

# Oracle WebCenter: Platform for In-Context, Next Generation Applications with Embedded Web 2.0 Services

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## INTRODUCTION

Technology changes things. Organizations of all types function far more efficiently than they did twenty years ago. Drop a mid-eighties employee into a today's workplace, and the new environment would be completely foreign. Everything we do today revolves around software and its never-ending quest to improve productivity.

Since the mid-eighties, we've been through at least two 'revolutions' and are well on our way into a third. The first, represented by PCs and client-server computing, forever changed the way people work. Even the basic tools of business changed, as typewriters were replaced with word processors and printers. In the second, the Web dramatically increased access to information and created a completely different style of communication, marked by another transformation of business tools. Gone were inter-office memos and paper-based broadcasts. Everything was now 'on the net', either in an inbox or on a Web site somewhere. Today, we are advancing through the third technology revolution, commonly referred to as Service Oriented Architecture (SOA). Once again, the basic tools of business are changing. Inflexible, monolithic applications are transforming into service based, business-driven solutions that evolve with the changing requirements of the organization. How will this new revolution change and improve the way people work?

When people discuss the power of SOA, they typically focus on the agility SOA affords applications, and how those applications can in turn make organizations more nimble so they can better react to ever-changing market conditions. While agility is certainly a key driver in the current revolution, it is not the only one—and possibly not even the most important one. As with each previous revolutionary shift, the true value of SOA will be in how it empowers the information worker and increases the productivity of each and every employee "in the trenches." So, not only do we have to think about how to build applications more effectively with SOA, but we must also contemplate how to build more effective applications. Before considering these issues, however, it's important to understand how today's applications support the business, both at the micro (process or task) level, as well as at the macro (business and strategic) level.

**The Web has dramatically increased access to information and created a completely different style of communication and business tools.**

## EVERYTHING IN CONTEXT

Every task a user takes is done in a broader context. Unfortunately most applications today don't provide the context necessary to complete the task at hand.

At the micro (process) level, inefficiency is often a result of a fundamental lack of *context*. Every task we undertake is done in a broader context. Whether it is one step in a larger process, a complex task that requires instructional context, or a cooperative task that requires additional people, a task is rarely, if ever, executed in a vacuum. Unfortunately, most applications simply automate the task; they don't provide the context necessary to complete it. The user is required to leave what they are doing to research a question, find a document, figure out the next steps, or confer with other people. These 'swivel' processes (changing context requires a swivel of the chair), where workers spend the majority of their time, must be eliminated if we are to dramatically improve the way people work.

The screenshot shows a web application interface for a new hire. The main content area is titled "Add a Dependent" and contains a form for entering dependent information. The form includes fields for First Name, Middle Name, Last Name, Date of Birth, Social Security Number, and Relationship. There are also dropdown menus for Prefix, Suffix, and Gender. Below the form, there is a "Status Information" section with radio buttons for Marital Status (Single), Student, Disabled, and Smoker, and "As of" date pickers for each. A "Contact Information" section includes fields for Home Address, Street, Street #2, City, State, Zip, and Country, along with Home Phone fields. On the left side, there is a "New Hire Tasks" section with a list of tasks and a progress bar. On the right side, there is a "Task Analytics" section showing a table of costs for different dependents. The interface also includes a search bar at the top, a navigation menu, and a help center.

Category	Count
Total New Hire Tasks	32
Not Started	9
Completed	15
Skipped	2
In Progress	6

Category	Cost
Yourself	\$ 85
Spouse	\$ 15
Child 1	\$ 20
+ Child 2	\$ 10
<b>Total</b>	<b>\$ 130</b>

Figure 1. An Example of a Context-Rich Application

Figure 1 shows how integrating key services and information with the user interface can dramatically improve the effectiveness of a simple transactional application. In this case, the user has just started with a new company and is in the middle of registering with various company applications; specifically, adding dependents to his HR records for insurance purposes. Notice that the transaction itself is surrounded by additional context that supports the user, including:

- The New Hire Tasks section, which shows where the user is in the larger acclimation process and identifies the next task. This type of process orchestration lets the user step through the entire multistep flow quickly and easily.
- Task Analytics let the user know where he is in the process and how his decisions impact him. In this case, the Task Analytics box on the right shows the total cost impact of the benefit choices he has made so far.

