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Oracle WebCenter 11g
Technical White Paper
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Introduction

Web 2.0 technologies have made a dramatic impact on the consumer Internet by empowering individuals more than ever before. New tools and technologies such as wikis, blogs, tagging, RSS and mashups allow any user to easily author, publish, categorize and share information. This “user participation” architecture of the Internet has further catalyzed information growth at an unprecedented rate by enabling users to easily enhance and extend information via communities, discussions, ratings and social networks.

While the consumer Internet has undergone a sea change in enabling users to interact with information and with each other, the typical enterprise still lags in effectively empowering employees with Web 2.0-style tools and technologies. Increasingly, knowledge workers in the enterprise are demanding the ease-of-use and user-driven tools in their workplace that they have become accustomed to in their personal use of the consumer Internet. Most enterprises have also recognized that flexible, user-driven Web 2.0 tools and usage patterns can bring dramatic efficiencies in ad hoc, collaborative knowledge work by streamlining business processes and enhancing personal and group productivity. Many enterprises have started putting the required infrastructure in place by moving towards a Service Oriented Architecture (SOA) approach to build IT-driven enterprise applications that can quickly evolve with changing business requirements. However, to fully reap the business benefits of Web 2.0 in the enterprise, knowledge workers, not just IT, must be able to evolve enterprise applications themselves by having the ability to highly personalize and mash up their application with information from various sources from within and outside the enterprise.

Prior to Oracle WebCenter, building an enterprise application mashup was a tedious process even for the best developers. Oracle WebCenter provides full support for the entire spectrum of application developers – from the software engineer to the business user – for building highly interactive, task-oriented Web 2.0 enterprise social mashups. Oracle WebCenter’s commitment to SOA, JCR 1.0 Java Content Repository (JCR 170), and other industry standards, and its wide range of plug-and-play products, tools, and services make it easy for IT to build the applications that users need and empower users to extend and enhance them with Web 2.0 tools and technologies designed for enterprise environments.
At its core, Oracle WebCenter is built on a standards-based, open, declarative framework. This enables combining the development of rich internet applications (RIAs) through dynamic user interface technologies, the flexibility of an integrated multi-channel portal framework, and horizontal Web 2.0 services that provide content, collaboration, presence, and social computing capabilities in the context of a business problem or user task. In summary, Oracle WebCenter Framework 11g speeds the delivery of these next generation applications and portals that blend composite interfaces, social communities, web applications, along with departmental and enterprise portals.

To enable enterprises to quickly leverage the power of WebCenter’s integrated framework and services, the ready-to-use Oracle WebCenter Spaces application provides out-of-the-box communities and team sites without waiting for IT to build a specialized solution. All managed from a single, integrated management console delivered through Oracle Enterprise Manager.

Oracle WebCenter provides a comprehensive set of Web 2.0 services for the enterprise via Oracle WebCenter Social Computing Services which are designed to be easily injected into any enterprise application or portal and are pre-integrated with WebCenter Spaces. WebCenter’s Web 2.0 services are designed for user interaction as well as enterprise requirements for security, integration with existing IT systems and standards support. WebCenter’s Web 2.0 services include wikis, blogs, RSS, tags, IM, presence and much more.

Since users need to interact with all the resources in the enterprise, portals must integrate a Business Dictionary and provide pre-packaged integration with applications, content and rich media, business processes, and business intelligence in a role specific way to speed user awareness of these critical resources. Oracle Composer allows users and site administrators to highly personalize the behavior and look & feel of the portal/application to meet user requirements while insulating them from future upgrades. No other product today offers this complete, integrated, best-of-breed suite of capabilities that allow for businesses to finally tap into the key knowledge and thinking of all their employees and partners to power them into the future.
Oracle WebCenter Overview

Oracle WebCenter combines the standards-based, declarative development of Java Server Faces (JSF), the flexibility and power of portals and social networks, and a holistic set of integrated Web 2.0 services to boost end-user productivity. Together, these services provide a unique ability to build applications that eliminate context shifts and maximize productivity. For example, using Oracle WebCenter capabilities, you can build applications that allow the user to interact directly with instant messengers and other collaborative services directly within the application. Users don’t merely pass through the application to get to the services they need; the services are integrated into the very fabric of the application.

Oracle WebCenter is targeted at enterprise developers as well as business users. Its key components are: WebCenter Framework, WebCenter Social Computing Services, WebCenter Composer and WebCenter Spaces. In addition, WebCenter Anywhere provides capabilities to mobile-enable your WebCenter application so users can access it from various different mobile devices.
WebCenter Framework

Oracle WebCenter Framework augments the Java Server Faces (JSF) environment by providing additional integration and run-time customization options. It integrates capabilities historically included in portal products, such as portlets, customization, personalization, and integration, directly into the fabric of the JSF environment. This eliminates artificial barriers for the user and provides the foundation for developing context-rich applications. You can selectively add WebCenter components and services to your JSF application. For example, you might want the Instant Messaging and Presence (IMP) service only. Alternatively, if you want access to all of the WebCenter components and services, you can use the WebCenter Application template.

WebCenter Extension for JDeveloper

Oracle JDeveloper is an integrated development environment (IDE) for building service-oriented applications using the latest industry standards for Java, XML, Web services, and SQL. WebCenter Framework capabilities and resources are seamlessly integrated and exposed in JDeveloper to maximize the productivity of enterprise application developers.

All the development functionality you need for building WebCenter-enabled applications is available in the JDeveloper environment. JDeveloper's visual and declarative approach and Oracle Application Development Framework (ADF) work together to simplify application development. For example, code for many standard user interface widgets, such as buttons, lists of values, and navigation bars, is prepackaged for you.
WebCenter components are readily accessible from the catalog of resources available on the Components and Data Control palettes. Simply drag the resource you require and drop it on a JSF page, where it will be surfaced as a view component that is automatically bound to the ADF model.

WebCenter provides several wizards to help you with essential development tasks, such as building a portlet, consuming an existing portlet, creating a data control to a content repository, and securing your application. By significantly reducing the amount of coding you need to do, WebCenter dramatically increases developer productivity.

For more information on the JDeveloper development environment, visit the JDeveloper and ADF home pages on Oracle Technology Network (OTN).

In JDeveloper, the easiest way to ensure that you properly define an application and its projects with the appropriate technology scope is to apply an application template. An application template automatically partitions the application into projects that reflect a logical separation of the overall work. Oracle WebCenter provides a template optimally configured for building WebCenter applications.
The WebCenter Application template consists of a project for the data model (Model) and a project for consuming portlets, components, and data controls (ViewController). For simplicity, the WebCenter Application template folds both these projects into one application, but you are welcome to arrange your applications and projects in the way that best suits your requirements. A second template (PortletProducer Application) is provided for creating Java portlets.

