Chapter 3.13
Personal Digital Libraries

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ABSTRACT

This chapter presents the services and functionality that a personal digital library (PDL) system should provide. The chapter includes a reference architecture for supporting the characteristics and functionality of the personal digital library. In particular, a currently available project called PDLib is used as an example of this type of system. The authors address some of the particular problems that personal libraries impose with respect to the overall administration of personal collections of digital documents and how personal libraries may become a commodity and a way of social interaction. The chapter objective is to increase the research interests on personalized digital libraries and their usability in our daily live.

INTRODUCTION

As digital and information technology advances, the effects of the adoption of such advances to our daily life are more evident. Today we, as users of information technology goods, produce a large amount of digital documents such as e-mail messages, office paperwork, personal documents, school homework, and even still-images, audio, and video. These myriad of digital documents usually reside in our personal computers or workstations, and some of them are placed on public places (i.e., our personal Web page and/or a Web sharing repository) where others can access our digital content. We are not only producers, but also consumers of digital documents; more and more frequently we get our daily news from the Web or via an e-mail service subscription. Also, while doing research in our area of interest, we consult the digital content available through the digital library services that our local library provides.

The personal computer is the place where we collect our personal digital archives and we have been using hierarchical folders to classify this information; with the increase in volume data the search utilities provided by operating systems are inadequate to ease the finding of documents, e-mail messages, or multimedia files because they do not analyze content. In the last couple of years, the search engine industry has introduced desktop search engines, tools that try to index the data in the file and gather as much metadata available (Cole, 2005) to provide a better search experience.

We organize all of those documents into collections, which will form in a way our personal library. Each user decides the contents of each collection following the user's own classification schema. Creating, organizing, sharing, searching, and retrieving documents from our personal collections are the intentions of personal digital libraries. A personal digital library (PDL) includes traditional digital library services for individual users.

In this chapter, we present and discuss the services, functionality, and characteristics of personal digital libraries in the context of our own development project called PDLib (Alvarez, Garza-Salazar, Lavariega, & Gómez-Martínez, 2005). PDLib is a universally available personal digital library. It is "universally available" in the sense that it allows the user to access personal digital library from most computing devices connected to the Internet, including mobile phones and PDAs, therefore granting access "from anyplace at anytime." We also discuss how social interactions happen at different levels in the context of PDLib.

BACKGROUND

Digital library research has produced specialized, cohesive repositories, typically delivered via a Web interface and targeted to support both academic and industry organizations. A requirement to bridge organizational boundaries has been issued as the interoperability challenge (OAI, 2006), which calls digital library systems to take measures to share data with other digital repositories. Traditional digital library systems are seen as large data repositories that provide services to multiple users. Many of these systems are supported by distributed architectures for scalability purposes (Janssen, 2004; Smith, Barton, Bass, Branschofsky, McClellan, Tansley, et al., 2003; Witten, Boddie, Bainbridge, & McNab, 2000; Witten, Moffat, & Bell, 1999).

We propose a different perspective of the digital library, that is, a PDL universally available. The objective of personal digital libraries is to take the concepts of traditional (or collective) digital libraries to the user level and provide tools to promote the social interaction. Our PDL's concept proposes the notion of providing one repository for each user, enabling users to interact with each other with regards to both personal and shared data objects. We also emphasize on universal access, that is, users should be able to access their own personal libraries wherever they are.

Personal digital libraries provide traditional digital library services such as document submission, full-text and metadata indexing, and document search and retrieval, augmented with innovative services for the moment-to-moment information management needs of the individual user. These innovations include provisions to customize the classification of documents, interact with other digital libraries (whether personal or collective), and support user-to-user exchange of generic digital content.

The creation of the personal digital library implies the submission of digital documents and their placement on the personal digital library under user-defined classification schemas. The documents of a personal digital library must be accessible via a mechanism capable of providing meaningful answers to users' queries. In a personal digital library system, search and retrieval mecha-

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