

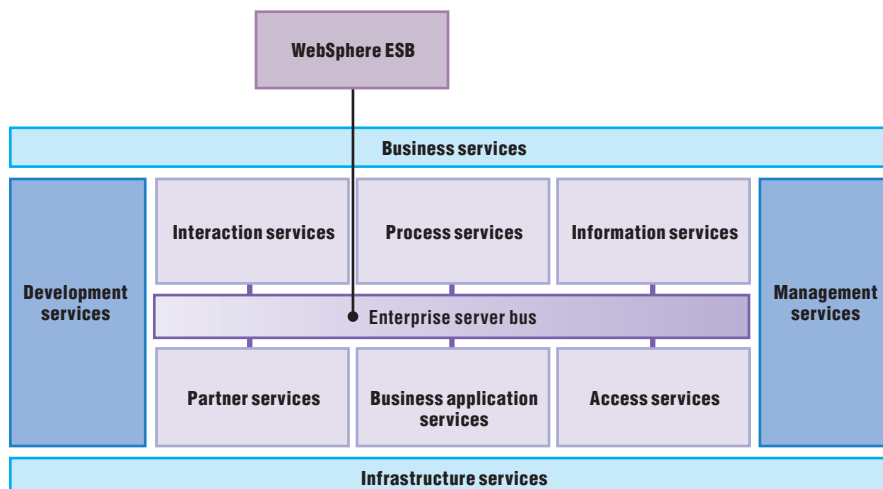
## IBM WebSphere Enterprise Service Bus, Version 6.1

### Highlights

- **Integrates seamlessly with the WebSphere platform**
- **Provides an integrated solution for both service mediation and service hosting**
- **Delivers leadership in SOA standards for service composition, and leverages the embedded messaging and Web services of IBM WebSphere Application Server**
- **Integrates applications with IBM WebSphere Adapters**
- **Optimized for standard XML and Web-services formats, with new support for third-party Java Message Service (JMS) 1.1 System Authorization Facility (SAF)-compliant providers and generic HTTP**
- **Rapid time to value with broad set of configurable mediation functions and transport protocols**
- **Easy to use, with an integrated and visual development environment that requires minimal programming skills**

Most companies have an IT infrastructure that is the result of years of adding and subtracting components to meet changing business needs—and it's no longer effective. Each business unit maintains its own data about its products and services. Employees have to reenter information as it moves from department to department—potentially creating delays and errors. Each time you have to make changes, the time and expense to develop and maintain the custom links between applications increase.

You recognize the need to connect applications using reliable delivery mechanisms, and to help ensure that the data being exchanged is delivered in the right format to the right application at the right time. Combining all of your IT resources can help maximize operating efficiencies and provide consistent, accurate information to your customers, trading partners and suppliers. Through an effective enterprise service bus (ESB), you can integrate your assets more easily—and potentially get more for your money from the applications you're currently running.



## The heart of your SOA

IBM WebSphere® Enterprise Service Bus (WebSphere ESB) is a flexible connectivity infrastructure designed to help you integrate applications and services as part of your service oriented architecture (SOA). WebSphere ESB can power an SOA by reducing the number and complexity of interfaces, so that you can focus on your core business, rather than on your IT.

WebSphere ESB allows a company to maximize flexibility in an integrated manner by:

- *Routing messages between services*
- *Converting transport protocols between requester and service*
- *Transforming message formats between requester and service*
- *Handling business events from disparate sources*
- *Improving time to value through seamless integration with the interactive and visual development environment provided by IBM WebSphere Integration Developer, which helps reduce the need for programming skills*

## Advanced connectivity for SOA endpoints

WebSphere ESB supports advanced interactions between service endpoints on three levels: standards-based connectivity, spectrum-of-interaction models, and quality-of-interaction service and mediation capabilities.

## New in this release

WebSphere ESB, Version 6.1 includes new functions designed to enable you to integrate with many applications:

- *Fan-out, fan-in and inline-service invocation capability to support splitting and aggregation patterns*
- *Service-retry capability for improved quality of service*
- *Business object mapper for enhanced transformation of service message objects in mediations, including relationship transforms*
- *Integration of IBM WebSphere Transformation Extender to deliver universal transformation for complex data formats and industry standards*
- *Support for generic HTTP interactions with modern RESTful service clients (Ajax) and heritage Web services*
- *WS-Notification support for publish-and-subscribe Web services*
- *Enhanced integration for third-party JMS providers*
- *An operating environment based on WebSphere Application Server, Version 6.1, including Java™ Development Kit (JDK) 5 and performance improvements*
- *Added support for platforms, including expanded 64-bit exploitation, IBM z/OS®, IBM i5/OS®, Microsoft® Windows® Vista (non-production)*
- *Enhanced support for WebSphere Application Server Extended Deployment, including support for remote IBM DB2® on z/OS*

