WebSphere® software

IBM

An introduction to WebSphere Process Server and WebSphere Integration Developer:

For clients using WebSphere MQ Workflow, WebSphere InterChange Server and WebSphere Business Integration Server products.

May 2008

Contents

Introduction

This white paper serves as an introduction to IBM WebSphere® Process Server and its development tool, IBM WebSphere Integration Developer. The paper presents the value of migrating from WebSphere Process Server heritage products, including IBM WebSphere MQ Workflow, IBM WebSphere InterChange Server and IBM WebSphere Business Integration Server editions. It explains the concept of service oriented architecture (SOA) for business process management (BPM) and addresses migration strategies, services and tools.

Overview of BPM enabled by SOA

At the heart of every business is a complicated web of processes that form the foundation for all operations. Because they play such a critical role, these processes must be as efficient as possible to make the business as effective as possible. BPM helps to establish a common platform that can tap into all resources as well as to create, manage and optimize effective business processes that span the entire enterprise. BPM solutions can help organizations maximize their existing people and technology infrastructure by linking existing systems and automating tasks that can free up employees to add value elsewhere within the enterprise.

SOA has become a crucial foundation for BPM, supporting rapid assembly and orchestration of *building-block* process services into larger, end-to-end processes. This is because businesses need to design flexible processes that are based on services that can be modified when changes are needed.

BPM enabled by SOA creates an environment that changes the traditional process for altering an application to reflect changed business rules or processes. It places the controls for change management in the hands of the business process owner rather than on the shoulders of IT. Through intuitive, visual interfaces, effective BPM environments offer business managers ways to change rules and alter processes quickly and cost-effectively, without having to drop down to the coding level.

Process automation: A first step to BPM enabled by SOA
Many processes are based on the collective knowledge of a few key people and are often not formalized or documented. This usually means that they are performed in an inconsistent manner and that the details about who or what was involved in any given instance are lost. There are many ways to improve, automate and optimize a process, but first you must know what is happening today in order to plan for tomorrow.

Process automation is a key component in the building-block approach of BPM enabled by SOA and often serves as a first step. Process automation replaces a *manual* process with an *automatically controlled* alternative. Process automation can speed the rate of business change and increase IT effectiveness. However, to implement process-automation solutions, your organization requires the tools to assemble, deploy and manage processes and related services.

Implementing business process management with WebSphere

IBM delivers a portfolio of WebSphere products that support business process management so that your organization can achieve BPM enabled by SOA. The products support efficient process change and rapid process deployment — the attributes required by an agile, globally integrated enterprise. The comprehensive portfolio includes the following products:

- IBM WebSphere Business Modeler, *a design, drawing and analysis tool that enables business managers to design and simulate processes*
- IBM WebSphere Business Monitor, *a business dashboard that enables you to monitor your business processes and other applications (or services) so that you can make continuous improvements*
- IBM WebSphere Process Server, *a business integration run-time that enables you to create and deploy new business processes and synchronize business information in multiple business applications on diverse platforms*
- IBM WebSphere Integration Developer, *an Eclipse-based tool for building SOA-based BPM and integration solutions across WebSphere Process Server, IBM WebSphere Enterprise Service Bus and WebSphere Adapters.*
- IBM WebSphere Business Services Fabric, *a comprehensive SOA offering that extends the IBM BPM platform to assemble and manage composite business applications*

Other related software products include IBM WebSphere Enterprise Service Bus, IBM WebSphere Portal, IBM WebSphere Service Registry and Repository and IBM Lotus® Forms, and IBM FileNet®.

The WebSphere portfolio delivers BPM capability in building blocks that are aligned to the phases of the BPM life cycle. This approach can help your organization deploy its BPM platform as slowly or as rapidly as needed. You can start with basic projects and progress into more advanced uses, such as processes that include customers and suppliers. By taking this approach, WebSphere software enables you to limit your initial investment and risk while maintaining the flexibility to grow in sophistication.

This white paper focuses on two key products in the portfolio: WebSphere Process Server and WebSphere Integration Developer. Using these two products, your organization can gain the foundation for BPM enabled by SOA.