Developing Portlets/Applications with Task Flows

A key technology breakthrough with ADF 11g is Task Flows which are reusable JSF/ADF components. Task Flows are built in JDeveloper and is where the developer defines an application task (e.g. Create Expense Report, Enter Budget). The definition of the task includes the pages and logic that interact to allow a user to complete the task. With Oracle WebCenter Framework and Task Flows, developers can build their applications once out of a set of task flows and then individually expose any Task Flow directly as portlets. When changes or updates to this application occur, the portlet is updated immediately. The coordination logic can be grouped together with an aggregated Task Flow to be reused from a single instance instead of replicating coordinating logic in many locations. Because these Task Flows are delivered in the context of the application, they can have transactional semantics wrapped around them – unlike the limitation of typical portlet standards.

WebCenter Social Computing Services

Oracle WebCenter Suite 11g exposes Web 2.0 services and personal productivity features through a comprehensive set of Social Computing Services so that it is easy to integrate them with enterprise information and business processes. The services are integrated so that you can use them together (for example, you can add an Instant Messaging and Presence link to a Discussion forum to talk with a product expert directly from a forum topic).

All WebCenter Social Computing Services have a complete set of ready-to-use task flows or portlets to speed their adoption, making developers and end users quickly productive. For example, the Documents service is exposed through the Documents task flow, the Document List Viewer task flow, and the Recent Document task flow. IT can add any of these task flows to an application or portal when building it, and business users can add these service task flows to a deployed application or portal with Oracle Composer. If the pre-built task flows do not meet the business requirements, developers have two additional choices:

1. Customize the pre-built task flows to match the requirements directly. These customizations are created inside JDeveloper and provide developers with an extremely productive and fast way of delivering their required functionality.

2. Use the pre-built data controls and bind their own user interface to meet the requirements, without having to build the back-end integration.
For more interest on Application Development Framework (ADF) and task flows, see the [ADF Page](https://otn.oracle.com) on OTN.

WebCenter Services are built to industry standards, such as IMAP for e-mail, JSR 116 for presence, JCR 1.0 for content integration, JSR 168, JSR 286, WSRP 1.0 and 2.0, JSR 301, and many others. The Social Computing Service tasks flows have an adapter-based model to easily connect to any of the most popular back-end systems.

At the heart of Oracle WebCenter is the concept of group participation and social computing, linking users and services together in useful ways. Many Oracle WebCenter Social Computing Services are specifically designed to work with standard personal productivity tools, offering functionality focused at the individual rather than the group. To make it easy to understand, we’ve separated out the WebCenter Social Computing Services into two categories: group services and personal productivity services:

<table>
<thead>
<tr>
<th>Group Services</th>
<th>Personal Productivity Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Announcements</td>
<td>Mail</td>
</tr>
<tr>
<td>Discussions</td>
<td>Worklist</td>
</tr>
<tr>
<td>Blogs</td>
<td>Notes</td>
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<tr>
<td>Instant Messaging and Presence</td>
<td>Recent Activities</td>
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<tr>
<td>Wikis</td>
<td>RSS</td>
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<tr>
<td>Documents</td>
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<td>Tags</td>
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<tr>
<td>Activity Graphs</td>
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<tr>
<td>People Connections</td>
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<tr>
<td>WebCenter Analytics</td>
<td></td>
</tr>
<tr>
<td>WebCenter Ensemble</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 – WebCenter Social Computing Services includes group services and personal productivity services
For more details on the above WebCenter Social Computing Services, please see the detailed section later in this document and the separate WebCenter Social Computing Services 11g Technical White Paper available at www.oracle.com/WebCenter.

**WebCenter Composer and Business Dictionary**

WebCenter Composer is a declarative, browser-based platform that enables business users to customize and personalize applications at run time and add personally relevant content via mashups. Using WebCenter Composer, business users can add, remove, and arrange components on pages at run time as well as create entirely new content and pages. New pages are created using a Create Page Wizard – the new page automatically invokes WebCenter Composer to enable new content/components to be added. New components are added via the Business Dictionary, a catalog of role-based enterprise resources such as views of structured enterprise application data, personal productivity services and secure content sources. All the customizations are stored in Oracle’s Metadata Services (MDS) so the underlying application remains unaltered enabling business users to evolve their applications in a manner that is insulated from upgrades to new versions of the underlying application.

Page customization, common to portals, is essential when branding an application for each deployment or each department. Allowing individual users to modify their own view of a page to meet their specific needs is commonly referred to as personalization. WebCenter Composer provides an infrastructure that handles both customizations and personalizations with a core set of components to manage and retrieve all the relevant metadata. Additionally, with WebCenter’s run-time editing capability, customizations are easy to change after the application has been deployed.

You can add WebCenter Composer to existing JSF applications so that end users can create their own enterprise mashups. To enable run-time editing, developers simply add WebCenter Composer design-time components to a page in Oracle JDeveloper. Once run-time editing is enabled, end users can use WebCenter Composer to select and add exactly the components they want to their pages in the running application.
Figure 3 – Create Page Wizard with Different Templates

Figure 4 – New Page with Oracle WebCenter Composer Ready to Add Content
Business Dictionary

The Business Dictionary contains view components and data resources that are available to build up the pages of your application. In WebCenter Composer, the Catalog panel displays the default run-time resource catalog as below. The application user can browse the components in the catalog and add them to the page. By default, the catalog displays all the Oracle ADF components and portlets available to the application. To control which components are visible to users in the viewer, developers can modify the default resource catalog or create one or more of their own resource catalogs. The Business Dictionary can contain items such as portlets, layout components, task flows, documents, and Oracle ADF Faces components.

Layered Customizations with Oracle’s Metadata Services

Oracle WebCenter Framework uses the Oracle Metadata Services (MDS) repository to enable you to set up customized (e.g. company branding on a web page) and/or personalized (e.g. your individual dashboard page) content and services to enhance how users interact with your application or portal. The information is stored as a layer on top of the base application deployment, which insulates you and your users from updates and patches to the base application or portal. MDS is used across business processes, with business intelligence information, and Oracle’s new enterprise applications. It is a common metadata store that is delivers unmatched capabilities that insulate applications and portals from patching and new releases. This centralized metadata strategy facilitates the joining of design-time and runtime efforts into a single, complementary development lifecycle. As a result, new versions of applications can be developed
and deployed without losing the customizations or personalizations added over the life of the product. When you add Oracle Composer components to a page, information is automatically stored to and retrieved from MDS, alleviating the need to spend time writing logic to manage customizations and personalizations.