- The Help Center (bottom left) provides an up-to-date FAQ for quick access to typical questions, as well as a direct chat link to the help center where the user can ask additional questions not covered in the FAQ. Again, no need for the user to leave the context of the transaction to get help.
- The Knowledge Exchange (bottom right) provides documentation relevant to the current task. These documents, stored in the corporate repository, give detailed advice on the different beneficiary and dependent scenarios applicable to the user.

Consider how much less efficient it would be if this user had to leave the application to dig through a repository or find someone who knew what to do next, then return to the application. When you see an example of how applications with the right context can virtually eliminate the need for such external research, you begin to see the potential for dramatically improving productivity on a wide scale.

## WEB 2.0 AND THE ENTERPRISE

When viewed from the macro or strategic level, it is clear that the majority of today's applications were designed to support the top-down business model that was originally developed by GE and improved by Ford nearly 100 years ago. In this model, key visionaries tap into their passion for improving some aspect of their lives or the lives of others, and turn that passion into a set of business goals. They then establish the direction and develop practices for employees to follow so that the company can meet these goals. They also hire managers to keep the employees focused on getting to the finish line as fast as possible. This model is built upon the premise that all great ideas begin at the top and are then delegated to the minions for implementation.

But there are obvious flaws in this model. If employees have suggestions for improving an idea, or even if they disagree with key principles, there are often no avenues for them to express their thoughts, and virtually no possibility of their changing the edicts from above. Many companies in business today are fond of saying things like, "Our employees are our critical resource." However, in an environment of one-way communication, employees become less passionate about what they do and are less motivated to make things better. So, while the key visionaries remain passionate about their initial ideas, over time employees become less and less so about the end goals of the company. The challenge is to find ways to tap into the energy and creativity of every individual to increase his or her stake in the ultimate success of the company. Clearly, IT—and more specifically, applications—must align with this new model and directly support the information needs of empowered individual contributors.

An interesting source of inspiration for changing the predominant business model is the Internet, where new forms of communication and personalized services—collectively referred to as Web 2.0—have emerged. Key technologies such as wiki, RSS, and blogs have changed the landscape of the Internet by empowering individuals across the globe. The growing popularity of sites like MySpace and Wikipedia serves as a clear example of what can happen when the passions of the individual are allowed free expression.

**Key Web 2.0 technologies such as wikis, RSS, and blogs have changed the landscape of the Internet by empowering individuals across the globe.**

Bringing Web 2.0 to the Enterprise is about more than just adopting the latest technology; it's about changing the traditional business model and tapping into the creativity, intellect, and passion of every single employee. The challenge for today's enterprises is to weave Web 2.0 technology and services into the basic fabric of their users' work environment. Putting these tools at users' fingertips enables companies to foster the development of new ideas, tap into critical employee thinking and knowledge, and enable the synergy of teams to revolutionize their existing business models and set them on the right path for future success.

### WHAT IS ORACLE WEBCENTER?

Oracle WebCenter, a new offering in Oracle's Fusion Middleware product line, is designed to help build more effective applications that take advantage of SOA to bring complete context to the information worker's daily tasks. Oracle WebCenter weaves process, business intelligence, structured and unstructured content, communication, and Web 2.0-style services into the very fabric of the application to create next generation online work environments.

By bringing together the standards-based, declarative development of JavaServer Faces, the flexibility and power of portals, and a set of horizontal Web 2.0 services, Oracle WebCenter provides a unique ability to build applications that eliminate context shifts and maximize productivity. Let's examine these capabilities in more detail.

Oracle WebCenter brings Web 2.0 to the enterprise with through the industry's most integrated, comprehensive, and standards-compliant user experience platform.