WebSphere Process Server

Often, as IT assets grow to support business demand, their complexity and manageability also grow. WebSphere Process Server converts existing IT assets into reusable services. It helps to orchestrate, mediate, connect, map and deploy processes, and then standardize, automate, integrate and manage the performance of the processes. This methodology of BPM enabled by SOA is designed to reduce complexity, ease management and improve business agility.

Integrating automated and human tasks

Most processes that are focused on integration require human interaction and human workflow to handle exceptions or make critical decisions. You need seamless integration and interchangeability between automated, IT-level steps and human-facing steps in your business processes. WebSphere Process Server is designed to meet that requirement.

WebSphere Process Server is a high-performance, business-process engine that runs critical business processes securely, consistently and with transactional integrity. It helps orchestrate the assets of a business to form highly optimized and effective processes. This capability can help you meet your business goals by automating manufacturing processes, for example, or efficiently processing insurance claims and financial payments, or running an efficient supply chain. Through the processes it automates, WebSphere Process Server also helps to ensure compliance with the latest industry regulations.

WebSphere Process Server includes all capabilities of WebSphere Enterprise Service Bus, which mediates disparate services and helps maximize reuse of assets wherever they are, regardless of vendor or platform or whether they are built by companies or provided as part of packaged applications. WebSphere Process Server enables maximum reuse of assets through its built-in WebSphere Enterprise Service Bus technology for message-format mediations, transformation and routing.

WebSphere Process Server combines process automation capabilities onto a single, unified server, offering a flexible business-process solution for all process needs. It allows a task to be implemented as a human service or programmatic service. It also allows a document or business object to flow between tasks. WebSphere Process Server is a best-in-class solution for human workflows and worklist management. It also provides for relationship management and event sequencing to synchronize events from disparate systems.

Providing a diversified development environment
In terms of its development environment, WebSphere Process Server allows for a range of user clients, including Microsoft® Windows® Internet Explorer, Java™ Observer, Web-based clients, portal-based applications, IBM Lotus Forms, and client application programming interfaces (APIs) based on Java Platform, Enterprise Edition (JEE) and Web services. It provides business rules for parameterized decision making and modifications, and business object mapping and interface mapping for application service interfaces.

WebSphere Process Server delivers a rich set of integration-centric capabilities from its ancestors. These capabilities include built-in support for transactions (such as two-phase commit), recovery, error handling and capabilities to connect with all major systems and applications through a variety of interfaces that can be based on Web services or Java technology, or use messaging as the transport mechanism.

A set of adapters is available with WebSphere Process Server that connects business processes with other commonly used technologies (flat files, Java Database Connectivity [JDBC], File Transfer Protocol [FTP] and e-mail) or packaged applications (SAP, Siebel, PeopleSoft, JD Edwards and Oracle). WebSphere Process Server also provides WebSphere MQ bindings, enabling processes to access services reliably. WebSphere Process Server has native service bindings for Web services, Java Message Service (JMS), WebSphere MQ, Java, and contains WebSphere adapters, including e-mail, JDBC, flat file, FTP, IBM CICS®, IBM IMS™, SAP, Oracle applications, Siebel, PeopleSoft and JD Edwards. Process solutions are assembled and deployed to WebSphere Process Server using the Eclipse-based companion tool, WebSphere Integration Developer. WebSphere Process Server is available on the widest range of platforms of any process solution on the market, including IBM z/OS® and the IBM i operating system.

Supporting human workflow

In addition, WebSphere Process Server incorporates powerful human workflow capabilities based on the experiences that IBM has gained through WebSphere MQ Workflow, one of the market-leading products in the human workflow space. WebSphere MQ Workflow has reached more than 1200 clients world-wide, with hundreds of thousands of users since the late 1990s. All major human-workflow capabilities of WebSphere MQ Workflow are provided in the business flow manager (BFM or Web Services Business Process Execution Language [WS-BPEL] engine) and the human-task manager (HTM) of WebSphere Process Server and its native support for WebSphere MQ. HTM is the component that handles human-centric BPM in WebSphere Process Server. In a number of important areas — such as the real-time access to various Lightweight Directory Access Protocol (LDAP) organization directories, or the ability to support spontaneous collaboration — HTM goes far beyond the support for human workflow that was provided by WebSphere MQ Workflow.