Customizations

Customizations change everyone’s view of an application or portal and are typically required to “brand” a delivered application or portal for a specific customer or purpose. Customizations include simple changes such as inserting a logo or altering the colors to match those of your company. They can also involve adding items to a page, changing the layout of a page, altering a supplied process, and specifically tailoring the delivered application or portal to meet any business need. Oracle WebCenter Suite 11gR1 and Oracle Composer provide an extremely flexible model for storing these customizations in the file system or directly into any database using Oracle’s Metadata Services (MDS). For example, to store customizations in a database, Oracle Composer creates a copy or “sandbox” for pages as they are being edited. This “sandbox” is a temporary storage area to save a group of runtime page customizations before they are either saved and pushed to other users, or discarded. In this way, customizations can be previewed by others and approved for use before they are visible to all users.

Personalizations

Personalizations change only a given individual’s view of a portal or application page. Other users are not affected by the changes you make to a page. Oracle WebCenter Composer enables personalizations by displaying information from Oracle’s Business Dictionary in a role-based view, so that users see only components relevant to them. For example, a sales representative might be able to select a list of current customers, a list of current leads or sales opportunities, and a list of past customers and products up for renewal to personalize a page. A customer support representative might see only a subset of these components available for adding to a personalized page.

Oracle WebCenter Composer has been leveraged extensively inside Oracle WebCenter Spaces to allow users to customize and personalize Personal and Group Spaces, see later in this document for more details.
Oracle WebCenter Spaces is an out-of-the-box WebCenter application that brings you the latest technology in terms of social networking, communication, collaboration, and personal productivity with no development effort. Through the robust set of integrated Web 2.0 services and applications provided by Oracle WebCenter Framework, Oracle WebCenter Composer and Business Dictionary, WebCenter Spaces enables you to deploy instant community portals, team sites and other collaborative applications. Oracle WebCenter Spaces provides three key capabilities within a single application: Personal Spaces, Business Role Pages and Group Spaces.

Personal Spaces provide each user with a private work area for storing personal content, keeping notes and to-do lists, viewing and responding to business process assignments, scheduling personal events, maintaining a list of online buddies, and performing many other tasks relevant to his or her unique working day.

Business Role Pages provide a powerful way to communicate with specific types of users within an organization and across the company. Business Role Pages provide an efficient way to attach a page or set of pages to a specific enterprise role so that all the users are kept up-to-date with information specific to them and their job function.

Group Spaces support discrete communities of any size organized around an area of interest or a common goal, such as solving a business problem. Group Spaces provide a wide range of Web 2.0 services and tools and enable social networking capabilities in your enterprise.

In addition to the above capabilities, WebCenter Spaces also provides extensive desktop integration with Microsoft Office 2007 and an iPhone application to access WebCenter Spaces content and functionality.
WebCenter Anywhere

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 Smart phones, Mobile Voice and Mobile Messaging. In addition, users can access their WebCenter applications directly from their Windows Desktop tools.

ADF Mobile

As WebCenter developers begin to reap the benefits of increased productivity from JSF technology, Oracle strives to bring the same benefits to mobile application development with ADF Mobile. ADF Mobile adds mobile-specific extensions to the same methodologies involved in developing JSF applications for the desktop. With support for over 60 of the standard ADF Faces components, developers can build applications with the rich component set, each rendered appropriately for small-screen mobile devices. In this way, WebCenter developers can reuse their desktop browser application’s Model and Controller layers and simply assemble a new View layer for PDAs (such as Microsoft PocketPC, Palm Treo, and so on) using a similar set of ADF Faces components.

Developing a WebCenter Application in JDeveloper

WebCenter Framework provides the foundation for including Web 2.0 services in applications, allowing you to add enterprise mashup capabilities that enable end users to get the content they require to get their job done. You can also integrate JSR 168, WSRP, and Oracle portlets into WebCenter applications and include content from disparate content repositories. With WebCenter Framework, you can link these and other customizable components together so that they operate synchronously, resulting in a cohesive, easy-to-understand, easy-to-use application.
Making Applications Customizable

Customizable components provide the facility to customize the behavior of the application at run time. These components enable the site administrator to make changes to the users’ view of application content. For example, the administrator may decide to hide a certain piece of content or move a component from the bottom of the page to the top. These changes and settings are then persisted for end users.

Customizations applied to the application are saved to an MDS metadata repository. All metadata, including base application definitions and run-time customizations, is stored in the central metadata store. This centralized metadata strategy allows WebCenter to bring together work done by information workers at run time and IT developers at design time in a single, complementary development lifecycle. As a result, new versions of applications can be developed and deployed without losing any of the customization work done by information workers over the life of the product.

WebCenter Framework provides two customizable components: showDetailFrame and panelCustomizable. When one or more JSF and/or ADF component is wrapped in a showDetailFrame, the component can provide a border and a header with a menu of actions, such as minimizing the content. A panelCustomizable component offers horizontal and vertical layout capabilities to a group of ADF components. Similar to a
showDetailFrame component, a panelCustomizable component can display a header to provide menu actions.

Building Portlets

The WebCenter Framework Extension for JDeveloper supports building and deploying portlets. The WebCenter Framework supports all the production portlet standards, including JSR 168 and WSRP 2.0. Oracle JDeveloper’s portlet creation wizards help you build WSRP/JSR 168 and PDK-Java (Portlet Development Framework for Oracle Portal) portlets quickly and easily. Another set of wizards guides you through portlet producer deployment. For testing purposes, you can deploy your portlets to the WebCenter pre-configured WebLogic Server, which you can start and stop from the JDeveloper toolbar. This means that you never have to leave the JDeveloper environment while developing and testing your portlets.

Portletizing JSF Applications

Portletizing an application means making an application available as a portlet. A portletized application can be plugged into a portal, where end users can interact with the application in the same way they would with the stand-alone application. Portletizing provides a convenient mechanism for integrating disparate applications and publishing them in one convenient location for end users. Business users can use portletized applications to create enterprise mashups.

The JSF-Portlet Bridge (JSR 301) in Oracle WebCenter allows developers to portletize a JSF application as a JSR 168 portlet. The portletized application can then be consumed by any portal.
framework that supports the portlet standards, such as an Oracle WebCenter application or OracleAS Portal. To publish a JSF application as a portlet, you must ensure that your JSF pages contain markup that conforms to JSR 168 portlet markup fragment rules. Most of the ADF Faces components render portlet-compatible markup. When you portletize an ADF application, there are a number of guidelines and best practices to keep in mind. These are described in the Oracle WebCenter Framework Developers Guide.

