

Preface

Web content management (WCM) as a branch of content management (CM) gained importance during the Web explosion in the mid-1990s. However, the concept of utilizing content management solutions to manage library Web sites has only just started to emerge. More and more library Web administrators are coming to the same conclusion: that Web content needs to be managed throughout the content life cycle, that static HTML pages are time consuming to maintain, and that a lot of Web content in libraries can be re-purposed effectively. Additionally, rising demands from users for customized Web functions, as well as from library staff for easier and more streamlined internal workflows, are all calling for more effective solutions to Web content management. Content management solutions therefore seek to make content more usable to the user community, and to streamline the process of creation and publication of library Web pages, thereby reducing the time and cost of content management.

Content management can be simply defined as a process of collecting, organizing, categorizing, and structuring information resources of any type and format so that they can be saved, retrieved, published, updated, and re-purposed in any way desirable.

The ultimate goal of publishing Web content through the use of a WCM system is to automate the entire process of writing and publishing content by integrating easy-to-use Web authoring tools with a large database of information resources, while ensuring that library users receive well-managed and current information with a consistent look and feel. These databases are designed to allow easier management and retrieval of the resources and incorporation into a variety of Web presentations.

Current State of Library Web Content Management

Using WCM tools or systems to manage increasingly diverse Web content and to streamline workflows is a solution recognized in libraries today, although the field of Web content management in libraries is in its infancy. Libraries are increasingly aware of the need, and many find themselves currently in the planning stages to implement such a solution. However, limited library Web content management models and funding constraints prevent many libraries from purchasing commercially available WCM systems. Rather, libraries typically are utilizing database-driven methods to manage portions of a library Web site, such as subject guides, lists of electronic resources, calendars, and the like. In many libraries, WCM applications are developed to resolve a particular challenge existing in library Web site development. And the lack of much-needed technical expertise in building in-house WCM applications also presents a great challenge for libraries of all types.

Currently in many libraries, the tools and methods used to maintain Web content are not meeting the demands and expectations of library users. Libraries are still struggling to provide current, consistent, up-to-date information on their Web sites using only the primitive tool of HTML. In many libraries, the hands-on nature of Web content management is still a mainstream situation. A typical example is the management of subject pathfinders or electronic resources lists. Most Web editors agree that the process of producing subject pathfinders using basic HTML coding is tedious, labor intensive, and in many ways repetitive because many subject areas contain identical resources, descriptions, and links. As both the electronic collection and print collection develop, these pages need to be updated constantly. Updating these pages requires repetitive and tedious editing, as every single one of these occurrences has to be updated. In many cases, HTML-coded Web content has become unmanageable.

Libraries are facing a situation where demand for dynamic access and online delivery of information is growing rapidly. Add to that an increasing amount of content being generated for Web sites and other publications by a variety of authors, some with little or no Web expertise. In many large academic and public libraries, Web content is created by a roster of authors, including professional librarians, staff members, student assistants, and interns. As a result, the question of how to streamline the workflow and publish easily and consistently has become a critical issue. The Webmaster model is still employed by many libraries as a primary means to manage its Web site, but has been proven to be inefficient in an environment where a team of developers and editors contribute to the Web site. The changing nature of Web authorship and user demands is necessitating change in how libraries manage their Web sites.

Discussion in the Literature

In researching this preface, the author found that the literature is relatively scant on the overall management of Web content in libraries, but rather extensive in business. Most articles on the management of library Web sites dealt with the design of the site and the evaluation of it. As well, most of the literature on administering library Web sites finds librarians discussing the creation and usability of the site (Shropshire, 2003). There is very little research on the ongoing content management of library Web sites. The fact that the majority of librarians creating Web pages are self-taught means that little attention has been given to defining the roles of library workers regarding Web site content management, and that librarians have not been discussing the processes and workflows associated with running an academic or large public library Web site. Being self-taught also suggests that librarians are sharing the technical know-how without formally examining the processes required to maintain the content of a Web site.

In large part, the library literature has omitted library Web content management and workflow quality control. Issues surrounding library Web content management did not come to view until 1999 when Antelman (1999) points out that "library Web sites have grown in size and complexity over the last several years without a corresponding growth in the sophistication of the underlying technology." Antelman argues that the primitive tool of HTML is no longer sufficient to deliver information with multiple access points and via user-defined displays. The Webmaster model is proving to be increasingly inadequate due to the increase in number of people involved in Web development and the sheer volume of HTML pages being created. User expectation of tailored displays and personalized selection of resources adds another layer to the problem.

