



WebSphere software

**Maximize the potential of your
PeopleSoft applications with
IBM WebSphere Portal software.**

*By David Shriver and Chunmo Son,
WebSphere Innovation Centers*

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Introduction

Your organization has grown over time. Perhaps you've merged with another organization – or you've created trading partnerships with other businesses. The result is a variety of applications from different software vendors or custom in-house applications – all providing business value to your company. As long as they can work together. These disparate applications may include human resources, customer relationship management (CRM) and supply chain management (SCM) applications, along with a host of other business-critical ones that contribute to the success of your enterprise.

The new challenge goes beyond the need for these applications to share data and information. Your employees must be able to readily access them to maximize productivity. For example, to dispatch a service representative, your help-desk clerk needs access to your core help-desk application – and access to your company's human resources information for a list of available services personnel near your customer. If, as is often the case, these applications aren't from the same vendor and don't share a common look and feel, your help-desk clerk must switch from application to application – wasting time and decreasing customer satisfaction in the process. And what happens when you must modify or upgrade each application? Because your business applications are from different vendors or development teams, employees must receive additional training on each application as it is changed – incurring more cost for you because of lost time and potential lost revenue.

A common interface for all your business applications allows the end user to access and use them more efficiently. Users spend less time in training. And employee productivity and customer satisfaction increase. The end user can be a help-desk employee, a customer accessing your company's Web site for self-service, a supplier tracking a shipment or a trading partner sharing important information about a mutual customer. Through a Web portal, you can provide a personalized, single point of access to critical information and services, from both internal and external sources. Because of its integration capabilities, your enterprise portal can become the central technology hub of your organization.

This white paper discusses how IBM WebSphere® Portal for Multiplatforms, Version 4.1 leverages IBM WebSphere Application Server with a Java™ 2 Platform, Enterprise Edition (J2EE) Connector Architecture (JCA) adapter to deliver an integration solution that allows you to extend your PeopleSoft infrastructure to create a dynamic workplace. By using WebSphere Application Server as the business-logic layer of the portal, you can increase end user productivity as you gain a quicker return on your investment.

Provide a single, unified user interface to your business

Portals have become part of enterprise structure, incorporating information from the Internet with in-house data. These enterprise information portals (EIP) offer a single, uniform point of access to all your enterprise's data sources – structured data (databases, IBM Lotus Notes®), unstructured data (e-mails, files, archives) and data resulting from specific processes and enterprise applications (such as enterprise resource planning [ERP] and CRM tools).

The portal has evolved into an integrated framework designed to address an ever-increasing number of business needs. What was originally a means to locate content has become a platform that allows you to integrate legacy systems, provide personalized information, create user profiles, centralize security controls and generate statistics. And you can take advantage of open, industry standards to ease integration with different applications.

A portal enables you to build a single, unified user interface with a common look and feel. It provides access to multiple types of information, regardless of where the information resides – whether on a corporate network or the Internet, regardless of the format of the information. A portal can aggregate that information so that it's personalized for each user. Users can also access a portal with a variety of devices, from personal computers to mobile phones.

The IBM portal strategy delivers a single portal platform with the depth and breadth you need to serve your current needs – and those you may have in the future. An IBM portal solution can address your business-to-business (B2B), business-to-consumer (B2C) and business-to-employee (B2E) requirements. It is quickly deployable – and broadly customizable. It can incorporate diverse content and application sources, provide robust collaboration function and deliver a flexible platform that allows you to design, launch and maintain an online workplace for users. The portal can transform your traditional, desktop-centered environment into a more mobile and personalized networked environment. Having this single point of access means employees, customers and your company as a whole can increase communications efficiencies and transaction volume.

You can leverage an enterprise portal to create a common interface for your company. With the IBM Dynamic Workplace solution, IBM has used portal technology to bring together multiple applications, as shown in Figure 1. Employees can access personnel applications, including benefits and expense accounting. They can also view the corporate directory and receive important news about IBM and the marketplace. And the company can communicate important information that impacts IBM on a daily basis.

