

Oracle WebCenter and SOA - Context-dependent Working in Business Processes

Robert Szilinski

PROMATIS software GmbH
Ettlingen/Baden

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Web-Applications, Application Development Framework (ADF), Service-oriented Architecture (SOA), Business Process Execution Language (BPEL), Portlets, Web 2.0

Summary

The topic Service-oriented Architectures for designing application systems has become more important throughout the past years. The challenge for modern IT-projects lies in supporting constantly changing business processes and corporate structures. Whoever deals with the modernization of his IT-infrastructure will likely come across SOA as solution concept for these challenges.

To begin with the article on hand will show the meaning of SOA for the realization of modern application systems and describes current requirements. Then a brief description of Oracle's products – SOA Suite and WebCenter – will follow. Here particularly Oracle WebCenter will be compared to Oracle Portal and it's product advantages for a SOA will be shown. How SOA Suite and WebCenter cooperate in line with modern SOA-solutions will be illustrated in detail. Advantages are especially given in the strongly context-dependent processing of business processes. The article will close with an outlook on future developments.

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1 Introduction

Everybody is talking about Service-oriented Architectures (SOA) – barely any other topic is discussed as much in software projects. Oracle offers with SOA Suite different Software products with which SOA-Applications can be developed. Different application systems can be integrated based on Web Services. Beyond that, standards such as Business Process Execution Language (BPEL) enable orchestration of business processes with Web Services. With Oracle WebCenter Oracle reacted to growing requirements to user interfaces, which result from using Service-oriented Architectures.

The central task of Oracle WebCenter is the reconciliation of existing applications provided by a SOA infrastructure for each user. By integrating different business applications to one context-sensitive Web-Application users can be provided with a uniform but still adaptable user interface. By combining Ajax-based components, Portlets, and Web 2.0 Services a unique form of application development arises. Therefore a trend-setting technology is made available for user interface realization.

The following article shows the possibilities that result from combining the Oracle SOA Suite with WebCenter and also possible application of single technologies with a concrete SOA-project.

2 Requirements to modern Application Systems

Service-oriented Architectures play a growing role when realizing modern application systems. Due to narrow budgets and technical advancements, e.g. with the use of standards such as Web Services, applications are very seldom completely developed from scratch. Often the link-up to established Enterprise Information Systems (EIS) plays a decisive role, as a lot of money and efforts have flown into the development of these systems. Over the years heterogenic application systems have been developed, whose complexity simply overextend many IT-departments.

This complexity is also reflected in the departments, which can easily lose the overview over their customers due to the plentitude of applications and redundant information. At the same time the internal business processes become more complex and difficult to change i.e. it is a challenge for such companies to adapt to new circumstances or legal changes.

Against this background new concepts and especially the idea of SOA, shall produce relief and put an end to imminent chaos.

Typical requirements are:

- the integration of any data sources (EIS, processes, content, analyses)
- a uniform focus on the customer (customer focus)
- transparent and flexible business processes
- simplification of information exchange via Web 2.0-concepts and modern communication technologies
- a modern user interface that can be user-specifically adapted

These requirements are substantiated on the basis of a real SOA-Project with a financial provider and possible solutions based on Oracle Products are explained. In detail these are Oracle SOA Suite and Oracle WebCenter.

3 Oracle SOA Suite

With Oracle SOA Suite Service-oriented Architectures can be realized. SOA is based on Web Services, which offer services company-wide and are the basis for implementing business processes.