In terms of reviewing and choosing WCM solutions, the literature is also deeper in business environments. Many of the articles on WCM for libraries only give a layman's guide to the process, with a few notable exceptions appearing in the last two years. In her first article, "What Is a Web Content Management Solution?", Kim Guenther (2001), a librarian writing from a corporate approach, defines the WCM product classes and familiarizes readers with some required WCM vocabulary. She also discusses in a second related article the necessary planning leading up to a review and selection of a content management solution, while providing and exhorting readers to examine and plan workflows and business strategies.

In contrast to the lack of formal research on the topic, there are a large number of conference proceedings, presentations, informal papers, listservs, and Web sites that provide library Web developers with information on various tools on Web site management. However the author has found no systematic investiga-

tion of library methods and tools in terms of WCM. Given the light treatment of the topic in the literature, it is timely that this volume appears. Much that has been learned in the business environment can be applied successfully to the library setting, particularly academic libraries. Both Shropshire and Guenther, among others, strongly encourage libraries to examine their business strategies to ensure that the content that appears on the Web site is meeting the needs of the user group. In her article, "Library Web Site Administration: A Strategic Planning Model for the Smaller Academic Library," Susan M. Ryan (2003) argues for a systematic approach to Web site development that ties into the library strategy for delivery of services.

The advent of the library Web portal has also developed to provide patrons with a customizable interface to information resources. The library literature reflects this new trend. Articles are appearing that cover a variety of related topics, including the history of Web portals and their development in libraries (Zhou, 2003), a philosophical discussion on personalized library portals as an organizational culture change agent (Lakos & Gray, 2000), as well as methods and approaches in creating Web pages without HTML coding (Bills, Cheng & Nathanson, 2003) and creating discipline-specific portal to periodicals (Womack, 2003). The MyLibrary portal (my.lib.ncsu.edu), which allows customized access, is a pioneer in the library world. Following the implementation of the MyLibrary portal at the 1999 American Library Association (ALA) mid-winter meeting, the MyLibrary model was deemed as one of the key future trends for library Web content management and dynamic display solutions. Six years have passed since the inception of the first library portal, yet we have not seen the anticipated large-scale acceptance of the library portal model in libraries. Users of the portal also tend to be small in number, but active in their use. Eric Morgan (2003), creator of the MyLibrary portal, notes the fact "that a small number of users makes up a large part of the system's usage." Crawford (2002) echoes and cites other problems that may have impacted the use of the library portal, such as solipsism—where a user's narrowly defined profile limits the full use of library resources—and differential service—where users who did not set up a portal profile receive low-quality service. While user behavior may have been one of the major reasons why the MyLibrary kind of portal model has not been embraced by many libraries, time and energy spent in maintaining the application, keeping up with new technology, and changes in organizational culture also further impeded the success of portal applications in libraries.

The real motivation that pushes libraries, especially academic libraries, to start creating home-grown database-driven applications is the challenge they face in creating subject guides or pathfinders. Bills, Cheng, and Nathanson (2003) have the same observation as mentioned earlier that the process of producing subject guides was tedious, repetitive, and labor intensive, and it required librarians to become proficient at the intricate task of Web-page creation. Recording the information in a database allows the information to be entered or updated once,

and propagated to as many pages as one desires. Early home-grown database-driven applications mainly utilized Access database, ASP, Java, or CGI, with ColdFusion Express, PERL, SQL, XML, and PHP coming into play around the turn of the century.

In most cases, while library Web portals that automate Web content management for the entire Web site do not seem to serve the best interests of the library user, a new trend is emerging in Web content management—that is, to embrace open source software products to manage portions of library resources and services, namely, subject guides, online resources, library news, online tutorials, and more.