Integrating Portlets

The WebCenter Framework portlet integration supports all the production portlet standards including JSR 168 and WSRP 2.0. What this means is that your WebCenter applications can consume portlets.

Before using any portlet in your application, you must register the portlet producer with the application using available Wizards. After successful registration, portlets are automatically added to JDeveloper’s Component Palette. You can drag individual portlets from the palette and drop them onto your application pages as you would any other component. You can also add Oracle prebuilt portlets and third-party portlets to your WebCenter applications.

Packaged applications often come with their own sets of portlets to enable you to access particular data or functions used by the application. Provided these portlets were built with compatible technology (WSRP, JSR 168, or PDK-Java), you can include them in your WebCenter application as well.

Figure 9 – A WebCenter Application that integrates various portlets
You can link portlets and components by passing parameters between portlets and ADF Faces components, and between portlets and the page. In this fashion, you can create a context-sensitive application, where the data displayed by the portlets changes depending upon the page context. Oracle WebCenter Framework provides a Contextual Events capability that allows developers to wire together or mashup related components or portlets together so that content is always synchronized and only the contents of affected components is refreshed. Using Contextual Events, you can wire together Oracle ADF Faces components, WSRP portlets, PDK-Java portlets and Task Flows.

Portlet Interaction with ADF Faces Components

ADF Faces components and portlets are tightly integrated. They can reside on the same JSF page and can be contextually wired together in a declarative manner, without requiring you to write a single line of code. User interaction in a portlet can trigger partial refresh on the page, making other components on the page rerender. Similarly, when the state of an ADF view component changes on the page, portlets can refresh their content, ensuring that they remain in context.

A User Interaction Example

In the figure below, the drop-down list called “Volume for last” is a JSF component that determines the content of the pie chart generated by OmniPortlet. When the user selects a value from the list, the value is passed to OmniPortlet. OmniPortlet reads the value and performs a partial page refresh, without causing the entire page to be refreshed.

![Service Volume Distribution](image)

*Figure 10 - The Service Volume Distribution Portlet, built using OmniPortlet*
Integrating Content Using Java Content Repository

Integrating content from different content repositories and content management systems usually requires custom coding against proprietary and complex APIs. Creating new applications that leverage these content systems is costly and hard to maintain or upgrade. With the ratification of JSR 170, which specifies Version 1 of the Content Repository for Java API and the Java Content Repository (JCR) standard, access to content becomes standardized, and creating new applications that integrate content is made much easier.

Oracle WebCenter leverages the JSR 170 standard and provides an easy alternative to purely coding against JCR APIs for achieving integration. Using data controls (as specified by JSR 227), WebCenter hides the complexity of the JCR standard behind this generic framework, making integration a matter of dragging and dropping the relevant controls into your application and binding them to the respective content data control. Adapters written in compliance with the JCR standard provide access to the underlying content system.

A data control is a container for all the data objects, collections, methods, and operations used to create UI components within your application. The data control abstracts the complexity of JCR and surfaces basic operations. As part of WebCenter, you have access to five repositories: Oracle Content Server, Oracle AS Portal, Oracle WebCenter Adapter for Microsoft SharePoint, Oracle WebCenter Adapter for EMC Documentum and Oracle WebCenter Adapter for IBM Lotus Domino. For development and testing purposes, you can also use the WebCenter adapter for file system access.

Since JCR is a standard that is currently being adopted by a wide variety of vendors, the range of available adapters is steadily growing. In cases where you have content stored in a proprietary content system (for example, digital media assets), you can create your own JCR adapter. Using the Content Data Control Wizard in JDeveloper, you can create and configure a data control to connect to a specific JCR repository. The data control can be used in your application, regardless of the adapter underneath it.

Data Controls

Every content management system stores a variety of attributes for the objects that it manages. These attributes define a set of structured metadata around what is often unstructured information. Structured metadata is essential for categorizing content and for searches; consequently, it is important to be able to use these attributes in an application. The Content Data Control exposes all attributes: the ones that are common across all repositories, repository-specific attributes, and custom attributes.

To keep things simple and allow easy application development, the data control surfaces real-world operations rather than the atomic API calls. The functionality provided by a data control includes Search and Advanced Search, as well as getting the files and folders of a repository, the attributes of these files and folders, and the URL for a file’s content.
To use data control functionality in your application, simply drag the data control method or attribute from the Data Control Palette and drop it onto the application page as a view component. All the ADF bindings are automatically created for you.

In addition to organizing content, another important issue with content management systems is controlling access to the content. Therefore, a major aspect of the Content Data Control is managing access or, rather, honoring the access restrictions of the back-end repository. The WebCenter Framework provides full flexibility in terms of which user context is used by the data control: a Public user, a pre-defined user, or the user who is authenticated to the application and set in the JAAS security context.

Figure 11 – Creating an Oracle Content Server Data Control using the Data Control Wizard
Styling a WebCenter Application

Achieving a consistent and attractive look and feel is an important part of application design and development. Skins are the best way to globally style an application. Based on the CSS 3.0 syntax, a skin is a style sheet that is specified in one place for an entire application. Instead of styling each component or inserting a style sheet on each page, you can create one skin for the entire application. Every component automatically uses the styles as described by the skin. If an application is constructed to use a skin, no design-time code changes are required.

Web Center applications use ADF Faces for their visual components. ADF Faces components delegate the display of the component to a renderer which determines the different ways a component can be displayed on a client and how to display the component on different clients. Included with ADF Faces are HTML render kits for display on both desktop screens and PDAs.

Oracle ADF Faces provides three skins for use in your applications as part of the ADF Faces 11g component library:

- **Oracle**: The Oracle skin, which is the default skin, conforms to Oracle's user interface standards for applications (known as Oracle Browser Look and Feel, or Oracle BLAF).
- **Simple**: The Simple skin contains almost no formatting and is the starting point for all custom skins.
- **Minimal**: The Minimal skin is based on the Simple skin but includes some icons. By default, applications that are created using ADF Faces components use the Oracle skin, but you can create your own custom skin with your company's preferred look and feel. Custom skins make it possible to change the colors, fonts, and even the location of portions of ADF Faces components, by setting styles for components in one CSS file. When you apply your own CSS, (that is, your custom skin), everything that you did not include in your CSS is inherited from the Simple skin.

![Figure 12 - An ADF tree component for browsing and opening files](image-url)
Securing a WebCenter Application

WebCenter Framework Security is leveraged by WebCenter applications for access control on content and processes being exposed in the application. WebCenter Framework Security is built-on top of ADF Security Framework and leverages its support for Page and Taskflow authorization, Secure Connection Management, and Credential Mapping. It leverages Oracle Platform Security Services (OPSS) layer for various functionalities including Identity, Policy, and Credential Management. WebCenter delegates Authentication, Identity Assertion, SSL Support, and other such core security services from the underlying WebLogic Server (WLS). This lends it the flexibility, for example, of being able to support all the Identity Stores that work with WLS.