Table 1 shows heritage capabilities that WebSphere Process Server combines into an integrated platform.

Rich process integration capabilities with a unified platform based on open standards	WebSphere MQ Workflow → Advanced workflow	WebSphere InterChange Server → Application collaboration	WebSphere Business Integration Server Foundation → Composite applications	WebSphere Process Server → Unified platform
Process modeling and simulation	x		x	x
Integrated tooling framework			x	x
Composite applications			x	x
Long-running transactional workflows	x		x	x
Short-running application collaborations		x	x	x
WS-BPEL processes			x	x
Cross-referencing, data synchronization		x		x
Compensation		x	x	x
Event state machines				x
Event and fault handlers				x
Human tasks: for people-centric processes	x			x
Human tasks: for exception handling	x		x	x
User client: process and task control	x		x	x
User client: process instance monitoring	x			x
User client: WebSphere Business Monitor dashboards (add-on)	x			x
User client: business rules administration				x
User client: dynamic service selection				x
Object and data mapping	x	x		x
Message transformations				x
Adapters included		x	x	x

Table 1. WebSphere Process Server delivers a unified platform.

The development platform: WebSphere Integration Developer

WebSphere Integration Developer is a development tool that, with minimal programming skills, provides a way of discovering, creating and cataloging services so that users can create a process by dragging services to a canvas and wiring them together. Starting from the process that needs to be automated, draw the process with the appropriate steps and wire them together. At each step of the process, use a set of tools to discover and create services, and bind them to the process model using powerful mediation and orchestration capabilities.

Users can import business model artifacts from other tools, such as importing from WebSphere Business Modeler into WebSphere Integration Developer to add technical implementation details to the process that will allow it to be deployed to WebSphere Process Server. WebSphere Integration Developer provides the tool necessary to create and assemble a process from existing services or add human interaction to a process, implement business rules, easily integrate other applications or systems, and carry out many other tasks.

The discipline embedded within the tools delivers SOA easily for developers. SOA delivers the ultimate flexibility and reuse for IT and, of course, the business process owner. WebSphere Integration Developer also enables you to define orchestrations between processes, construct mediations between services and truly integrate the capabilities previously locked away in packaged business applications.

Building your BPM solution to ensure interoperability and flexibility is critically important. WebSphere BPM tools provide these important features as part of your SOA through adoption of popular standards, such as Web services, WS-BPEL, XML, JMS and many more. Built on industry standards and SOA principles, IBM WebSphere Integration Developer provides an integrated developer experience. Architects and developers can visually discover, assemble, mediate, orchestrate and integrate reusable services with no or minimal Java coding.

Overview of heritage products

In late 2005, IBM introduced WebSphere Process Server, a single, integrated runtime environment for SOA-based process automation. WebSphere Process Server provides an open standards-based offering that delivers new features and functions while combining the features and functions of several other SOA and BPM products:

- *IBM WebSphere MQ Workflow*
- *IBM WebSphere InterChange Server*
- *IBM WebSphere Business Integration Server*
- *IBM WebSphere Business Integration Server Express*
- *IBM WebSphere Business Integration Server Foundation*

Each of these products brings a set of functions and value to WebSphere Process Server. If you have one or more solutions based on these predecessor products, you should consider WebSphere Process Server to be the next-generation product on your road map. Over time, you might want to migrate your solutions to WebSphere Process Server to take advantage of the new functions that it offers, as well as the many new features and functions that are being developed. WebSphere Process Server also supports integration with the rest of IBM's market-leading SOA infrastructure technologies for BPM.