The possibilities of widely used open source software (OSS) in libraries are investigated by Morgan (2002), who summarizes the discussions that have appeared on OSS4Lib (Open Source Systems for Libraries), and lists the main threads as: national leadership in the form of institutionalized support, mainstreaming of OSS in the areas of enumerating the advantages and disadvantages of OSS, and promoting and marketing OSS as a viable means for implementing sustainable OSS applications. Discussions of open source software applications in libraries appear in the literature early in 2002. David Brethhauer (2002), in his article “Open Source Software, a History,” provides a historical account of the sophisticated movement of OSS. Roy Tennant (2003) classifies open source software for libraries into two categories: complete systems that handle all of the tasks related to a service (e.g., portal system), and tools that perform specific tasks that can be integrated with other components to create new services. The benefits of open source software for Web content management stem from its unique features—cross-platform simplicity and an easing of licensing restrictions. However, there are drawbacks, as Cervone (2003) observes. In many cases, the support costs for OSS can be more than the costs for equivalent commercial software. Installing and maintaining OSS applications generally requires a higher level of technological sophistication than that required for commercial software. Nonetheless, because libraries are free to run, copy, distribute, study, change, and improve the software, more and more of them are using the software as a tool for Web content management.

In general the library literature presents great possibilities in using open source solutions. What is lacking is how these tools can be integrated into the process of Web content management and to provide various models that can be applied by many libraries.

Using Web content management solutions to manage increasingly diverse Web content and to streamline workflow is a solution recognized by many libraries. However, limited library Web content management models and the lack of much-needed technical expertise in building home-grown WCM applications both present great challenges for libraries of all types. Any solutions that involve programming skills take time to develop, especially where technical expertise is

lacking. For example, some solutions involve migrating the existing data into new database management software, such as MySQL, which requires a learning curve for those who are not familiar with the software.

Organization of the Content

This book provides practical and applicable Web content management solutions through case studies. Following an introduction to needs and challenges in library Web content management in Chapter 1, and a discussion of available methods and tools used for Web content management in Chapter 2, there are eight case studies. These case studies contain successful database-to-Web applications as employed in a variety of academic libraries, all with their own unique environments. The applications vary in scope and cover a range of practical how-to-do-it real-life and cost-effective examples: database-driven Web development for dynamic content delivery; locally created Web content management applications; systems for distributing content management responsibilities, quality control, and open source tools. Issues and challenges associated with the development process are discussed. Authors also discuss the detours and missteps necessary in a real learning experience.

Holly Yu, in Chapter 1, “Library Web Content Management: Needs and Challenges,” explores the notion that rising demands for user-centered and customized Web functions and streamlined workflows are the major motivation for better solutions to WCM. This chapter begins by defining the content and scope of Web content management. Needs and benefits are addressed based on aspects of library WCM from content creation, updating, delivery, look and feel, and re-using data to more administrative functions including workflow management, quality control, and cost-benefit. Issues and challenges associated with implementing a Web content management solution—including strategic planning, selection of WCM tools, and the impact of new features and organizational culture—are also discussed.

In Chapter 2, “Methods and Tools for Managing Library Web Content,” Johan Regatli provides a comprehensive overview of the tools and methods currently available to libraries that are seeking a WCM solution for their Web sites. Solutions for managing a wide variety of materials and contributors range from enterprise-wide content management systems to home-grown solutions utilizing open source products. Increasingly collaborative software such as blogs or wikis have also found their use in delivering library content easily and consistently by librarians without detailed knowledge of Internet protocols and coding. Regatli notes that current trends indicate that libraries are developing a variety of custom tools and systems that tackle content challenges on a case-

by-case basis, often featuring a distributed architecture that favors flexibility and supports a group of contributors with varying technical skills. This kind of development also allows for a greater sharing of resources, allowing more libraries to capitalize on efforts and gains made by other libraries. This trend is already taking hold in many libraries as system librarians try their hand at programming and database creation, whether it is a blog, a wiki, or a searchable collection of classified links in a relational database.

In Chapter 3, “Developing a Distributed Web Publishing System at CSU Sacramento Library: A Case Study of Coordinated Decentralization,” Juan Carlos Rodriguez and Andy Osburn outline the steps that were undertaken at the California State University Sacramento Library in moving from a centrally managed, static, and disjointed Web site, to a efficient, collaboratively managed, database-driven Web site utilizing an easy-to-use, customized Web content management system developed by the library. The case discusses the decisions and actions taken during the various stages throughout the design and implementation of the Web publishing system. Rodriguez and Osburn present the methods used, including some of the Web-based technologies, and discuss the issues encountered and how they were addressed during the development and implementation of the locally created Web publishing system.

