Chapter III

Web Content Management and Dynamic Web Pages—A Tutorial

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ABSTRACT

Companies nowadays struggle to manage the flood of information that is provided by electronic sources such as the World Wide Web or company-specific information systems. A Web content management system is a useful tool for the collection, structuring and distribution of electronic information within a company. In this tutorial we explain the concepts of a Web content management system and show how to implement such a system based on Java Server pages. Our implementation allows the dynamic generation of Web pages based on interaction with users.

INTRODUCTION

Companies nowadays struggle when managing the flood of information that is provided by electronic sources such as the World Wide Web. A Web content management system is a useful tool to collect, structure, and distribute information within a company. The approach and concepts, which we report here, are based on experiences gained in the prototype of a Web content management system that was
designed to support ABB managers in technology management. Technology management includes a careful evaluation of the latest developments in key technologies, the screening of competitor activities, as well as the analysis of market trends and customer requirements. All this information has to be processed for a specific business domain, e.g., automation technology or power transmission and distribution, in order to be relevant to decision makers. Traditionally, employees in various roles such as technology managers, researchers, or sales persons collect this information in their day-to-day activities. Each activity can be divided into several steps: identifying information sources relevant to the business; filtering and merging information from these sources; processing information through analysis and drawing conclusions; presenting the analysis to decision-makers; and, eventually archiving results for future use.

Typically, this information management process is not well-defined, but is performed in an ad hoc manner. The results are stored locally in electronic or paper form. With the advent of the Internet and the Web, such information is distributed increasingly in electronic form. In addition, the amount of business information on the Web is increasing every day. This flood of electronic information exacerbates the problem of being able to identify relevant information. Often, not only one but several versions of the same information are distributed; similar information from various sources may be incomplete, or worse, inconsistent. Information stored locally becomes rapidly outdated, and such information is not shared within the organization. Especially in the area of technology management, these shortcomings are apparent as several functions such as marketing and sales, research, and management provide different pieces of information that constitute the final picture.

In order to avoid these shortcomings, Web content management systems are proposed. A content management system handles the assembly and delivery of information in a dynamic form to the user (Huff, 2001). It supports the information life cycle from authoring (content creation) through approval to consumption (content handling) and disposal (Figure 1). A Web content management system delivers content through a Web browser and in our case also handles Web content, e.g., links to Web sites. Typical users of a Web content management system either provide information, i.e., they are authors, or they consume information as readers. In our system, researchers and sales persons would be the authors, and technology managers and other employees take the role of readers. Additional roles such as editor and administrator provide functions to ensure the quality of information and to support the administration of the system. Each user role is active in different phases of the information life cycle and supports different processes and activities. Each role therefore has its own specific requirements within the system (Figure 1).

In the first part of this chapter, we review existing work on Web content management systems and discuss general design concepts. Then, user requirements imposed on our system are detailed. These requirements are somewhat typical for Web content management systems (Tiwana, 2001). In the second part, the software architecture necessary for the implementation of a Web content management system is described. Finally, a simple example demonstrates how content can be represented dynamically.
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