

The Means of Building Digital Libraries

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Abstract – *The information technologies of building electronic libraries are considered. The emphasis is on the application of cloud platforms for the further development of service-oriented library systems.*

Keywords – electronic library, full-text document, cloud services, service-oriented library system.

I. Introduction

The formation of high-quality digital libraries is associated with the development of and use of distributed databases. An electronic library should be perceived as a type of information systems that are intended to accumulate, structure and organize large amounts of digital information with further access to it.

The electronic library, in addition to storing documents, should ensure the selection and search of the necessary information; for this purpose, global and local directories are created, the exchange of electronic documents is occurred.

The purpose of this article is to explore the platforms for building electronic libraries of full-text documents.

II. Background

The problems of software and technology ensuring for the creation of electronic libraries were considered by F. Voroycky [1], A. Zvysliy [2,3], Yu. Khokhlov [4].

The basis of the electronic library is the electronic collection of electronic documents containing library materials and documents in electronic format:

- bibliographic and abstract databases and indexes;
- editions on CDs;
- e-books, electronic journals, conference materials,
- other on-line databases and Internet resources.

The term "electronic library" means a relatively new type of library and information systems designed for the accumulation, structuring and storage of an array of electronic documents with an appropriate access system [5].

The electronic library is a collection of electronic resources, organized on the basis of known rules and techniques of library science, that is, performs such processes as the acquisition, processing, systematization, subject indexing tools, storage and other, as well as the creation of the catalog and reference and search system in electronic form.

Since the electronic library is, first of all, a library, then when creating and organizing its resources, you need to use the available apparatus, software and rules of library

technology, and also take into account the specifics of electronic media and the trends of modern information technologies.

The electronic library as a component of higher educational institution is an independent information and communication system, the main purpose of which is to provide scientific communications at a high-quality new level.

The electronic library is one of the important elements in the system of scientific communications, which promotes timely informing of users, expansion of the communicative environment of scientists, dissemination of scientific knowledge, their popularization.

Various electronic materials can be stored in numerous collections of the electronic library. These are files with instructional literature, program packs, reference books, illustrations, educational and research work of the institution's employees, information and documents from various sources.

For their efficient search, metadata and hyperlinks are created to their storage location. The purpose of the development of the electronic library is to facilitate the transformation of printed materials into digital form, their processing, which provides improvement of maintenance processes for local and remote users.

In addition, the well-organized operation of the electronic library greatly enhances the speed of providing users with the necessary full-text documents.

Moreover, most modern users, particularly in the context of inclusive education, prefer to obtain the necessary documents in electronic form.

The information infrastructure of a typical e-library consists of:

- automated technological complex,
- information resources,
- tools for supporting the functioning of the electronic library.

Today, the most common means of creating electronic libraries are:

1. DSpace platform as an open source software.

DSpace is a universal repository designed to hold intellectual products of scientific organizations, electronic full-text materials of various types and formats, the model of publication involves self-archiving.

With the dynamic introduction and formation of collections of institutional repositories on DSpace platform and the increase in the number of bibliographic descriptions in electronic catalogs of libraries, the tendency for them to acquire new qualities and forms of co-operation has been formed.

This form is the process of joining full-text versions of publications stored in the electronic scientific archive of the Scientific library of Lviv polytechnic National University with bibliographic references of the database "Proceedings of Lviv Polytechnic Scientists", which collects bibliographic references of publications of University scientists for all years of their activities at the University. This database is created in the automated library system UFH / Library.

The question of correlation the bibliographic references of the university staff database of the papers with the full text content of the electronic archive was considered by T. Patrusheva [6], O. Kovyazina [7], A. Rzhewsky [8], who provide information about the possibility of a user switching from the metadata of the electronic catalog to full-text materials stored in other databases.

2. Cloud-based technology.

M. Goldner [9] expressed his view on cloud services and their benefits to libraries in three main areas: technology, data, and community.

Diane Murley [10] presented a list of resources and services that may be associated with cloud services in legal libraries.

P. Sasikala [11] insisted on the concept of cloud services from the perspective of a variety of technologies, services and affordable cloud models in government, enterprises, higher education institutions, and library institutions.

The implementation of cloud services for the development of its own catalog of the new generation through its ease of use, effective workflows, user servicing and rapid training was carried out at the St. Thomas University Law School [12].

The libraries can host their own websites in the clouds. The Columbia County Public Library uses the Amazon EC2 (Elastic Computing Cloud) service to host its website.

The libraries can create a digital library, a content management system, an institutional repository, an interlibrary loan, an integrated library system from a local form of management – to the delivery of its own virtual environment through cloud services. Features, comparative analysis and definition of the most suitable cloud services for implementation in libraries, is presented in the article [13].

3. DuraCloud platform.

DuraCloud is a distribution of DuraSpace company that supports open technology projects that provide long-term storage and secure access to electronic assets.

DuraSpace was founded as a result of the merger of two of the largest providers for managing access to digital content: DSpace Foundation and Fedora Commons. It also includes electronic library management systems such as DSpaceDirect, Fedora, and VIVO.

DuraCloud – is a service for archiving, exchanging and managing content in the cloud. To save documents, 400 TB content is provided. DuraCloud is the next step in the development of service-oriented library systems. This platform is payable, but you can try a test mode.

Conclusion

Thus, we considered information technologies and basic platforms for building electronic libraries containing full-text versions of documents.

Subsequently, the cataloging of electronic resources depends on the development of a model for processing

their types, the formation of files with the identification of new cataloging documents and the introduction of technology for processing the input document flow for efficient cataloging of electronic resources.

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