A dynamic workplace portal solution

By combining a solution including WebSphere Portal and IBM Global Services, you can reap the benefits of a Dynamic Workplace solution without having to start from scratch. Build an enterprise portal solution that combines B2B, B2C and B2E applications with IBM products and solutions to give you a Dynamic Workplace portal. Address traditional portal requirements – and meet new portal demands, like e-learning, pervasive computing, instant messaging and collaboration. With added functionality from the IBM Lotus® technology portfolio, WebSphere Portal can help you make your enterprise a Dynamic Workplace.



Figure 1. w3: The IBM dynamic workplace

The major components of a Dynamic Workplace include:

- *Online HR capabilities*

Online human resources (HR) initiatives improve employee access to information and facilitate electronic processing of common HR functions – such as reimbursement – or change processes. The result? Dramatically increased company responsiveness and employee satisfaction – at a lower cost.

- *E-learning*

Online learning helps a distributed workforce keep skills current while significantly improving productivity, reducing travel and increasing training attendance – all at a reduced cost to your company.

- *Digital collaboration*

By facilitating and technically supporting online meetings and instant messaging, your organization can dramatically reduce travel expenses and drive new ideas by bringing global employees together, regardless of their physical locations.

- *Virtual help desk*

As your company becomes increasingly dependent on technology to improve operations and drive growth, virtual help desks can provide 24 x 7 electronic support for IT issues – reducing support-staff costs and requirements.

- *Self-service travel-expense processing*

You can reduce processing costs and errors by enabling employees to create, submit and reconcile travel expenses online. Web-based processing also provides realtime travel-pattern data, enabling businesses to budget strategically and negotiate special rates with service providers.

- *E-procurement*

E-procurement can drive quality improvements from suppliers of goods and services to reduce overall costs. It can also sharpen competitive advantage and help to secure and enrich supplier relationships.

- *Mobile office*

In today's dynamic workplace, every employee can become a knowledge worker. Multichannel access to reliable, just-in-time data enables an organization's transportation teams, sales force, teleworkers and line-of-business executives to communicate on an as-needed basis – anytime, anywhere.

- *Online expert directory*

Research shows that employees across industries spend from 30 to 60 minutes each day looking for help in solving day-to-day business problems. A directory comprised of experts within your organization enables your company to recapture that time and increase innovation and knowledge sharing by building roles-based communities.

- *Web self-service*

Today's customers expect convenient, realtime, multichannel access to Internet service and information. Providing your organization's workforce with online access to business-critical information and data can facilitate consistent and superior access to the Web by helping to ensure rapid and reliable information sharing, targeted and efficient workflow, and a standardized interface.

PeopleSoft portal architecture overview

As a leading ERP software vendor, PeopleSoft offers a diverse product portfolio to address your human resources management (HRM), financials, SCM and CRM needs. And with PeopleSoft, Version 8, PeopleSoft has moved from a client-server model to an Internet-based, Web-client architecture. In an effort to offer a solution capable of accessing its functions and applications transparently, PeopleSoft provides prebuilt PeopleSoft Enterprise Portal and PeopleSoft Portal Packs for its applications. This application-focused portal solution can help you reduce integration costs by using a single vendor.

As Figure 2 demonstrates, the two primary components of the PeopleSoft Enterprise Portal architecture are the portal servlet and the portal processor. The portal servlet is a Java servlet that executes within the WebSphere Application Server environment. The primary tasks of the portal servlet include content retrieval and page assembly. So you can assemble and present gathered content from several sources in a single HTML document. And prebuilt PeopleSoft proprietary pagelets can access PeopleSoft applications with Portal Packs. These pagelet templates are stored in the portal database, and at runtime the template is constructed into a Web page.