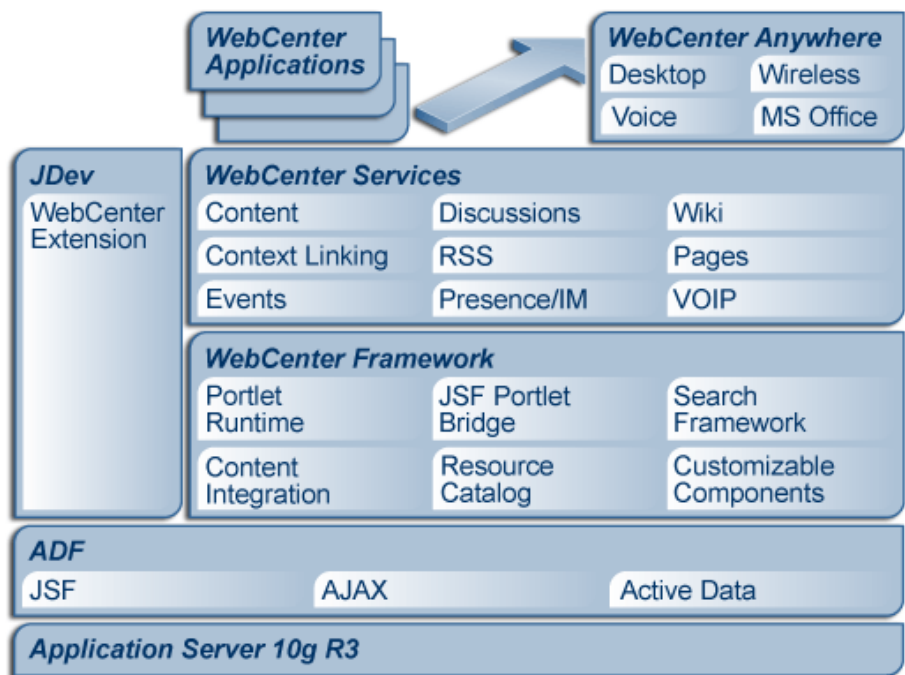


Figure 2. Overview of Oracle WebCenter

## WEBCENTER FRAMEWORK

**The WebCenter Framework eliminates artificial barriers for the user and provides the basis for creating context-rich environments.**

WebCenter Framework supports the creation and execution of context-rich applications. As discussed earlier, this context can come in the form of human interaction, files and documents, or simply a clear representation of where the user is within a complex work process. To achieve this, WebCenter Framework augments the JavaServer Faces (JSF) environment by providing additional integration and runtime customization options. In essence, it integrates capabilities historically included in portal products directly into the ‘fabric’ of the JSF environment. This eliminates artificial barriers for the user and provides the basis for the context-rich environments enabled by Oracle WebCenter.

### Integrating Portlets

Portlets enable users to access a wide range of functions and services. WebCenter Framework supports deployment and execution of both standards-based portlets (JSR 168, WSRP 1.0 and 2.0) and traditional Oracle PDK-Java based portlets. It also provides the runtime functions necessary to consume those portlets from within JSF applications. This means that any existing portlet can be leveraged by a WebCenter application with no changes. Developers simply register portlet producers within JDeveloper, and then drag and drop portlets directly on to their JSF pages.

### Business User Publishing Tools

Empowered information workers have the tools they need to add new information and content to their environment directly, without requiring IT intervention. WebCenter Framework enables users to contribute content through three different portlet-based tools:

- The Rich Text portlet, which allows the user to add any text, HTML, images, and so on directly to the JSF page, through a simple but powerful rich-text editor.
- The Web Clipping portlet, which allows the user to navigate to any Web site and ‘clip’ all or part of the displayed page.
- OmniPortlet, through which the user can select from any number of data sources, including Excel spreadsheets, database tables, Web services, and XML files, and then publish that information in variety of formats, including news, table, chart, or even custom HTML.

These powerful tools make it easy for information workers to inject meaningful context into their own work environment, without having to depend on application developers to do it for them.

### Content Integration

Portals have traditionally provided a view into the documents and files stored in content management repositories such as Oracle’s Content Database Suite, EMC Documentum, or Sharepoint. Until now, these views have been largely in the form of portlets. While portlets are still fully supported in WebCenter, content components (that is, JSR 227 data controls) that leverage the JSR 170 standard are also included to allow developers to directly access content from a given repository and display it any way they wish using standard JSF view components. This provides unprecedented abilities to bring the content in these repositories to life.

**Oracle WebCenter empowers users to manipulate and change their applications to suit their work habits and specific needs.**

## **Runtime Customization**

Empowering the information worker is a key goal of Oracle WebCenter. This means giving workers the power to manipulate and change their applications to suit their work habits and specific needs. The WebCenter Framework provides new JSF components that allow developers to make any of their applications customizable. These new components act as containers into which developers can drop any other Faces view component or portlet. With these capabilities in place, users can customize virtually any JSF page by minimizing/maximizing, hiding/showing, or moving any component on the page.

## **Metadata Management**

WebCenter Framework leverages Oracle MDS, a robust, XML-based repository for application metadata. All metadata, including base application definitions and runtime customizations, is stored in the central metadata store. This centralized metadata strategy allows Oracle WebCenter to bring together work completed by IT developers at design time and personalizations added by information workers at runtime in a single complementary development lifecycle. This means that new versions of applications can be developed and deployed without losing any of the personalization work done by information workers over the life of the product.