WebSphere MQ Workflow

WebSphere MQ Workflow is a workflow integration solution that specializes in the transactional automation of long-running business-process workflows that can interact with systems and people, and support high-volume workloads. It fits natively with message queue (MQ)-based infrastructures for SOAs, integrating back-end applications on any platform using XML messages with MQ and JMS interfaces. It offers compatibility with open standards including JEE, XML, Web Service Definition Language (WSDL) and Web services, providing for great flexibility.

It also supports a wide range of user-interface, client platforms, including Web servers, portal-server applications, Microsoft Windows desktops, and API-based client programs (such as C, C++ and Java). WebSphere MQ Workflow has a graphical process-definition tool called Buildtime built in. WebSphere MQ Workflow is also supported with IBM WebSphere Business Integration Modeler and IBM WebSphere Business Integration Monitor for design, analysis, simulation and monitoring of process improvements.

WebSphere InterChange Server
Another product whose capabilities became part of WebSphere Process Server is WebSphere InterChange Server. WebSphere InterChange Server is a business process automation solution that coordinates business process activities that integrate applications on diverse platforms. It enables synchronization of business events from multiple systems. WebSphere InterChange Server helps you transform information formats between applications. WebSphere InterChange Server uses IBM WebSphere Business Integration Toolset, which provides a team-development environment supporting the Eclipse Workbench to manage, design, test and deploy business process solutions for WebSphere InterChange Server. WebSphere InterChange Server is supported with IBM WebSphere Business Integration Adapters and industry-specific, collaboration-process templates. WebSphere InterChange Server includes a Java runtime environment and is supported on multiple platforms, including UNIX® and Microsoft Windows.

WebSphere Business Integration Server
WebSphere Business Integration Server is a predecessor of WebSphere Process Server, because it offers the choice of combining process integration and workflow capabilities with a bundle of products, including these:

- *IBM WebSphere MQ Workflow*
- *IBM WebSphere InterChange Server*
- *IBM WebSphere Business Integration Message Broker*
- *IBM WebSphere Business Integration Toolset*
- *IBM WebSphere Business Integration Adapter Framework*
- *IBM WebSphere Business Integration Data Handler for XML*
- *Connectivity using WebSphere MQ, JMS and Web services*
- *Support for WebSphere Business Integration Adapters*

WebSphere Business Integration Server solutions can combine all of these capabilities to process common data sourced from a common set of applications. It integrates processes, manages the workforce and connects applications within the enterprise.

WebSphere Business Integration Server Express
WebSphere Business Integration Server Express and IBM WebSphere Business Integration Server Express Plus are heritage products, based on WebSphere InterChange Server and WebSphere Business Integration Server adapter technology, that come with Express terms and conditions. Their functions are also included in WebSphere Process Server. The products are designed to help small and medium businesses integrate their applications with a low total cost of ownership (TCO), and enable partners to easily customize and create repeatable solutions.

WebSphere Business Integration Server Foundation
WebSphere Business Integration Server Foundation is a services integration solution that provides a standards-based integration platform for natively building and deploying composite business-process applications. WebSphere Business Integration Server Foundation is based on these technologies:

- *IBM WebSphere Studio Application Developer Integration Edition tooling*
- *Web Services Business Process Execution Language (WS-BPEL)*
- *IBM WebSphere Application Server Network Deployment, Version 5.1*
- *Web Services Interoperability Organization (WS-I) Basic Profile 1.0*
- *IBM Web Services Gateway*

WebSphere Business Integration Server Foundation includes all functions for extending the JEE programming model (such as container-managed beans, business-rule beans) that were previously available with IBM WebSphere Application Server Enterprise, Version 5.0. It includes limited-use licenses for IBM DB2® Universal Database™ Enterprise Edition, IBM Tivoli® Directory Server, IBM WebSphere MQ and IBM WebSphere Business Integration Event Broker. WebSphere Business Integration Server Foundation uses IBM WebSphere Studio Application Developer Integration Edition, based on Eclipse, to build, test and deploy composite applications.

What you should consider about migration to WebSphere Process Server

There are many things you should consider when adopting and transitioning to a new product. These include your migration strategy, migration assessment and planning, migration tools, minimizing risks and developing skills, and current life-cycle considerations. Whenever you need to change or extend your existing solution, you should consider adoption of process server capabilities with the new project, applying a coexistence strategy and establishing a road map for future migration of the remaining parts.