Chapter 4, “Indiana University Bloomington Libraries Presents Organization to the Users and Power to the People: A Solution in Web Content Management” by Diane Dallis and Doug Ryner, describes how the Indiana University Bloomington Libraries created a database-driven Web system that enables librarians and staff to publish content to the libraries’ public Web site that maintains a consistent design and places the content into a logical and consistent structure. The system is composed of the libraries’ public Web site interface, the content manager (CM) administrative interface, and an intranet. Dallis and Ryner provide the process of how the new Web system was designed to replace a decentralized process that was previously followed in maintaining a large Web site of 8,000+ static HTML pages. The new system made it possible for their large, decentralized library system to present a unified and well-designed public interface on the Web. The authors also describe the technical and conceptual development of the content management aspect of the system.

In Chapter 5, Laura B. Cohen, Matthew M. Calsada, and Frederick J. Jeziorkowski of University Libraries, SUNY-Albany, describe the planning, development, and implementation of a quality management tool—in their case, “ScratchPad: A Quality Management Tool for Library Web Sites.” The case explains the impetus for the project, presents the rationale for developing the tool, and describes the system components. The tool balances the needs of Web contributors with the assurance of a professional presentation of the organization’s Web site by offering a systematic workflow from development to production, with appropriate quality control prior to public posting. Imple-

mentation outcomes are discussed, especially as they relate to staff engagement and solving post-production issues.

In Chapter 6, “Website Maintenance Workflow at a Medium-Sized University Library”, Michelle Mach indicates that more than half the library staff at a medium-size academic library maintain large numbers of static Web pages, using Web editors rather than content management tools. While not optimal in the technical sense, this process does maximize the individuals’ creative contributions to the site. Because of this flexibility, feedback about this process has been primarily positive at an individual level. However, a growing number of challenges in the areas of content, priorities, technical skills, and workflow exceptions have cast doubt on this system’s long-term prospects. The case discusses the balance between individual and group needs, and the true cost of a purely technical solution to the problem of Web maintenance.

In Chapter 7, Michael D. Whang introduces the design of a PHP and PostgreSQL content management system as a means of maintaining content within a library’s online subject guide collection in his case, “PHP and PostgreSQL Web Content Management Systems at Western Michigan University Libraries.” The author argues that the content management system, combined with distributed authorship, provides an efficient and effective way to manage a large growing body of content that changes frequently. Furthermore, Whang hopes that understanding the process of building a content management system, from system and data requirements to database design and content display, will not only inform librarians and technical staff of good system design practices, but also assist in the understanding of a content-driven library Web site.

In Chapter 8, Stephen Sottong from California State University, Los Angeles (CSULA), in his case, “Database-Driven Web Pages Using Only JavaScript: Active Client Pages,” describes the process of how one university library decided, as part of an overall redesign of its Web site, to use a database-driven Web application. Sottong discusses how a new method of creating the database-driven pages without the necessity of special servers was devised. The resultant Web pages use JavaScript arrays to simulate a database and embedded JavaScript programs to provide the dynamic content for the library Web site.

In Chapter 9, Anne Marie Donovan and Michael Nomura study the development of the Tactical Electric Power Digital Library (TEPDL), a special-purpose document repository and information resource Web site. Their case is entitled, “Tactical Electric Power Digital Library.” The discussion focuses on content management considerations and their effect on project planning, Web site design, and maintenance. Also described are the process and challenges associated with implementing the content management and content delivery features of TEPDL. The case study is intended to highlight the importance of addressing content management issues early in the digital library Web site plan-

ning and design process, and to illustrate how a content management needs analysis can be translated into the selection and development of specific content management tools and processes.

In Chapter 10, “Developing Committees to Create a Web Content Management System,” Sarah Robbins and Debra Engel examine the use of committees to develop a Web content management system at the University of Oklahoma Libraries. The case explains the process undertaken to move from an HTML to a database-driven Web site and the issues involved with using committees to steer such projects. Creating a framework in which librarians use locally developed content management tools to control Web site content, while the systems office retains control of the presentation of content, is also discussed. Another aspect of the case study includes the evolution of Web committees in the organization and the development of a system-wide philosophy.

These cases provide insights into each library’s path to accomplishing their projects and offer a road map for anyone about to embark on similar projects. Approaches, tools, models, and codes found in this book can be applied immediately. For librarians who have been involved in WCM projects and wish to learn more, for librarians who have not been involved in such projects but anticipate or plan to do so, and for those who are aware of the need and are in the planning stages for implementing a solution, this book will provide a learning process going from strategic planning, through process development, and up to final delivery.

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