## **Building Portlets (Portlet Bridge and JDev Wizard)**

WebCenter Framework enables developers to create portlets in two ways:

- JDeveloper Portlet Wizard. With this wizard, developers create JSR 168 and WSRP 1.0/2.0 enabled portlets using standard Java techniques.
- JSF Portlet Bridge. This tool allows developers to publish any Java Server Faces application as a portlet. Oracle leads the effort to standardize this capability in the JSR 301 standard.

Portlets built with these tools can be consumed by WebCenter applications and by any portal that supports the JSR168 and WSRP standards.

## **WebCenter Extension for JDeveloper**

The tools and services provided by the WebCenter Framework are provided to developers as a JDeveloper extension. The WebCenter extension allows Java developers to leverage the highly productive IDE environment they are familiar with, while injecting more dynamic capabilities directly into their JavaServer Faces applications.

## **WEBCENTER SERVICES**

### **Content Services**

Unstructured (“document-based”) information is a critical component of an organization’s overall intellectual capital. Accessing and working with this content is also a major portion of a knowledge worker’s job. Integrating this content into the daily tasks of these workers is a primary goal for Oracle WebCenter.

**Oracle WebCenter includes Oracle Content Database Suite, providing essential document management functions such as content security, version control, and lifecycle management.**

To that end, Oracle WebCenter includes Oracle Content Database Suite, Oracle's enterprise-grade document management solution. Combining the power of the Oracle Database as a universal storage mechanism with the reliability and scalability of Fusion Middleware, Oracle Content Database Suite is a robust and proven tool for content management.

With Oracle Content Database Suite, users can interact with their content through a highly interactive Web interface or through native integration into the Windows desktop. Using the Content Integration Services in Oracle WebCenter, developers can integrate this content directly into their JSF application, using the emerging Java Content Repository standard. Oracle Content Database Suite also offers a rich set of tools for accessing and managing content.

### **Secure Search**

Searching for the information, content, or people necessary to accomplish daily tasks often translates into endless hours of wasted time. To eliminate this waste, applications must place obviously related material directly in context of the transaction flow. However, there will always be ad hoc needs that cannot be anticipated. To make sure these needs are met, WebCenter includes Oracle Secure Enterprise Search (SES).

Oracle Secure Enterprise Search is a crawler-based service that can search a multitude of sources, structured and unstructured data in a variety of file formats, indexed or real-time. All searches honor the authorization of the respective source, ensuring that a user only gets results that he or she is entitled to access. The search results can range from simple document-style content to complex transactional information out of the company's business records (for example, customer account information, expense reports, purchase orders, etc.) with links to the associated applications.

Oracle Secure Enterprise Search 10g reduces the time users spend finding relevant documents on your company's information repositories. It crawls, indexes, and makes searchable your corporate intranet through a Web-style search, and organizes content from multiple repositories by extracting valuable metadata for use in custom applications.

### **Communication Services**

Web 2.0 is transforming the Web into a people-driven interaction environment. Working with others is a primary focus of many of today's knowledge workers. Being able to find and contact the right person in context of the current task is essential to eliminating one of the more common inefficiencies in today's work world. To support this goal, Oracle WebCenter includes the following tools to better connect people and facilitate communication:

- **Threaded Discussions.** Threaded discussions are ideal for capturing institutional knowledge. By storing communications indefinitely, organizations can leverage the exchanged wisdom more effectively. Oracle's threaded discussion service provides a fully functional, open architecture, standards-based feature set for supporting traditional post/response style of collaborative communication. Customers get the flexibility of plug-and-play using a deep set of off-the shelf features, or they can customize the service to meet specific needs.

Oracle WebCenter enables organizations to weave Web 2.0 tools, such as threaded discussions, presence awareness, instant messaging, VoIP, and wikis directly into the 'fabric' of an application.

- **Presence Server.** Presence—the ability to see who is online—is an essential enabler of the real-time enterprise. No longer do you have to track people down. Now you can 'see' when your colleagues are online and available, and simply click to communicate with them. Oracle Presence Server is the ultimate instrument to make users' presence information available in any type of enterprise application. It gives you full visibility of who is online and full control over how you publish and manage online status. Oracle Presence Server is based on SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions) and, therefore, furnishes organizations with a standards-based technology for instant messaging (IM) services, as well as a platform for growth into areas such as instant voice, instant video, and instant conferencing applications. Oracle Presence Server provides the framework for creating services and applications that capitalize on knowing who is available and when.
- **Instant Messaging (Chat).** Oracle Communicator, an SIP client, provides end users with a convenient and intuitive interface for accessing Oracle Presence Server-based multimedia services. From a single interface, end users can easily initiate and receive phone calls, video calls, instant messages, and files, and can receive notifications from configured voicemail systems. Any type of session can be started from the contact list, so end users can communicate more freely. The client interface has been developed with simplicity in mind, using a design that desktop users easily recognize.

