiality, Digital Libraries, Opportunities, Personal Information, Privacy, Security

INTRODUCTION

There has been a vast increase globally over the past decade or so in digital libraries, facilitated by technological advances and driven by consumer demand for easy and convenient access to knowledge and information from any location. The Digital Library Federation defines digital libraries as “organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works, so that they are readily and commercially available for use by a defined community or set of communities.”

DOI: 10.4018/ijdls.2012100103

Copyright © 2012, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.
alternative definition put forward by Ershova and Hohlov (2001) describes the digital library as “a distributed information systems ensuring reliable storage and effective use of heterogeneous collections of electronic documents - text, graphics, audio, video, etc. - via global data transfer networks in a way convenient for the end user.” In brief, digital libraries are organizations that hold information resources in digital format. It has been predicted that they will play an increasingly more important and essential role in society, not only as data and knowledge repositories and the means of retrieving information from them, but as a focal point for all forms of knowledge, research and education (Birnbaum, 2004).

However, while bringing benefits to patrons and new opportunities for library professionals to expand their roles, the developments have also brought about new problems and challenges, especially relating to information security and user privacy. News reports of security breaches and identity theft in the online environment threaten to undermine consumer trust in Internet-based services generally, including digital libraries (Kuzma, 2010).

The purpose of this article is to examine the nature of these challenges and the opportunities available for overcoming them, so that libraries can continue to provide knowledge and information to users, while protecting their privacy and the confidentiality of their personal information and preserving the integrity of information for ongoing use.

BACKGROUND

Emerging digital technology has paved the way for the creation of digital libraries, which have made it easier for users to access information through digital systems and networks. The digital library is generally designed to perform and serve the same primary functions and tasks as a traditional library. What makes it different, though, is that it consists of data stored in digital form on computerized devices instead of in physical books and journals. In today’s globalized world, data are transmitted across the planet through the Internet, providing easier access to information and education for many people. While this technology provides current opportunities for expanded learning across the globe, there is also a need to ensure that the digital information can be preserved and made available for future generations.

The primary functions performed by libraries include developing and producing information records in print and non-print formats, managing these information records, and distributing information for the use of current and future generations. The role of libraries in facilitating information access has been widely discussed by many researchers (Borgman, 2000; Sturges, 2001; Hamilton & Pors, 2003). The continual evolution of technology and the resulting changes in the interface between users and information changes the librarian’s professional environment and their role. Fifty years ago, a librarian would help patrons find a book through a card catalogue; today, digital librarians use a computer to assist more patrons to simultaneously locate books, audiovisual media and on-line resources.

Digital librarians have an interest in the preservation of data in durable format and in the provision of access to vast information while keeping pace with the changing technologies. They need to be able to resolve issues of compatibility between old and new technologies while transferring information between them and providing access to end-users. At the same time, attention must be paid to ensuring the protection of the information infrastructure and the privacy of end users. The global increase in the overall quantity of information and in the digital devices on which it is stored has given rise to many issues of security and privacy pertaining to both library users and digital materials. The storage, management, retrieval and use of information from sources which are no longer
Adoption of Open Source Software in Libraries in Developing Countries
www.igi-global.com/chapter/adoption-of-open-source-software-in-libraries-in-developing-countries/250691?camid=4v1a