Commercial and Open–Source Web Portal Solutions

Américo Sampaio
Lancaster University, UK

Awais Rashid
Lancaster University, UK

INTRODUCTION

Web portals present an effective way to integrate applications, people, and business by offering a unique point of access to these resources within an organization and also with external business partners. Moreover, the integration of business processes, automation of daily tasks, and data integration contribute to cut down costs and accelerate business operations. However, Web portal development and maintenance imposes many challenges to developers, such as how to provide personalization features to users (organizations and individuals), how to control access from different users, how to integrate and present data from different sources, and how to maintain the content of the Web portal.

To overcome these problems, many Web portal development technologies, standards, and tools were created over the last decade to facilitate the construction, operation, and maintenance of Web portals. These tools offer a simple way to build a Web portal by automating some part of the complex code (concurrency, persistency, security) and also by offering APIs and wizards that facilitate development.

Considering the types of users and services provided, portals can be categorized into four main categories (Bellas, 2004; Wege, 2002). The following categories of portals are not mutually exclusive, and hybrid portals that combine different aspects of the categories can exist:

• **Corporate or Enterprise (Intranet) Portals:** Business to employees (B2E) portals: These portals are designed to improve the sharing of information within the enterprise and provide functionality to facilitate employees' regular tasks, as well as to gather relevant data for use by project and senior managers. The idea is to unite the strengths of the organization, enabling effective execution of business processes.

• **E-Business (Extranet) Portals:** These portals integrate services and information beyond the intranet. Examples include business to consumer (B2C) portals, which extend the enterprise to its customers for the purpose of ordering, billing, customer service, and so forth, and business to business (B2B) portals, which extend the companies for their partners and suppliers.

• **Personal (WAP) Portals:** These are portals that are embedded in Web phones, cellular phones, wireless PDAs, pagers, Web televisions, and so forth. These kinds of portals offer services such as sales offers, weather information, and interactive TV shows.

• **Public or Mega (Internet) Portals:** These portals try to provide information and services to all kinds of users over the Internet. Examples of such portals are Yahoo, Google, AOL, and MSN.

The complexity in Web portal development increases with the level of detail and number of services the portal offers, as well as the intended audience. This article describes Web portal development solutions that help to overcome the challenges faced during portal development and maintenance.

COMMERCIAL PORTAL DEVELOPMENT SOLUTIONS

This section presents a summary of five leading vendor strategies for Web portal development (BEA WebLogic Portal 8.1 Web site; IBM Websphere Portal Web site; Microsoft Sharepoint Web site; OracleAS Portal Web site; Sun One Portal Web site) and compares them according to several dimensions (e.g., ease of use, infrastructure, etc.). The focus of these strategies is to offer a wide range of functionalities to facilitate the development of complex portal characteristics. The main focus of these tools is to provide simple ways (application programming interfaces, wizards, guidelines, frameworks, etc.) for the developers so that coding effort is minimized. A more detailed explanation of these approaches can be seen in Sampaio and Rashid (2005).

BEA WebLogic Portal

BEA WebLogic (BEA WebLogic Portal 8.1 Web site) tool is built on top of the J2EE architecture (Java 2 Enterprise Edition - J2EE Web site) and provides an effective set of functionalities to simplify the production and management

of customized portals. Some functionalities provided by the tool are described as follows:

- **Content Management Services:** Provide basic services such as content locking, versioning, and approval. It also contains services to deliver and integrate personalized content from multiple content systems.
- **Search Services:** Include different search mechanisms for indexing files and searching content in Web pages, databases, and file systems.
- **Collaboration Services:** Provide easy mechanisms for creating discussion forums, whiteboard, and chats, and also integration with e-mail and calendar tools.

Regarding BEA WebLogic architecture, the presentation layer uses JSP (Java Server Pages—JSP Web site), Servlets (Servlets Web site), and JSP tag libraries. The portal core is implemented using EJB and the development framework also provides system services such as connection pools and MBeans. The portal information is persisted in a relational database and the configuration information is defined in XML.

There are also many third-party vendors that provide APIs that extend the WebLogic functionality, and also portlets that give access to applications in areas like collaboration, search, analytical processing, and content syndication.