The WebCenter Spaces application has custom functionality built-in to support the use case it is targeted for including Application-scoped roles, support for Self-registration, Group Space security management amongst other things.

WebCenter Framework Security includes the following main features:

- **Service Security Extension Framework**: Each WebCenter service defines a security extension where the permission model for authorization along with other metadata is specified. Hence, the service itself defines its own security requirements.

- **Permission-based and Role-based Authorization**: WebCenter Framework Security supports two authorization modes – permission-based model which is based on the
JAAS permission model and role-based permission model for services with remote back-ends like document library service. The role-based permission model allows the service to honor the security model of the underlying back-end store (Universal Content Server in case of document library service).

- **External Application and Credential Mapping:** The WebCenter Framework supports functionality to replicate Single Sign-on (SSO) with (external) applications that may implement their own authentication process and cannot take part in the WebCenter Framework application’s SSO process.

- **Support for secure Identity Propagation using WS-Security:** WebCenter provides secure Identity propagation using WS-Security. For WSRP, the security framework supports Security Token profiles including Username Token and SAML Token with complete message protection including integrity and confidentiality of the message.

WebCenter applications leverage WLS SAML-based SSO and Oracle Access Manager (OAM) amongst other SSO solutions including Oracle SSO (OSSO) where required. Services such as wiki/blog require SSO for providing a seamless experience to the logged in user without a need to re-authenticate. Other services use mechanisms such as WS-Security, External Application, and other custom schemes to achieve identity propagation. The following figure depicts the various identity propagation mechanisms leveraged by WebCenter Services.

![Figure 14 – Identity propagation mechanisms leveraged by WebCenter Services](image-url)
Deploying a WebCenter Application

In terms of deployment, WebCenter applications behave exactly like traditional J2EE applications; however, in addition to the deployed application code, they include any customizations and personalizations applied to the application at run time, as well as the security policies used by the application. As the standard deployment process automatically carries over all customizations, personalizations (both for the page and any portlets within the page), and security policies, developers and administrators are free to focus on the overall deployment.

The steps required to deploy the application to production will differ based on the desired topology (development to test to production, develop to production, and so on). The general lifecycle of a WebCenter application is as follows:

- The application is developed using the WebCenter Application template, which specifies the packaging of the application code, run-time customizations, and configuration and connection details for any WebCenter services used by the application into an EAR file.
- The EAR file is transferred to the deployment server.
- The EAR file is deployed to a stand-alone WebLogic Application Server environment, using either Enterprise Manager or the command-line interface. This process automatically injects any customizations, personalizations, and security policies into the target environment.

Creating Enterprise Mashups with WebCenter

WebCenter provides a wide variety of ways in which developers and business users can integrate, customize, and personalize structured and unstructured content from back-end systems and build lightweight enterprise mashups at run time. The primary approaches for building mashups include WebCenter Composer and WebCenter Ensemble in conjunction with additional portlet publishing tools provided in WebCenter Suite.

Enterprise Mashups with WebCenter Composer

WebCenter Composer provides a complete platform to build enterprise mashups based on a mashup architecture that enables users to connect to various sources of information, such as ERPs, content repositories, Web services, and collaborative services, and wire them together at run time. Developers can build their own custom lightweight applications, such as portlets and task flows, and publish them as components in the resource catalog. They can also integrate and publish third-party applications, such as Google Gadgets, in the resource catalog that is exposed to business users via the Business Dictionary. Business users can then select the applications they want to include in their mashups, drop them on their custom page, and personalize them. For instance, a user can drag and drop a report from a BI Answers dashboard that displays information about a sales team, and wire it to a Google Gadget map. When you click a sales representative’s record, the map shows the locations where that sales person has closed sales.
Then the user may decide to add a chart that shows the total yearly sales made by a given employee and wire it with the other two components. So, based on a common parameter (employee number [EmpNo] in this case), business users can pull data from different applications within an enterprise and put it together in one context. WebCenter Composer enables users to modify the properties of the applications at run time, configure parameters, and use them to wire components together. They can also change the look and feel of these applications to make them visually appealing. Additionally, users can drag and drop ADF Faces components to their page and change the page layout.

WebCenter Composer enables developers to configure role-based resource catalogs. Separate catalogs can be created for each role or the same catalog can be configured with different views and access levels for different roles.

WebCenter Composer stores all the user customizations within the Metadata Services (MDS) layer as a set of layered customizations. MDS can be configured to store the customizations either within a database or a file system. WebCenter Composer allows the customization layers to be based on user roles (responsibilities) or on any application-specific criteria. For example, the site administrator for an enterprise portal can create the top layer, defining all the global customizations that cannot be altered by the end users. The administrator can also create a second layer below the first that defines different sets of customizations for departments within the organization. Both of these layers of customization lie on top of the base metadata layer, which can define basic customizations for the entire portal.
Mashup Web Resources with Oracle WebCenter Ensemble

In addition to providing valuable deployment services to help improve the management of Web resources for IT and administrators, Oracle WebCenter Ensemble also provides an intuitive application-composition and -mashup system for developers. Developers can register and share components and programmable functions with other developers, and WebCenter Ensemble helps blend those components with other applications and resources it manages. WebCenter Ensemble simplifies the reuse of widgets and programmable functions, and eliminates the need for developers to understand the ins and outs of every programmable function.

Developers register their applications within WebCenter Ensemble as a unique, reusable resource called a Pagelet. Any service that is URL-addressable and returns markup is a candidate for a Pagelet. For each Pagelet, WebCenter Ensemble generates a unique identifier—or tag—that the system directly maps to the Pagelet. This tag—a simple string of XML—can be transformed by WebCenter Ensemble when inserted into any other page or resource registered within the system. Because the tag is simple XML, and is transformed by WebCenter Ensemble, Pagelets can be embedded on any Web page, running on any platform, and written in any language.

Pagelets can contain their own styles and JavaScript. When inserted on a page, they can also include arbitrary attributes and a payload, or custom data. These parameters are passed by WebCenter Ensemble to the specific Pagelet for processing. As an example, a threaded discussion Pagelet might require an ID or name for the project the discussion is contained in, or the name for the overall project. A charting Pagelet might require an XML payload of data to chart.

WebCenter Ensemble includes a set of other predefined tags that can be used in both Pagelets and resources. These Adaptive Tags enable logical functions on the page (e.g. pt:logic.if) for iterating through collections (pt:logic.foreach) for determining the role of the user (pt:runner.roleexpr, etc.). The Adaptive Tag library is a powerful tool for integrating UIs in a consuming page. The entire library is invoked using XML and transformed by WebCenter Ensemble, making it completely cross-platform.