- *Simpler and faster server installation and cluster configuration*
- *Expanded support for Web Services Description Language (WSDL)-XML Schema Definition (XSD) for improved interoperability across a broader range of industry-standard schema*
- *Improved handling of adapter faults for functional exceptions*

## Standards-based connectivity

WebSphere ESB enables you to connect interaction endpoints using a variety of interaction protocols and application programming interfaces (APIs). It supports interactions using JMS, Version 1.1, as well as SOAP over HTTP Secure (HTTPS) and SOAP over JMS. WebSphere ESB also interoperates with other products from the WebSphere software portfolio, and can use IBM WebSphere Adapter solutions to capture and disseminate business events. The message clients for C/C++ and for Microsoft .NET enable applications not based on Java to connect to the ESB. You can use these features to perform basic protocol transcoding between interaction endpoints where the protocol used by requesters to dispatch their requests (for example, SOAP over HTTP)

is different from that of the service providers that are to handle those requests (for example, SOAP over JMS). WebSphere ESB, Version 6.1 expands integration with a broader set of applications and services with reduced development effort, including publish/subscribe Web services, RESTful clients (Ajax), heritage Web services, and third-party messaging systems. Integration with WebSphere Transformation Extender delivers universal transformation for complex data formats and industry standards.

#### *Spectrum-of-interaction models*

WebSphere ESB supports a range of interaction models including request-reply, point-to-point and publish-subscribe interactions. It also supports Web-services standards such as WS-Security and WS-Atomic Transactions, and includes a Universal Description, Discovery and Integration (UDDI), Version 3.0 service registry that you can use to publish and manage service-endpoint metadata. WebSphere ESB can query IBM WebSphere Service Registry and Repository for service-endpoint information stored in the registry and repository without development and deployment.

#### *Mediation services*

WebSphere ESB supports mediation of interactions between endpoints beyond protocol transcoding; it allows integration logic to be processed in the ESB instead of in the interacting endpoints. This capability includes support for content- and context-based routing of messages that are exchanged using the ESB, as well as other operations on those messages, such as logging or transformation. Prebuilt mediation functions enable you to visually compose mediations using WebSphere Integration Developer. These functions also include message transformation, message logging, message routing and database lookup.

#### **Take advantage of seamless integration with the WebSphere platform**

To help maximize the capabilities of your ESB, WebSphere ESB software integrates seamlessly with products throughout the WebSphere software stack, enabling you to move up the stack to solve more-complex business problems. Because WebSphere ESB is built on the market-leading WebSphere Application Server product, it inherits WebSphere Application Server quality-of-service, workload-balancing, clustering, failover, systems-management, high-availability, security and scalability features. With this release, WebSphere ESB supports the WebSphere Application Server, Version 6.1 platform, enabling all the features associated with Version 6.1.

WebSphere ESB also offers a service-hosting and services-mediation environment in one package, enabling it to provide more-robust manageability, availability and simplicity compared with competing ESB offerings.

Integration with WebSphere Application Server also enables integration with IBM Tivoli® security, directory and systems-management offerings.

- *IBM Tivoli Access Manager (for optional use to deliver security-rich, unified and personalized capabilities that can help manage growth and complexity)*
- *IBM Tivoli Directory (for optional use as a Lightweight Directory Access Protocol [LDAP] server)*
- *IBM Tivoli Composite Application Manager for SOA (for added monitoring and management capabilities)*

Integration between Tivoli Composite Application Manager for SOA and IBM WebSphere Service Registry and Repository gives WebSphere ESB enhanced service interactions by enabling dynamic selection of service endpoints.

You can use WebSphere ESB in combination with an existing IBM WebSphere MQ messaging installation to integrate new environments in an open-standards-based manner. WebSphere ESB has native WebSphere MQ binding support, which enables you to integrate WebSphere MQ assets easier and faster. And along with JMS implementation in WebSphere Application Server, WebSphere ESB includes WebSphere MQ JMS support to broaden connectivity reach. Also by leveraging WebSphere MQ, WebSphere ESB interoperates with IBM WebSphere Message Broker to support distributed ESB topologies.