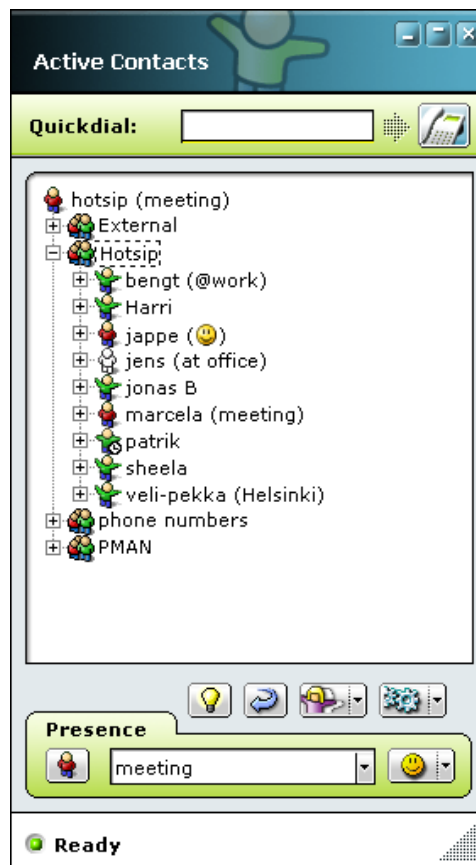


Figure 3. Oracle Communicator is a full-featured SIP client for accessing multimedia services

- **Voice Applications.** A complete set of telephony infrastructure components that extend the out-of-the box WebCenter capabilities are available as part of an optional offering: Oracle Communication and Mobility Server (OCMS). Based on JSR 116, the SIP Servlet API and its associated Service Creation Environment enable development and deployment of custom telephony services such as click-to-call, call routing, call barring, conferencing, and voice mail.

## **Wiki Server**

As people become more comfortable with an interactive Web, they expect to be able to publish and share content directly on the network. Wiki has become a de facto standard in this area and will quickly become a critical component of the modern work environment.

Wiki is server software that allows users to freely create and edit Web page content using a Web browser. This ease of interaction and operation makes wiki an effective tool for collaborative authoring. Wiki supports hyperlinks and offers a simple text syntax for creating new pages and links between internal pages on the fly. Wiki is unique among group communication mechanisms in that it allows the organization of contributions to be edited in addition to the content itself.

Oracle's wiki service is a simple content management system designed for use in collaborative communication. The service is easily configured for a wide variety of applications, ranging from simple to advanced use cases.

## **WEBCENTER ANYWHERE**

The need for productivity and efficiency extends beyond the office. In today's fast-paced world, populated with ever more powerful mobile devices, it is critical that you are able to work effectively no matter where you happen to be. WebCenter leverages Oracle's robust wireless platform to bring the benefits of a unified work environment to all types of mobile technologies, including connected devices such as PDAs and Smartphones, mobile voice, mobile messaging, and even telnet-based devices for industrial users. WebCenter Anywhere is focused on bringing the productivity and efficiency of context-rich WebCenter applications to the user, irrespective of geography.

**Oracle WebCenter brings the benefits of a unified work environment to all types of mobile technologies.**

## **SUMMARY AND CONCLUSIONS**

As organizations continually reinvent themselves and strive for higher levels of efficiency and productivity, the demands on the information worker are constantly increasing. To meet these ever growing demands, the information worker needs a better, more productive work environment. This new environment must be role- and task- focused so that all elements of a task are provided directly in context for the user. Collaboration and communication tools must also be directly integrated into these task-oriented applications, because people rarely work in a vacuum and frequently need to work together to complete a given task. What's more, the work environment must go beyond the browser to include all of the desktop tools and mobile devices with which the user is familiar. And perhaps most importantly, the information worker must have the ability to tailor and evolve the environment based on their own preferences and the needs of their organization. Oracle WebCenter injects new capabilities into the standard JavaServer Faces development environment to allow developers

to create context-rich applications that satisfy these needs. Oracle WebCenter also provides the natural user interaction environment for your SOA applications and allows you to leverage all types of services in creating a better, more effective user experience.



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