WebCenter Ensemble also includes a client-side JavaScript framework that serves two functions. First, it allows Pagelets to share information with the preference and eventing features it provides. Second, it provides features to make JavaScript-based mashups easier, like XML-handling functions. WebCenter Ensemble injects the scripting framework intelligently, only including it when the page requires.

As WebCenter Ensemble delivers a page for a given resource, it scans the page for specific tags defined elsewhere within the system, and transforms the tag into the appropriate Pagelet, injecting functionality dynamically into the page. As a simple example, a developer could register the Google Search box as a Pagelet. WebCenter Ensemble would represent this Pagelet as a simple string of XML, for example, <pt:search:Googlebox>. For any other resource where that
tag resides, WebCenter Ensemble replaces the tag and dynamically injects the UI and functionality of the Google Search box directly in the page.

Integrated Mashup Tools

In addition to Oracle WebCenter Composer and Ensemble, WebCenter Framework provides versatile portlet-based tools pre-integrated with WebCenter Framework that enables business users and developers to create their own mashups quickly and easily using a set of declarative wizards that guide users through the process of combining data and services to suit their individual requirements.

- **Web Clipping Portlet**: A browser-based declarative tool that empowers business users to create their own feeds with no programming required. In addition, users can use the Web Clipping Portlet to clip a sample bit of information to determine whether they need to ask IT to provide a supporting feed. The Web Clipping Portlet enables users to create Web 2.0 mashups from nearly any source.

- **OmniPortlet**: A tool that enables business developers to quickly leverage Web services, RSS, and XML feeds as data sources for their enterprise mashups. Using a wizard-based approach, business users can quickly produce new mashups from all the standard feeds that developers produce. In addition, developers can easily build AJAX-based user interfaces and add them into the wizard for users to select. Figure 7 shows how quickly users can define new mashups from existing Web services and XML or RSS feeds.
Enhance Applications with Social Computing Services

As discussed earlier in this document, WebCenter Suite includes a wide range of Web 2.0-based Social Computing services and tools that are available for you to extend the functionality of your applications and enrich the end-user experience. In the next section, we will discuss the key new services available as part of WebCenter 11g – for more details on all the services please see the separate WebCenter Social Computing Services 11g Technical White Paper available at www.oracle.com/WebCenter.

The Service Framework and Architecture

To provide a common access model for the WebCenter Services, a thin adapter layer is used to abstract the back-end repositories from the User Interface. The advantage of this model is that it provides a common access mechanism to the services via a Web Services interface as well as allowing changes to the back-end repository connection without having to change anything in the UI. A common connection architecture provides an easy way of registering a new connection to a back-end repository like Oracle Content Server, for storing and managing documents. In the corresponding UI, the document library, this new connection is set as a property and the content is served from this connection. The power of this model is that connections to new repositories can be supported over time without requiring any change on the UI side. On the other hand if you build new custom Service UIs in an application, a new connection can be leveraged without changing a single line of code.

The Search Framework plugs seamlessly into this Services Architecture by providing a ‘Search Service Bus’ that federates the search queries out to all WebCenter Services and aggregates the results.
Customizing Pre-Built Services’ Task Flows

There are over 50 pre-built Task Flows or portlets that are delivered as part of Oracle WebCenter Social Computing Services. Oracle recognizes that in many cases these pre-built user interfaces don’t exactly match what end users require. Traditionally, modifications would require that developers rebuild portlets from scratch or get copies of the source code to make modifications directly. However, when new versions of the base components are delivered, the process starts all over. With Oracle WebCenter Framework’s powerful personalization and customization capabilities, the pre-built task flows or portlets delivered with WebCenter’s Social Computing Services can be customized to deliver the specific look and feel that is required with requiring the source code. For example, if a user's photo needs to be displayed with each discussion thread, the pre-built task flow can be customized in JDeveloper to add this functionality directly. Customizations are saved directly into Oracle Metadata Services (MDS)
without any coding on your part. This also means that when new versions or patches of the task flows are released, customizations can be directly applied without any complicated merge processes.

The following section describes the key new services available with WebCenter Social Computing Services 11g.

Tags
Tagging enables users to associate an item with keywords or tags. Subsequently, they can find the same item again more rapidly by searching using the tags that are personally meaningful. Furthermore, when tags are shared, other users can then find the information more readily because of the tags created and shared by earlier users. For example, suppose your application includes a component that provides a view of departmental human resources contacts. If you enable tagging for this component, a user who comes to the page might assign tags like HR and contacts to the component. Subsequently, that user can find the page much faster by searching for the tags, and other users can also more readily find this page in their searches.

By tagging objects in WebCenter applications, you contribute to a component called the tag cloud in which all tags are displayed. As more people search on a tag (keyword) and find the relevant resource, the more prominent this keyword becomes in the tag cloud. Over time, the most popular information is highlighted the most; users can find content easily by simply clicking the most prominent keywords in the tag cloud.

Oracle WebCenter provides a built-in application called the Tag Center to manage and maintain tags as well as navigate through WebCenter using tags.
Instant Messaging and Presence

The Instant Messaging and Presence service gives users visibility into who is online and full control over publishing and managing online status. This service is based on SIP for Instant Messaging and Presence Leveraging Extensions (SIMPLE) and, therefore, enables you to create actions in JSF applications using standards-based technology. The actions include instant messaging (IM) services, instant voice, instant video, and instant conferencing applications. This service also enables you to perform Oracle WebCenter-specific actions based on presence, such as sending mail.

You can easily embed telephony components such as call control and click-to-dial, instant messaging framework, video chat capability, and presence into applications built with WebCenter. Out-of-the-box, WebCenter provides a presence server (Oracle Communications and Mobility Server or OCMS) and Oracle Communicator, which can be used to extend a SIP-based instant messaging and voice/video network. Also available are Parlay X presence Web services APIs, which provide presence information to any WebCenter-based application. Examples of presence-enabled applications include package tracking, location-based services, and browser-based instant messaging. Finally, the WebCenter Voice Option enhances the WebCenter offering by bundling a rich set of telephony infrastructure components based on JSR 116 (SIP Servlet API specification). The API provided by the WebCenter Voice Option and its associated Service Creation Environment enables development and deployment of custom telephony services such as click-to-call, call routing, call barring, conferencing, and voice mail. The design
of this service allows these custom solutions to integrate with almost any SIP-based presence server. WebCenter is also certified against Microsoft Live Communication Server.

For more information, visit the Oracle Communication and Mobility Server page on OTN.