Migration strategies

As appealing as it might be to migrate to WebSphere Process Server, you need to do careful analysis and planning before embarking on this project. You need to understand what you are getting into before starting. Your organization should weigh different options for transitioning. For example, some organizations might find that they need to bridge foundational technology changes in order to keep operations running smoothly. Others might find that they are best served by leveraging service organizations to bridge incompatibilities and apply best practices so that they do not burden their own organization. Others have found that migrating in stages, with step-by-step transitions, works best for their organizations. Another successful option has been to consider parallel operations. The migration strategies that will work best depend on your organization and its unique culture and operating environment.

Migration assessment and planning

In parallel to acquiring skills on WebSphere Process Server and WebSphere Integration Developer, it's important to start planning your transition. IBM Software Services for WebSphere offers migration assessment workshops to assist in sizing and planning. These workshops can be very helpful by lending our skills and knowledge to you. Regardless of whether you engage these services for a workshop, your planning should typically start with an inventory of the existing solutions. You should consider the complexity of the current setup and assess the duration and complexity of current processes. This should be followed by workload planning.

When planning and assessing your migration strategy, there are other important considerations. You should think about converting source artifacts, such as process model definitions, maps, adapters and human-task clients, and consider whether these need to be migrated. Another consideration is application integration and reuse. Also important in the planning is thinking about the migration of user client applications and how migration will affect users in general. Other important migration considerations include:

- *Deployment configurations*
- *Process-instance drain out*
- *Education for the business-user community*
- *Best practices*
- *Aids to ease migration efforts*
- *Coexistence strategies, incremental steps*

We know that migration planning is important and have developed several IBM Redbooks® publications with details about many of these topics to help you make sure that your projects are a success. For details, see the section "For more information" at the end of this paper.

Another part of your migration planning should include identifying the business objective and value of your modified solution. WebSphere Process Server is the process engine for BPM and SOA and can provide you with business value by helping you move toward an enhanced BPM and SOA environment. You can plan to enhance your current business process solutions with new capabilities you could not deliver before, creating new value-added advantages to your business. You can optimize your business processes by taking advantage of the BPM portfolio and the integration of portfolio value-add capabilities, such as WebSphere Business Services Fabric, WebSphere Services Registry and Repository, WebSphere Business Modeler and WebSphere Business Monitor.

Migration tools

To help you with your migration, WebSphere Integration Developer provides migration tools to help with the conversion of source artifacts from WebSphere Business Integration heritage products to WebSphere Process Server, including these:

- *WebSphere Business Integration Server Foundation migration wizard*
- *WebSphere InterChange Server migration wizard*
- *WebSphere MQ Workflow migration wizard*

The output of the migration wizards supports WS-BPEL and WebSphere Process Server service components (such as human tasks, business object maps and relationships) and connectivity using standardized Service Component Architecture (SCA) service invocations for reuse, flexibility and agility. The output can be improved to adopt WebSphere Process Server best practices and take advantage of value-add capabilities to optimize your business process solutions.

Minimizing risk by developing skills with new products

It is important for your organization to build skills with WebSphere Process Server before embarking on the migration of your solutions based on heritage products. Having the skills in WebSphere Process Server and WebSphere Integration Server in place can help reduce the risk for future migrations. By learning about the new products before embarking on a project that makes use of them, you can gain the exposure to the new tools and runtime environments. We strongly recommend that migration not be the first project. In fact, we believe so strongly in this that to help ensure success with learning to use WebSphere Process Server and WebSphere Integration Developer, we are extending special offers that combine software licenses with services and education. We want you to learn about WebSphere Process Server and WebSphere Integration Developer and work with these products in your organization before you focus on the migration of your solutions.