The portal processor executes as an application service of the PeopleSoft Application Server. Portal processor tasks include:

- *Retrieving content templates (portal or PeopleSoft pagelet) from the portal database*
- *Retrieving content references from the portal database*
- *Registering portals and caching them in the PeopleSoft Application Server portal registry*
- *Personalization processing*
- *Interacting with other application services (LDAP, role-based security services)*

In this PeopleSoft portal architecture, the PeopleSoft Application Server executes all business processing. However, you can combine PeopleSoft Application Server and WebSphere Application Server to reap the benefits of the security, load balancing, scalability and back-end integration of WebSphere Application Server, where the PeopleSoft portal servlet is running. This solution may work for you if you want to make the PeopleSoft application the focal point of your enterprise portal and to integrate all your enterprise resources around it. However, if you want to implement

a portal solution that is application-independent, open standards based and best of breed. One that supports a variety of devices and is highly flexible and scalable – enterprisewide. Then you should consider a pure technology-based portal.

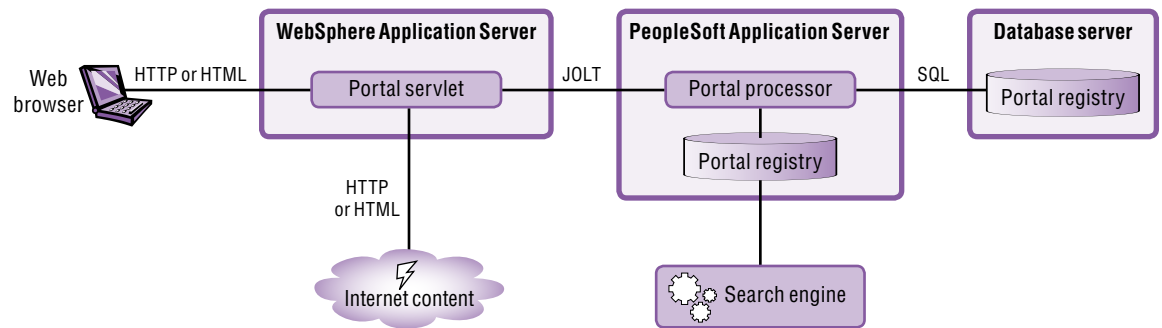


Figure 2. Portal components of a WebSphere software and PeopleSoft Internet architecture

Suppose your corporation would like to build an enterprisewide employee portal using newly implemented PeopleSoft HRM software. This solution should address a single sign-on so that an employee can log in to the portal once and access all relevant customer information. However, let's assume your organization has stored customer data in a CRM application and keeps customer invoices in a mainframe IBM CICS® application. Information that the employee needs to access isn't contained in a single application, but in many different applications across your organization. This presents an integration problem. Having one application as the center of an enterprise portal solution inevitably challenges that application's ability to interact and integrate with the rest of your organization's business-critical applications.

WebSphere Portal: A comprehensive portal solution

WebSphere Portal for Multiplatforms takes full advantage of the proven, award-winning features of WebSphere Application Server to help you develop, build and deploy a portal that can address your particular business needs.

To download portlets, visit **ibm.com/webSphere/portal/portlet/catalog**.

With a WebSphere Portal solution, you can:

- *Build a flexible framework and infrastructure*
WebSphere Portal provides an open and extensible framework on which to build and deploy B2B, B2C and B2E portals.
- *Support multiple data formats and different devices*
WebSphere Portal can serve aggregate content onto different types of devices, including workstations and mobile phones. It includes aggregation components for HTML, for desktop computers and other devices with HTML browsers; Wireless Markup Language (WML), for mobile phones enabled for Wireless Access Protocol (WAP); and Compact HTML (cHTML), for mobile devices that subscribe to the i-mode wireless Internet service.
- *Deliver secure user enrollment, authentication and authorization*
WebSphere Portal provides the user interface and database connections with which to collect and store user information. It includes the security features provided with WebSphere Application Server or IBM WebSphere Everyplace™ to help assure authentication and authorization.
- *Allow users to customize their portal page*
WebSphere Portal provides the customizer tool, a user interface that enables users to edit features of the portal pages that they use.
- *Easily install a variety of portlets*
These mini-applications display on your portal page. WebSphere Portal ships with an improved application programming interface (API) to help you develop and easily install portlets within your portal.
- *Search Web site content*
WebSphere Portal includes Portal Search, an offering that lets users quickly and efficiently search content on Web sites. WebSphere Portal Extend includes IBM Lotus Domino™ Extended Search so you can integrate multiple search engines into the portal.

