

Designing the Search Service for Enterprise Portal based on Oracle Universal Content Management

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Abstract. Enterprise Portal is an important part of an organization in informative and innovative space. The portal provides collaboration between employees and the organization. This article gives a valuable background of Enterprise Portal and technologies. The paper presents Oracle WebCenter Portal and UCM Server integration in detail. The focus is on tools for Enterprise Portal and on Search Service in particular. The paper also presents several UML diagrams to describe the use of cases for Search Service and main components of this application.

1. Introduction

Enterprise environment is the main part of information possibilities that are used to create the particular conditions for innovation activity in the competitive space. This environment is a new system of relations, connections and actions in the organization based on corporative culture and the interaction of all parts of the operation process. The information part of this system is Enterprise Portal.

1.1. Enterprise Portal

Enterprise Portal or the corporative portal is an automatic information system that provides interaction between employees and organization through the set of services with the access policy. The main function of Enterprise Portal is integration of corporative data and applications. This integration provides a single access point to the organization IT infrastructure for employees and other users. The advantages of this system are:

- Provision of work with multiple corporative applications like an e-mail service, CRM and ERP in a single interface.
- Personal customization for this interface.
- A pass-through authentication system.
- A distributed storage system.
- Integration with another corporative applications through dynamic and reusable components of portal, namely portlets.

1.2. Enterprise technologies

Choosing Enterprise Portal for the organization is a complex and time-consuming process. Selected solutions should be evaluated according to several criteria:



- The cost of solution.
- The speed of implementation and release of the finished system.
- Unicity of the company business processes.
- Corporative standards and preferences.
- Availability of professionals within the company and their specialization.

There are three obvious leaders on the IT market: IBM, Microsoft and Oracle. Each of their products has a long history and experience of application. IBM WebSphere Portal is commonly used for implementation of complex enterprise use-cases with transactional information and unstructured content. IBM Portal is a scale-out platform that is extended by integration with another application from IBM WebSphere product families. Microsoft SharePoint was initially started as a portal application, but was positioned as an application to support collaboration within the organization. However, Microsoft significantly expands the range of solved tasks. Recently, SharePoint has met the requirements of Enterprise Portal, and many customers have used it for external relations with partners and customers. Oracle has been developing portal technologies and has a complete range of products. The leading position belongs to the WebCenter Portal as a part of the WebCenter Suite that was created after the merger with the BEA Company. Within the framework of the strategy, Enterprise 2.0 Oracle offers this product as a suitable and user-friendly platform for community-focused business. Oracle WebCenter Suite 11g provides the opportunity to develop and deploy internal and external portals and websites, composite applications and mashup-components, services of social networking and collaboration integrated with the enterprise application. Through the use of social networking tools into existing portals and an easy assembly of composite applications based on a single architecture environment, the return on investment in information technology increased significantly.

Obviously, Enterprise Portal is an important and complex part of a modern organization. An organization requires many services and tools for productive work, and among them is Search Service. Let us consider some information about it.

2. Universal Content Management

Oracle WebCenter Suite is the complete product suite for Enterprise Portals, content management, web experience management and collaboration. This set includes WebCenter Content, WebCenterPortal, WebCenter Sites and Management Pack for WebCenter. WebCenter Content is Oracle's solution for Content Management based on the Universal Content Management (or UCM) platform. UCM is a platform used for designing and development of the corporate application to manage documentation, web-content, digital asset and document storage. UCM provides services for creating workflows and processes within and between content, records, images, content conversion and UCM only. These services also support tools to check-in, check-out and search content. The paper proposes a new search tool based on the UCM platform and designed as a dynamic and reusable component of WebCenter Portal. Besides, the paper describes the theoretical bases of WebCenter Portal and UCM integration and key aspects of the dynamic components design.

2.1. WebCenter Portal and UCM integration

WebCenter Portal deployments contain a certain level of content that requires management. The content and the portal take an extensive amount of work to be completed to create friendly experience for an end user as well as for users who will be contributing and managing the content. That is why, Oracle WebCenter Suite has included UCM licensing to allow content to be delivered into the portal from class-leading technology. The WebCenter portal can leverage a series of integration strategies available through its open standards support, as well as a series of native components to enable content consumption from UCM. It provides quick design and deployments for IT-solutions. One of these solutions is Search Service which is available in the WebCenter portal as an out-of-box tool and can be extended by developers through a specific technology stack.

2.2. Search Service

Portal Search Service provides a unified and extensible framework that allows one to discover information through an intuitive interface. It works under application security settings by returning the results a user is authorized to view. This searches can be saved for reuse and complex condition adding. Search Service provides unified results for the following resources:

- Documents, wikis and blogs.
- Announcements and Discussions.
- Spaces, pages and another content.

Each document, blog or wiki pages stored on UCM Server has a set of attributes. This set includes a title and a document name, a document author, a list of tags and other system information. All of this information can be obtained as a result of the search. Nevertheless, these results cannot be extended by standard tools to display any personal or corporate information stored in data base. In some scenarios, users request this type of information which is in public access. Standard tools provide a reduced set of customization. There are the following types of the results: pages, users or content, the search folder in WebCenter Content and a number of results. Obviously, that is not enough for corporate purposes. Let us consider several use-cases for search customization in following figure.