Current product life-cycle considerations

With the advent of WebSphere Process Server, there are life-cycle considerations that you should take into account as a user of heritage products. IBM is continuing to support the heritage products in order to support migration over time. Therefore, the latest releases of WebSphere Business Integration heritage products will remain in support until at least 2010. These include:

- *WebSphere Business Integration Server Foundation, Version 5.1*
- *WebSphere Business Integration Server Express, Version 4.4*
- *WebSphere Business Integration Server, Version 4.3*
- *WebSphere Interchange Server, Version 4.3*
- *WebSphere MQ Workflow, Version 3.6*

End-of-support dates have not yet been set. IBM will announce those dates one year in advance.

The standard level of support and service for online resources, technical support, documentation and defect support will continue to be available.

Earlier releases of WebSphere Business Integration heritage products have already reached end of service, and these have been announced. These products are no longer supported:

- *WebSphere Business Integration Server, Version 4.2.2*
- *WebSphere Business Integration Server Express, and WebSphere Business Integration Server Express Plus, Version 4.3*
- *WebSphere InterChange Server, Version 4.2.2*
- *WebSphere MQ Workflow, Version 3.5*

If you are using one of these products, you should consider upgrading to the latest follow-on release for continued support and as the base for future migrations to WebSphere Process Server and WebSphere Integration Developer. This is critical, because no new functional enhancements are planned.

Conclusion and next steps

IBM Software Services for WebSphere offers a variety of services to assist in the migration of your solutions from heritage products to WebSphere Process Server. The best place to start for migration is with a workshop, where you can spend a concentrated effort planning your migration strategy. IBM Software Services for WebSphere offers migration assessment workshops to assist with migrations to WebSphere Process Server. The workshops are offered for WebSphere InterChange Server, WebSphere Business Integration Server Foundation and WebSphere MQ Workflow.

Perhaps one of the most important parts of your migration plan is for your organization to build skills and experience with WebSphere Process Server before embarking on the task of migrating your solution based on a heritage product.

To maintain all the advantages of your current solutions, WebSphere Integration Developer and WebSphere Process Server are the best place to start for future migration. WebSphere Process Server inherits its rich set of functions from heritage products and builds on them with further enhancements. These functions help make WebSphere Process Server the best option for adopting BPM enabled by SOA. By migrating to WebSphere Process Server, you can set a foundation for integrating future solutions into the BPM portfolio. Adopting BPM enabled by SOA can provide the best business value for your organization in the long run.

For more information

There are numerous resources available if you are considering migration to WebSphere Process Server.

End-of-service information
ibm.com/software/websphere/support/lifecycle/

Extended entitlement information
ibm.com/software/integration/wps/library/entitlement.html

IBM Education Assistant
publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp?topic=/com.ibm.iea.wpi_v6/wpi6_coverpage.html

WebSphere Integration Developer demo
www.soaflexibility.com/WID1

WebSphere BPM Information Center
publib.boulder.ibm.com/infocenter/dmndhelp/v6rxmx/index.jsp

WebSphere Process Server Training Courses
ibm.com/www-304.ibm.com/jct03001c/services/learning/ites.wss/us/en?pageType=page&c=a0000048

WebSphere Process Server QuickStart service
www3.software.ibm.com/ibmdl/pub/software/dw/wes/pdf/services/QuickStartforWebSphereProcessServer083005.pdf

IBM International Technical Support Organization (ITSO) Redbooks publications for transition planning will be published for the following topics:

- *WebSphere Business Integration Server Foundation*
- *WebSphere InterChange Server*
- *WebSphere MQ Workflow*

They will be available at:
www.redbooks.ibm.com/

WebSphere Process Server
ibm.com/software/integration/wps/

WebSphere MQ Workflow
ibm.com/software/integration/wmqwf/

WebSphere Business Integration Server
ibm.com/software/integration/wbiserver

WebSphere Integration Developer
ibm.com/software/integration/wid/

WebSphere Business Integration Server Foundation
ibm.com/software/integration/wbisf

WebSphere Business Integration Server Express
ibm.com/software/integration/wbiserverexpress/

WebSphere BPM enabled by SOA
ibm.com/software/info1/websphere/index.jsp?tab=products/businessint

IBM®