How WebSphere Portal works

After installing WebSphere Portal, you can develop and deploy a portal to users. You can alter the page layout and appearance of the default portal page by selecting from the themes, or skins, provided. You can also create a page layout that matches your organization's corporate standards.

As Figure 3 demonstrates, depending on the portlets you implement, a portal can provide access to other applications, such as IBM Lotus iNotes™ e-mail software or IBM Lotus Sametime® messaging software. You can also implement portlets that support personalization and search, as required. You can write and register other portlets by using the portlet API provided with WebSphere Portal. Through the portlet API, the portlet can obtain content, access user-specific configuration information, and format and display that information. Some portlets accept content in XML and render it using XML style sheets. Other portlets render content through JavaServer Pages (JSP) technology, which can insert data from JavaBeans components into a markup template.

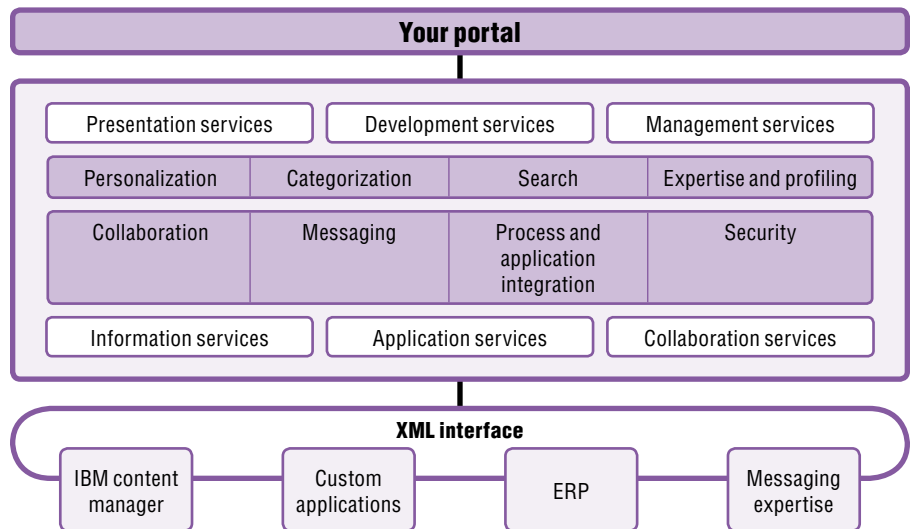


Figure 3. Architecture of IBM WebSphere Portal for Multiplatforms, Version 4.1

After the portal recognizes user data, that user can log on to the portal. If the user attempts a logon, the incoming request passes through an authentication layer that provides controlled access to the portal. If the logon is authenticated, a single sign-on component stores user information for later use by other programs that require authentication. User information is then placed in a data store, such as a Lightweight Direct Access Protocol (LDAP) directory or a relational database. Based on user information, the portal framework retrieves the appropriate customized portal page layout and data from storage. WebSphere Portal processes the layout by generating markup for the portal page and rendering the portlets accessible to the user.

Combining WebSphere Portal with PeopleSoft applications

As a horizontal portal solution, WebSphere Portal addresses most of your needs for building an EIP. WebSphere Portal integrates with your PeopleSoft applications on a variety of different levels:

- *User-interface-level integration (including hyperlinks, Web page portlets [iFrame] and Web clipping portlets)*
- *Application-interface-level integration (JSP and custom tag libraries, and tooling with IBM WebSphere Studio Application Developer Integration Edition)*
- *Framework-based integration (portlets manufactured from a business-object framework)*

User-interface-level integration with WebSphere Portal

Enterprise applications, such as those from SAP, PeopleSoft and Siebel, provide their own graphical user interfaces (GUIs). Depending on the application, the user interface can vary from a native Microsoft® Windows® user interface to a browser-based HTML user interface. Because of the variety and specialization of user interfaces, integration with an end user's larger information context can be difficult.