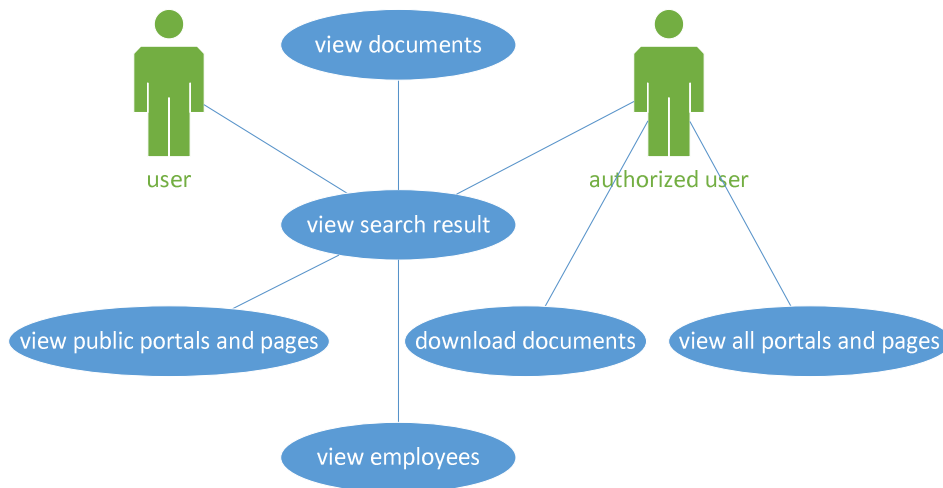


Figure 1. Use Cases for Search Service

In the diagram above, we have two types of users: an authorized user and a non-authorized user. The non-authorized user can view the search result including documents, public portal pages and a list of employees. The authorized user can also view all portal pages and download documents that were found. Users can execute search by tags or a name for documents and portal pages and by a name or a departments title for employees. This seemingly simple schema requires a complex and distributed application, which connects the data base, the documents server and the application server.

3. Technical basis and implementation

Having introduced the search use-cases, we turn to a technical basis. Search Service can be implemented as a dynamic part of WebCenter Portal under JSR 286 portlet specification. Portlets are web-based components that enable integration between applications and portals and thus enable the delivery of applications on portals. The Portlet Specification achieves interoperability among portlets and portals by defining the APIs for portlets. A portlet contains 3 parts: a view, a resource or model, and a controller. It works similarly to the MVC pattern. The model consists of several classes that provide application entities and connection to Data Base and Oracle Content Server. The second part view includes jsp-files for model representation. The controller is the main part of the application that includes basic methods to execute in the portal page and to interact with a user through post- and get-requests.

3.1. Application components

As stated above, WebCenter Portal is a complicated and distributed system that includes several parts like a portal itself, a content server, a data base and an application server. A portlet should connect with all parts of the portal. As previously noted, the Search Service accepts the request from a user, connects with the content server and the data base and presents a result. The main components of the Search Service application are presented in figure 2. According to this figure, Search Service is provided by several components of WebCenter Portal.

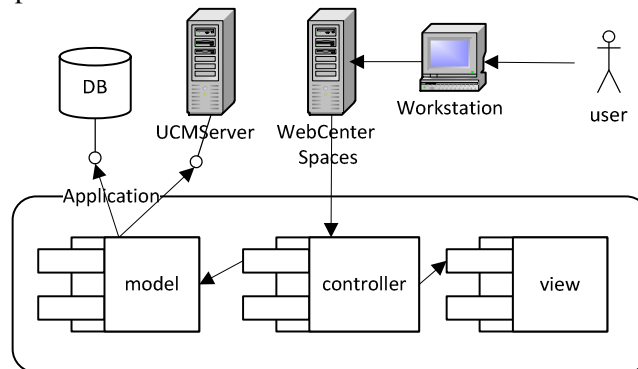


Figure 2. Components diagrams

The main component is the application, which is deployed on the WebCenter Spaces server. This application, as presented above, consists of three parts and connects with the data base and the content server by interfaces JDBC (Java Data Base Connectivity) and RIDC (Remote Intradoc Client). These interfaces provide access to data and files and the main functions, such as insert, select or delete. The interaction with a user is implemented through the web-interface by HTTP.

4. Conclusion

Actually, Enterprise Portal is a complicated system, which provides collaboration between employees and an organization and authorized access to information and documents. In this article, several leading portal solutions have been presented in detail. Also, the paper focuses on out-of-box tools in Enterprise Portal like Search Service. The Search Service presented above extends the default service and implements access to documents and blogs in the corporate portal and to personal data in the organization data base using common java-libraries, such as JDBC and RIDC. Finally, it allows users to work and collaborate with documents, blogs and other content more efficiently in new informative space and use all possibilities of Enterprise Portal.

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