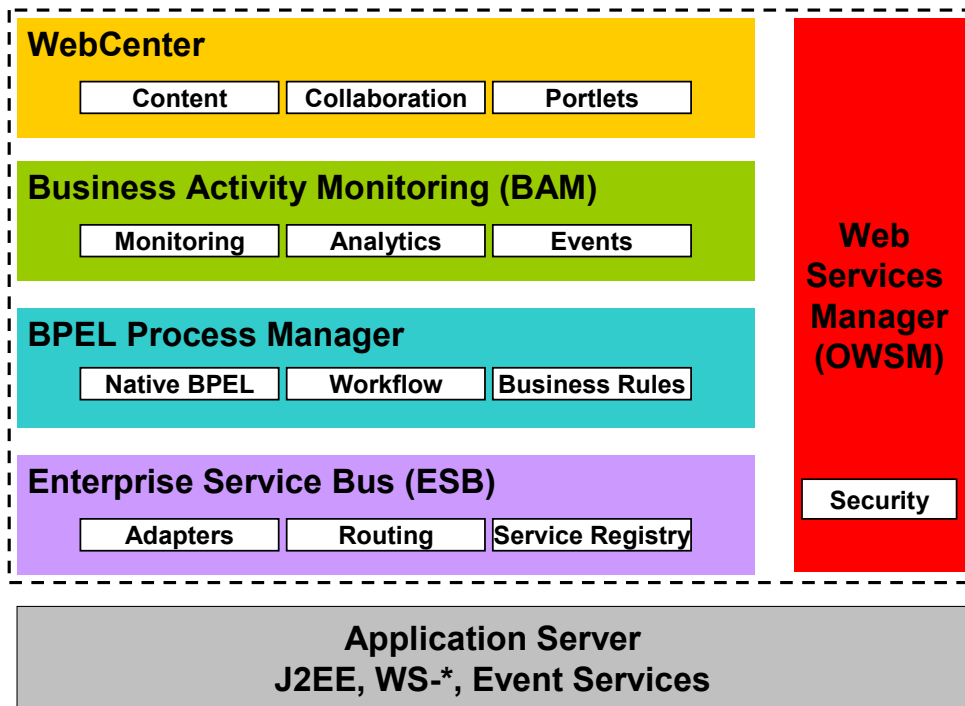


Fig. 1: Components of Oracle SOA Suite with WebCenter

With Oracle BPEL Process Manager Oracle provides a component within SOA Suite, which offers a complete environment to orchestrate and execute business processes. By using this component, which is based on the industrial standard BPEL, standardized process integration is made possible – also across company borders. BPEL itself enables for using Adapter Frameworks and to integrate Human Workflows. In addition, BPEL-Processes can be orchestrated both synchronous and asynchronous. The BPEL Console as a partial component of Oracle BPEL Process Managers enables monitoring business processes. In addition a versioning of processes is possible, i.e. process definitions can be changed during operation.

Further important elements of Oracle SOA Suite are Enterprise Service Bus (ESB), Web Services Manager, and Oracle Business Rules. The integration of different systems within a Service-oriented Architecture is ensured by ESB. By providing a flexible integration platform, which support numerous technologies and protocols for system adapters, the information exchange can be done both synchronous and asynchronous as well. Web Services Manager is used for the management of Web Services and for the security configuration. The increasing complexity and comprehensive requirements to an

Application-to-Application-communication can be fulfilled and monitored with this tool. The third named component Oracle Business Rules provides for efficient development and realization of business rules. The most outstanding feature of Business Rules for using it with a SOA-realization is certainly it's integration potential of Java, XML and Oracle-Technologies.

By using so-called WS-* Standards the SOA Suite is fully conform to other Web Service-Implementations, and therefore also enterprise-spanning business processes (B2B) can be easily realized. To integrate Legacy Systems or internal applications SOA Suite offers diverse adapters (A2A), among others also for SAP and Oracle Applications (E-Business Suite, Siebel, PeopleSoft, JD Edwards).

4 Oracle WebCenter

Due to the requirement that business processes and services have to be agile, modern desktops must be flexible and their contents should be displayed context-dependent. With Oracle WebCenter now there is a solution by Oracle, which promises to fulfill all these requirements to modern Web-Applications. For the frontend the most modern standards such as Java Server Faces and AJAX are used to present attractive and easily adaptable user interfaces.

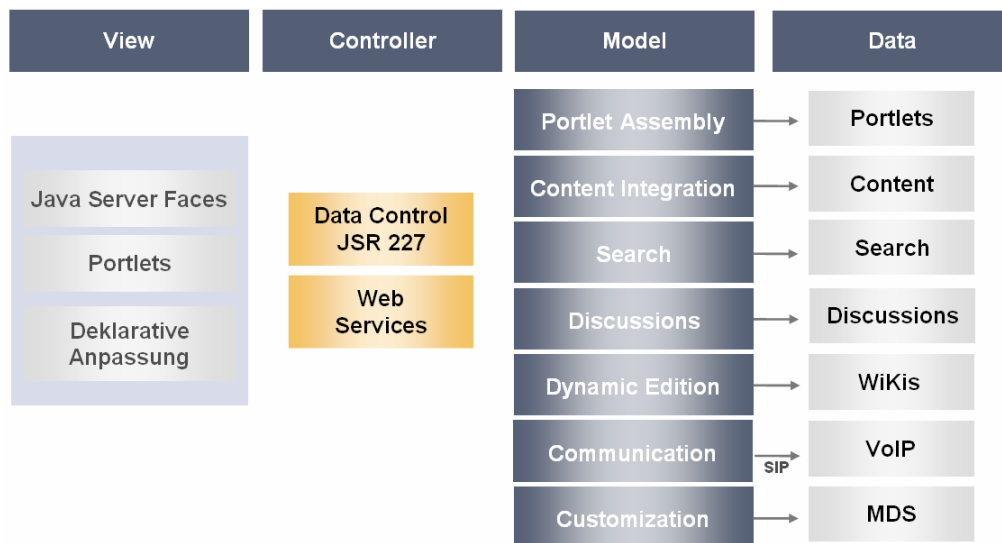


Fig. 2: Technical Structure Oracle WebCenter (Source: [Oracle])

As illustrated in Fig. 2 Oracle WebCenter was developed as multi-layer solution. Unlike Oracle Portal the entire application is based on JEE (Java Enterprise Edition) concepts and can therefore profit from all of this technologies advantages. Next to the Web-Application Development with Java Server Faces (JSF) and the Oracle Application Development Framework (ADF) respectively Portlets can also be integrated into the user interface. This is enabled by the two standards WSRP (Web Service for Remote Portlets) and JSR-168. As a result Oracle WebCenter offers functionalities just like Oracle Portal, and in addition everything else that a modern JEE Application can. The center piece is Oracle ADF, with which the developer can implement complex JEE Web-Applications within the shortest time.