Methods for user-interface-level integration include:

- *Hyperlink to an ERP application*
An HTML link directly points to an ERP application URL without any modification.
- *Web page portlet (iFrame)*
A Web page portlet that shows an application within the portlet frame (iFrame) in WebSphere Portal.

- *Clipping portlet*

With a clipping portlet, you can directly access PeopleSoft Portal Packs if you've implemented the PeopleSoft Portal Packs for HR. The enhanced clipping portlet allows you to import and export clipped portlet definitions so that you can load portlets created through the Web clipper onto another system. On the WebSphere Portal portlet catalog Web site, IBM provides a set of clipped portlet definitions, which you can download to use with any PeopleSoft HR, Version 8.1 system. You can also use the enhanced clipping portlet to create specific portlets for your environment.

The Web clipping portlet is designed to clip a single page of content, rendering the result within the confines of a portlet container within a portal page. As a result, the Web clipping portlet editor only allows you to clip and render one page of content. A single set of clipping instructions – or annotations – is stored on the portal page, representing the regions clipped from the original page. At runtime, after you've clipped and rendered this initial page in the portlet, the end user can follow any links in the portlet and the results are shown, in their entirety, within the portlet. Annotations built on the initial page presumably will not work on subsequent pages because of layout differences and are not applied.

As you realize the value of the Web clipping portlet as a portal enabler for external content, you also realize the importance of the ability to clip more than just that initial page. You need the ability to clip a series of pages from a site, giving a portlet view of not just a single page, but potentially, a view of your entire site.

As you're building a clipping portlet, you will presumably choose some finite number of pages to clip from a site, or collection of sites, that represent a topic or task to be covered by the clipping portlet. As the end user navigates those pages through the portlet, the content will be displayed appropriately. If the end user navigates beyond this content, the results will not be clipped (because there are no associated annotations) and thus will be shown intact within the clipping portlet.

Application-interface-level integration

Application-interface-level integration allows you to adapt customized user interfaces with portlets. With this integration approach, you can present content in a consistent format to the end user, integrate functions from one or more applications on the same page and offer greater flexibility in tailoring displayed information.

- *JSP tag libraries*

The JSP tag library approach makes it easy for you to build portlets that can access other applications from WebSphere Portal, allowing you to create a new portlet with just a set of JSP files, as shown in Figure 4. However, the drawback to this is that you must be an expert in your back-end system, and you have to know its functions and meta-data to properly understand the JSP tag libraries. With this approach, your only tool is the JSP editor.

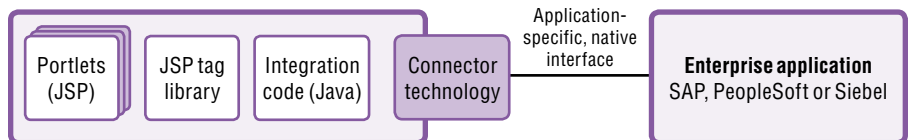


Figure 4. The JSP tag library approach

- *Tooling with WebSphere Studio Application Developer Integration Edition*

This tooling approach lets you take advantage of a standardized resource adapter interface with the JCA standard, which provides a mechanism to store and retrieve data in your enterprise information system (EIS), similar to using Java Database Connectivity (JDBC) technology to access a database. Even though this tooling approach can resolve some integration issues, it can frequently be difficult to use and can only be understood by programmers using JCA technology, Web Services Descriptive Language (WSDL) and Enterprise JavaBeans coding. A variety of file assets adds another level of complexity to deployment. Because JSP wizards work only for a single input-operation-output flow, multiple operations require you to manually link JSP components. And JCA connectors do not exist for all enterprise information systems.