Figure 21 – Presence icon and a menu of Instant Messaging and Presence actions

Mail

The Mail service enables users to receive email streamed directly into an application from any IMAP-compliant system. The task flows for this service enable you to include personal mail in your application; this means that you can monitor your mail without having to constantly go back to your mail client application.

Oracle WebCenter supports any generic IMAP- and SMTP-based mail server and provides native integration for MS Exchange.

Calendar

A group calendaring functionality is provided for communities. There are daily, weekly, and monthly views as well as the list view. A notification mechanism ensures all users are informed when a new event is scheduled.

Events

The Events service provides group calendars to enable users to schedule meetings, appointments, and any other type of team event. Additionally, a dedicated Events page is available to every Group Space where the moderator has enabled the Events service.
Links

The Links service allows users to easily connect different pieces of previously unlinked information, such as documents, discussions, and tasks, producing context between the items. With information just a click away, users have everything they need to complete their tasks without having to move away from the desktop in search of additional sources of information. As users build up webs of related information, this collective knowledge can be communicated to the wider group. A link icon indicates connected information. Being able to establish ad hoc relationships between objects enables users to navigate easily to different types of information while always remaining in the current business context.
Recent Activities

The Recent Activities service enables users to view the most recent changes to the services in their applications. Some Oracle WebCenter services are pre-configured to work with the Recent Activities service. For example, when you add a document to the Document Library, information is automatically produced for the Recent Activities service to display regarding the most recent changes to the document library. This service can track information from Pages, Events, Documents, Announcement, and Discussions.

![Figure 24 - Recent Activities](image)

Lists

Oracle WebCenter provides an easy way to create and manage various lists and expose them on a page. A list is similar to an Excel spreadsheet, allowing you to create different column types to display your data in a structured way. Lists can serve many purposes. For example, you can add a list to track issues in a project or to maintain information on the currently open bugs that are holding up a new product release. List data can be exported to Excel, processed and modified in Excel, and imported back into the List service.
Notes

The Notes service enables you to track your own personal notes and reminders. Each note has a status, which you can use to manage and order your notes.

Activity Graphs

The Activity Graphs service enables tracking of any kind of activity that the user performs in order to influence results and recommendations used by any other service. For example, most Social Computing sites today allow users to post their own information about their personal activities, accomplishments, thoughts, and friends. However, when used in a business context the work that a user does (posting documents, resolving customer escalations, winning a sales bid, developing a new product or service, etc) needs to influence the user’s expertise as seen by other users. The Activity Graphs service provides an extensible engine to log, track, analyze, and recommend users’, items and actions that the person might find helpful. For example, if you wanted to resolve a specific customer complaint, then you would like to find another person in the organization that has dealt with a similar problem. The Activity Graphs services allows for these experts to be identified and surfaced to any user’s network.

People Connections

The People Connections service enables users to quickly assemble their business networks. This People Connections service includes Task Flows or portlets that show off a user’s profile, visualize the user’s connections list or network, display all the invitations pending and accepted
from others, deliver a whiteboard (often called a “wall”) to project out relevant information about one’s role or self, along with monitor and manage received and given kudos. As part of the Activity Graphs service, the People Connections service provides a view on these activity streams including filters for the user to determine the type of activities that are of interest. Together these two services make Social Computing services much more valuable within and across enterprises.

Dynamic Communities with WebCenter Spaces

Oracle WebCenter Spaces is an out-of-the-box WebCenter application designed to provide instant communities and team sites. As mentioned earlier in this document, Oracle WebCenter Spaces provides two work environments within a single application: Personal Spaces and Group Spaces.

![Figure 26 – The WebCenter Spaces Application](image)
Personal Spaces

The Personal Space is every user’s individual work environment that can be personalized by the individual to meet their needs. The Personal Space consists of three main areas that provide different levels of information.

The Sidebar

The Sidebar is a bird’s-eye view of the most critical information that you may need quick access to at any point in time. It exposes information such as the business processes you need to interact with, your recently accessed documents, your favorite discussions, your personal to-do list, your peers who are online and available for a chat, your top-priority emails that require a response, the applications that you need to access, and so on. The Sidebar is always present on the left hand side of the application, however you can collapse it to a minimized, iconic view to conserve space on your screen, or hide it altogether.

Figure 27 – The Sidebar
Personal Pages

Your Personal Space includes both pre-defined pages and any personal pages you create. The pages of the Personal Space occupy the main area on the screen. All pages that are available to you in this Space are displayed in tabbed format. Depending on your privileges, you can personalize the information on the pages. You can also create new pages using the WebCenter Composer and the Page service, and add any combination of the resources available to you in the Business Dictionary. For example, you can build your own custom dashboard to surface business intelligence reports, wire them to an OmniPortlet, add documents from the document library, and surface presence information about a set of users and their online status. Users can add, edit, delete, show, and hide pages using the Page Manager as well as share pages with other users and change the properties and settings of pages.

Business Role Pages

Your Personal Space also displays a set of pages called Business Role Pages, which are targeted to your professional role in the organization. For example, an administrator can create a set of Business Role Pages for each line-of-business. When a sales person logs in to his Personal Space, he'll see the Sales Business Role Page. When an engineer logs in to her Personal Space, she'll see the Engineering Business Role Page. Information that is timely and relevant to a specific business role can be provided instantly, without the noise of irrelevant information from other lines-of-business.

Group Spaces

While Personal Spaces are specific to each user, Group Spaces support the formation and collaboration of project teams and communities of interest. Group Spaces bring people together in a virtual environment for ongoing interaction and information sharing—in essence, to form a social network.

Structurally, Group Spaces are comprised of pages, many of which are dedicated to a particular service or a few complimentary services. For example, the Documents page provides a central library for uploading, organizing, and managing group content. The Lists page provides the means to create and publish multi-column lists. The Search page includes features for saving searches and managing search results.

In addition to these and other default pages, a Group Space supports custom pages created by authorized users. Page creation is easy with a wide selection of pre-defined layouts. With little effort, you can provide pages neatly tailored to the unique needs of your team or community.

You can create pages that mash up multiple services into, for example, a central access point for group communication and project resources. Authorized members at all levels of technical expertise can easily add a variety of resources to a page. Among these are business intelligence
charts, reports, portlets, business applications, Web 2.0 services, and other ADF resources or views.

When creating a Group Space, you can use one of the out-of-the-box templates. Alternatively, to take advantage of a Group Space that already contains mashups of enterprise information, you can save it as a template. Creating templates from existing Group Spaces gives other Group Space builders a head start in setting up the support framework for their tasks or projects.