This aspect becomes more obvious with the other components of Oracle WebCenter. Out-of-the-box WebCenter masters the communication with Java Content Repositories (JCR 1.0 i.e. JSR-170). This standard abstracts from the implementation of a Content Management System and defines a uniform interface. Thus for example Oracle ContentDB documents can be read with a standard API. For collaboration and team communication there are also a Wiki-System and discussion forums as well as RSS Newsfeeds, Messenger Support and Mashups. A special highlight is the connection to VoIP Systems via SIP.

5 Context-dependent Working in Business Processes

With Oracle SOA Suite a large part of requirements to a modern application system can be covered. Oracle WebCenter enables for visualizing SOA's services based on business processes. By combining Portlets and JEE-Technologies JEE developers can design complex user interfaces, which are based on BPEL-business processes or other application services.

The end-user is provided with a one face to customer view due to the integration of different data sources, processes, and information and therefore can easily make purposeful and sensible decisions. This especially is valid for context-dependent working, where e.g. a customer telephones and the system identifies via VoIP interfaces automatically the correct customer within the system and evaluates his data. In addition the end-user is provided information, which depends on customer status or currently running processes from the application systems. To control processes and tasks Oracle SOA Suite is used.

The advantages of combining both Oracle products are shown in the following with a concrete SOA project at a financial service provider. In a first step a Service-oriented Architecture, based on existing and new business processes, was implemented. After that modern ADF-user interfaces were designed. Future project planning determines the connection of ADF-user interfaces with Portlets and Web 2.0 Services with Oracle WebCenter.

The projects basics primarily were different requirements on the part of the customer on the SOA structure to be configured. The wish list included: reduction of lead times and improvement of services, the implementation of Instant Messaging/Chat and building up the enterprise portal as central platform. The main requirement however was to build a flexible IT infrastructure that could easily be adapted to changing business processes and resulting new requirements.

After successfully implementing the SOA-Structure modern user interfaces had to be designed. In line with the JEE-Application development ADF was used, with which the development time was reduced. This is accomplished with the comprehensive library, GUI components, and Rich Client AJAX features provided by Oracle. And in using JDeveloper as development tool the support of standards and an optimal SOA-Support are additionally ensured.

The current project status is the completion of the user interface implementation. Based hereon it is now projected to apply Oracle WebCenter and to integrate it into the built up SOA-Structure.

The set-up of a WebCenter user interface offers a high degree of flexibility and the advantages of context-sensitive working. Oracle WebCenter Suite connects Web Services with applications and therefore fulfills the requirements to a complete view on the customer and individual user interfaces. The user only sees the information that is necessary for each case. With WebCenter Framework, the central Oracle WebCenter-component, unique development- and integration functionalities are achieved. Based on the declarative designs with adaptable user interface components the web application development is simplified. The integration functionality enables among other the

integration of business applications as Portlets, contents in the context of transaction, and BPEL business processes, which are especially important for the use of SOA.

The combination of both products will certainly create a furor in the future due to its meaning for Fusion Applications and offer attractive user interfaces by using AJAX and Web 2.0 services to end users. Business processes can then be processed very effectively and the complexity on the user's side will be reduced to a minimum.

6 Summary and Future Prospects

Oracle WebCenter and Oracle SOA Suite – this combination completely fulfills the requirements to modern application systems. By building up a SOA-Structure with Oracle SOA Suite business processes can be represented transparently and flexibly. New requirements and application can be implemented quickly and therefore cost-effective. Using the industrial standard BPEL and adapters for basic technologies, standard software, and Legacy-Systems with Oracle BPEL Process Manager ensures the integration of any data sources (EIS, Content etc...). A modern user interface, which enables for a complete view on customers and is adaptable specific to users, is enabled for by Oracle WebCenter. Combining the two Oracle Products seems very appropriate due to their concerted components.

A context-sensitive access to information and services was created for the described SOA project. This improved the cooperation of users across different departments. The implementation of a uniform user interface also simplified the operation of department-specific applications. The use of standards such as BPEL resulted not only in seamless connections of single interfaces but also guaranteed the system's scalability and openness.

The for starters implementation of ADF user interfaces will enable for quick and uncomplicated connections of Portlets and Web 2.0 services in the future. The combination of SOA and WebCenter clears the way for context-sensitive working. The release of Oracle Fusion Middleware 11 planned for this year will bring along further manifold possibilities for using WebCenter in SOA-Structures. Especially the launch of a Service Component Architecture (SCA) and the user-orientation of Oracle WebCenter promise for much more to become.

Information

The listed products are trademarked and are property of the trademark owners. Version of documentation: February 2008

PROMATIS software GmbH

Pforzheimer Str. 160
76275 Ettlingen

Ph. +49 7243 2179-0
Fax +49 7243 2179-99

info@promatis.com
www.promatis.com