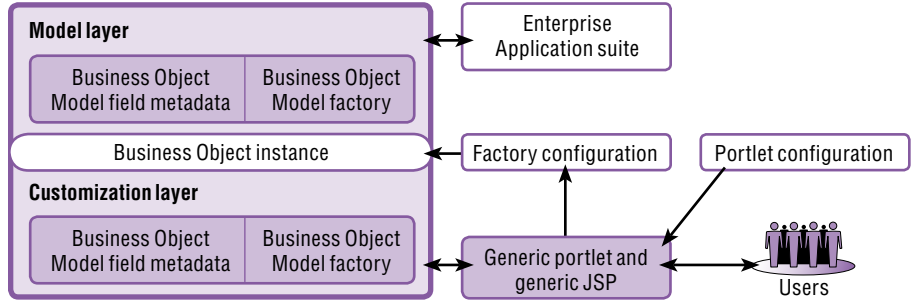


Figure 5. The framework-based integration approach

Framework-based integration

Figure 5 shows how framework-based integration standardizes interaction with back-end systems through task patterns – sequences of steps a user takes to perform a well-defined task when working with structured data. For example, an employee requesting permission for vacation or a manager doing performance reviews for a team is a task pattern. Users develop configurable, generic portlets to implement these task patterns consistently, regardless of the back-end system. The task pattern separates data manipulation from presentation with the model-view-controller (MVC) pattern. A framework containing a generic controller and views allows users to interact with business objects.

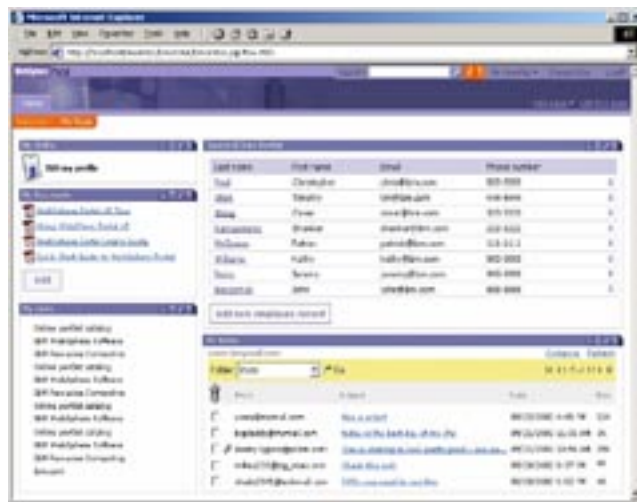


Figure 6. PeopleSoft portlet running on WebSphere Portal

Business-object factories specific to each back-end system handle data and business logic. These concepts are built on common business objects, similar to user-facing models. In this framework, you can view applications as repositories of business objects. The benefits of using this integration approach include rapid portlet development for customers and end users and involves less work, and, in most cases, simple configuration for you (though business-data definitions may be more complicated for some cases). Models underlying the portlets are clearly defined and visible, with type information available for all model elements. This meta-data-driven framework makes upgrades and changes easy.

Summary

A portal is a personalized, single point of access to critical information and services from both internal and external sources. This white paper has discussed how WebSphere Portal can access PeopleSoft applications through portlets. While PeopleSoft can provide portal functionality, with WebSphere Portal, you can gain even more functionality – the dynamic workplace covered in this white paper is just one example of how you can implement a WebSphere Portal solution. To capture all the external sources, your portal must provide an open interface and APIs that can access the underlying content. Ease of integration is the most important feature of your enterprise portal, which can become the central technology hub of your organization. WebSphere Portal leverages WebSphere Application Server with a JCA adapter as the integration solution for PeopleSoft. By using WebSphere Application Server as the business-logic layer of the portal, WebSphere Portal provides the technology you need to access your PeopleSoft ERP and CRM applications using portlets built with a business-object framework. A WebSphere Portal solution can scale effectively and be easily maintained and upgraded. It can deliver the functionality your enterprise needs now and offer greater flexibility for future requirements.

For more information

To learn more about how a WebSphere Portal solution can enhance your PeopleSoft applications, visit ibm.com/websphere.



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Software Group
Route 100
Somers, NY 10589
U.S.A.

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