Out-of-the-Box Group Space Templates

The **Group Project** template provides an optimal structure for supporting a core project team where members might come from different departments, but all members contribute toward reaching a common goal. The project can be anything—application development, customer escalation, sales pipeline fulfillment, vendor selection, anything. The focus of a Group Project Group Space is to streamline the process of starting a new project, defining the project team, and executing on project deliverables.

The **Community of Interest** template provides an optimal structure for supporting communities of people, who join together to collaborate, create content, share ideas, and so on. Communities can form around any subject—Java, human resources, baseball, art, animal husbandry, - really anything you can think of. The focus of a community of interest is to learn more about a subject
area through sharing expertise, ideas, and content. Interest-based Group Spaces provide a consistent, dynamic, timely, and interactive participant experience.

The Blank template provides an essentially unpopulated and non-configured starting point for building a Group Space exactly to your specifications. When you create a Group Space using the Blank template, the result is a blank Home page. The rest is up to you!

Project groups focus on collaboration. Communities of interest focus on communication. In WebCenter Spaces, services supporting communication and collaboration are easily available to all types of groups.

**Accessing Group Spaces via Microsoft Office Plug-In**

WebCenter Spaces offers extensive Microsoft Office desktop integration using a built-in Office 2007 Sidebar component. From within Spaces, users can add/remove content from the Office Sidebar and preview content to be displayed in Office 2007. The Office integration also allows in-place insertion of WebCenter Spaces content so that content from a Group Space or Personal Space is displayed in context with Office 2007 documents using the metadata linking capabilities in WebCenter 11g. Additionally, there is complete WebDav support for Windows file-based desktop integration for Spaces and any WebCenter custom application.

![Figure 29 – WebCenter Spaces Integration with Microsoft Office e.g. View Presence of Group Space Members and Initiate Chat from within Microsoft Word](image)
iPhone Application for WebCenter Spaces

As mentioned earlier, WebCenter Suite 11g includes WebCenter Anywhere that lets users leverage WebCenter application information and services directly on their mobile device or smartphones like iPhone, Blackberry and others. WebCenter Suite 11g includes an out-of-the-box iPhone application to access WebCenter Spaces content. With the WebCenter Spaces iPhone application, you get four different views into your Spaces instance: Home, Connections, Group Spaces and Settings.

The Home view includes:

- Your Profile Page where you can update your current Status,
- Wall posts from others your Network
- Activities to see the actions that are coming from the people working on your project within the Group Space.

The Connections view lets you see details for your entire Network of experts such as their Status, Profile attributes and Wall posts.

The Group Spaces view is used to navigate to different Group Spaces and lets you:

- See all the Activities that are happening in the Group Space on the Home tab
- View all the Content in the Group Space such as Documents and Discussion Forums
- View all the Members of the Group Space

Figure 30 - Connections View of Expert Network
Figure 31 - Activities in Group Space

Figure 32 - View All Documents in Group Space
Group Space Management

Administrators can create role-based pages and manage all pages from the WebCenter Spaces administration interface. Additional administration interface features include user and role management, creation and management of role-based pages, service configuration, Sidebar configuration, and management of Group Spaces. Furthermore, from a single user interface, the Administrator can easily execute lifecycle operations such as exporting and importing Group Spaces and templates.

Group Space administration is fully integrated into the WebCenter Spaces environment. For example, the person who creates a Group Space is automatically that space's Moderator, and can grant any other user Moderator privileges. Users assigned the Moderator or equivalent role can add and remove Group Space members; invite new members; provide and update Group Space metadata, such as the Group Space display name, description, and search keywords; and manage the services available to the Group Space.

You have several options for populating a Group Space. You can add members up front from your enterprise identity store, provide for self-registration, and allow users to request membership. Just as in the enterprise, one person can be a member of several teams at the same time and can participate in any number of Group Spaces.

Administration for WebCenter

As an Oracle Fusion Middleware administrator, you can perform the complete range of security-sensitive administrative duties for all Oracle WebCenter components, as well as all installation, configuration, and audit tasks. All of these capabilities are integrated into a single Oracle Enterprise Manager Console. It's the only product available on the market that allows for complete manageability across all usages of Social Computing Services, Dynamic Business Communities, and deployed applications. To administer and monitor the Oracle WebCenter Spaces component, the Oracle Fusion Middleware administrator can:

• Stop and start Oracle WebCenter Spaces.

• Configure back-end services (such as mail servers, worklist connections, discussions server connections, mail server connections, instant messaging and presence connections, Oracle Secure Enterprise Search connections, and the database connection for group space events, links, lists, notes, and tags).

• Maintain external applications and datasources (such as content repositories, external applications, and portlet producers).

• Configure the identity store to allow for enterprise Single sign-on.

• Configure global options (such as SOA connection for group space subscription workflows, wiki services, and worklist items).
• Import and export group spaces and group space templates, or an entire Oracle WebCenter Spaces application, to enable back up or to move content between Oracle WebCenter applications and stage or production environments.

• Use log files to identify and diagnose issues or problems.

• Analyze the performance of Oracle WebCenter Spaces and monitor its current status through Oracle Enterprise Manager.

As part of the delegated administration capabilities, within Oracle WebCenter Spaces, the highest application privileges are given to the Oracle WebCenter Spaces administrator. To perform administration and monitoring tasks across all Personal Spaces and Group Spaces, the Oracle WebCenter Spaces administrator can:

• **Modify application-wide settings**: Name the application, customize the default look & feel, choose a default language, set up discussion forums and RSS news feeds, disable personal spaces, manage group space services, and much more.

• **Manage users and roles**: Assign default roles, create custom roles, define role permissions, and manage user access and approval requirements.

• **Manage Personal Pages**: View, edit, and delete personal pages, set up page defaults, copy pages, and manage page security.

• **Manage Business Role Pages**: Create and manage pages specific to a particular business role, rollout pages to a common audience, and remove unnecessary pages.

• **Maintain external application links**: Add, modify, and delete entries in the external application links list in the Application pane in the Sidebar.

• **Manage Group Spaces and Group Space Templates**: Take a group space temporarily offline and bring it back online, close down or reactivate a group space, delete a group space or template, and publish or hide a group space template.
Conclusion

Oracle WebCenter is an exciting offering from Oracle. It brings together the power of standards-based development and portals to provide context-rich applications that dramatically improve efficiency. It provides a natural user interaction environment for your SOA applications and enables you to utilize a wide range of services, including structured and unstructured content management and integration, business intelligence, business processes, communication, and collaboration to create better, more effective user experiences. And, because Oracle WebCenter is a core component of Oracle Fusion Applications, the applications you build with WebCenter will seamlessly blend with both the current and future applications from Oracle.