The BEA WebLogic Server provides application services and functions such as load balancing, fault tolerance, Web services, network transparency, legacy integration, transaction management, security, messaging, multithreading, persistence, database connectivity, and resource pooling.

IBM WebSphere Portal

IBM WebSphere Portal (IBM Websphere Portal Web site) is part of the WebSphere software platform. The platform is organized into three areas of functionality:

- **Foundation and Tools:** Provides the necessary tools for building, running, and deploying applications.
- **Business Integration:** Integrates internal business processes, including processes that involve business partners.
- **Business Portals:** Personalizes Web-based content and makes it accessible to any device.

The WebSphere Portal tool is the central technology for portal construction, deployment, and maintenance inside the WebSphere Platform. It provides an extensible framework for the integration of enterprise applications, content, people, and processes. Besides, the Portal offers features that allow end users to organize their own view of the portal, to manage their own profiles, and to publish and share documents with other users.

The implementation of WebSphere is based on Java-based technologies and provides support for J2EE, Web services, and portlets. WebSphere runs on multiple hardware platforms and operating systems and has mechanisms for aggregating content from different sources and assembling the personalized content to multiple devices.

Microsoft SharePoint Portal Server

The SharePoint Portal Server (Microsoft Sharepoint Web site) is Microsoft's platform for Web portal construction and support. It is based on Microsoft technologies such as the .NET (Microsoft .NET platform Web site) platform, IIS Web application server, Windows Server 2003 operating system, and the SQL server database.

SharePoint Portal Server provides flexible deployment and management tools, and facilitates end-to-end collaboration through data aggregation, organization, and searching. It also enables users to quickly find relevant information through customization and personalization of portal content and layout, as well as through audience targeting.

Like the previous technologies, Microsoft's solution provides services for document management, personalization, and content aggregation. The Windows SharePoint Services is the engine that allows creating Web sites for information sharing and document collaboration. Windows SharePoint Services provides additional functionality to the Microsoft Office System and other desktop applications, as well as serving as a platform for application development.

SharePoint sites provide communities for team collaboration, enabling users to work together on documents, tasks, and projects. The environment is designed for easy and flexible deployment, administration, and application development.

OracleAS Portal

OracleAS (OracleAS Portal Web site) is another Web portal development platform based on the J2EE standard and other open standards such as LDAP, XML, SOAP, and HTTP. The strength of this platform is not only to support the cutting edge technologies regarding portal development, but also to provide easy to use tools that accelerate development and maintenance of the portal.

OracleAS portal is part of the Oracle Application Server that provides directory services, Web cache, J2EE services, and business intelligence services. The portal architecture includes a portal repository that contains metadata about the portal (this has to be stored in an Oracle database) and portlet content as well. The portal framework provides services for single sign-on, content classification, search, directory, integration, and access control.

Although OracleAS provides support for integrating JSR 168 (Java JSR 168 Portlet Web site) and WSRP (Web Services

Related Content

Commerce Web-Portal Redesigning Based on Usability Evaluation

Sergey Sakulin, Alexander Alfimtsev, Yuri Kalginand Vladimir Devyatkov (2021). *International Journal of Web Portals (pp. 1-19).*

www.irma-international.org/article/commerce-web-portal-redesigning-based-on-usability-evaluation/287386

Concept Identification Using Co-Occurrence Graph

Anoop Kumar Pandey (2018). *International Journal of Web Portals (pp. 27-38).*

www.irma-international.org/article/concept-identification-using-co-occurrence-graph/198442

Mobile Portals

Ofir Tureland Alexander Serenko (2007). *Encyclopedia of Portal Technologies and Applications (pp. 587-593).*

www.irma-international.org/chapter/mobile-portals/17934

Using the Building Blocks: Evolution of a Portal Suite

Joe Lamantia (2012). *Enhancing Enterprise and Service-Oriented Architectures with Advanced Web Portal Technologies (pp. 259-271).*

www.irma-international.org/chapter/using-building-blocks/63961

VIRTUAL OFFICE: A Web Platform for a Collaborative Networked Organization

Maria Victoria de la Fuente Aragonand Lorenzo Ros-McDonnell (2014). *International Journal of Web Portals (pp. 1-17).*

www.irma-international.org/article/virtual-office/148333