### **Compatibility with System i**

The IBM System i™ operating system, i5/OS, is optimized for high I/O processing and is ideal for distributed platforms. WebSphere ESB, Version 6.1 enables support for i5/OS, leveraging the functions and features to offer reliability and optimal performance. In addition, you can take advantage of IBM DB2 on i5/OS. DB2 for i5/OS has a premier position in the global database arena, delivering superior scalability, vendor support, price-performance and unmatched usability, giving your developers and integrators the advantage of robust database solutions that perform, adapt and respond to your SOA initiatives.

### **Usability and consumability**

As a cost-effective solution for services integration, WebSphere ESB enables you to easily use your SOA IT investments by quickly building a flexible integration infrastructure that can extend the value of your existing investments, regardless of vendor. The product's extensive business and IT standards support greater interoperability and portability, enabling you to take advantage of the first-class support available for hundreds of independent software vendor (ISV) solutions. It also provides extensive support for WebSphere Adapter solutions, including Java 2 Platform, Enterprise Edition (J2EE) Connector architecture (JCA) technology-based adapters.

You can also dynamically reconfigure interactions managed by WebSphere ESB to meet changing business-processing loads. This is accomplished by modifying interconnections and message-flow interaction logic in WebSphere Integration Developer or to some degree in the WebSphere ESB administration console. You can also dynamically add or replace interaction endpoints without affecting the rest of the ESB-based applications. Advanced configuration features for administration enable you to modify the definition of a service endpoint as your business requirements change, or dynamically change the behavior of a running mediation without redevelopment and redeployment.

This release includes a new wizard preset patterns and templates that improve productivity for administrators in configuring network deployment (ND) clusters and all required resources for your WebSphere ESB server environment. In addition, expanded support for WSDL/XML XSD for improved interoperability provides a broader range of industry-standard schema.

With the new profile-management tool, you can develop a profile that can easily extend to all WebSphere products. Installation is also easier in Version 6.1 with the ability to plug into an existing WebSphere Application Server, Version 6.1 installation. In addition, customized installation can be performed by adding files, or removing features that you do not require.

### **Robust development capabilities with minimal programming skills**

WebSphere ESB delivers an ESB that can connect applications with standards-based interfaces to power your SOA. WebSphere Integration Developer, the WebSphere ESB development tool, provides integrated, interactive and visual-development capabilities that automate most of the tasks to model, test, configure and deploy ESB-based applications.

Get up and running quickly with comprehensive documentation, easy-to-understand samples and a compelling experience right from the start. Develop integration applications quickly and easily with capabilities that simplify the task of declaring interaction endpoints, and that provide graphical modeling tools (from WebSphere Integration Developer) that you can use to describe the envisioned interconnections between service requesters and providers, as well as the message flows between them. Assemble mediation flows from a set of predefined mediation templates that are configured to perform the required message routing, enrichment and transformation operations. Unit-test mediated interactions in the WebSphere Integration Developer environment before deploying them in the WebSphere ESB runtime environment. WebSphere Integration Developer manages changes across development artifacts, which helps reduce the complexity that can result from trying to resolve errors and dependencies.

### **Help save time and development costs by using prebuilt mediation functions**

Mediations operate on messages or events as they are passed between service requesters and service providers, for both one-way and request-response interactions. WebSphere ESB provides prebuilt mediation primitives that you can use right away.

Developers using WebSphere Integration Developer can compose these functions into a mediation flow to create a mediation layer. You can visually compose mediations, such as XML transformation, message logging, message routing and database lookup. Customized mediations can also be developed as service component architecture (SCA) components, and a Java system programming interface (SPI) is also provided for more-advanced programmers, enabling them to create highly customized mediation primitives.

New SCA bindings in this release include:

- *Support for HTTP 1.0 and 1.1 applications and services*
- *Support for third-party JMS 1.1 ASF-compliant providers*
- *Support for data bindings tooled for WebSphere Transformation Extender*
- *Support for sample data bindings*

This release includes the following new mediations:

- *The Business Object Map primitive embeds a map inside a mediation flow for enhanced transformation of service message objects in mediations, including relationship transforms.*
- *The ServiceInvoke primitive invokes a target service with a request or response flow, including built-in retry capability, improving quality of service.*

- *Splitting and Aggregation primitives enable splitting of incoming messages, invoking multiple messages and combining the results.*
- *A custom mediation runs Java code in a mediation flow.*
- *A refinement mediation provides the ability to assert concrete types for message elements.*

### **A robust ESB solution**

WebSphere ESB provides an easy-to-use, robust ESB that can reliably deliver information to the right place, in the right format, at the right time. You can connect and extend new and existing systems by simplifying your SOA integration deployment using open-standards-based connectivity between applications and heterogeneous systems. Improve time to value with an easy-to-learn, cost-effective solution that is simple to install, configure, build and manage. And gain business flexibility by taking advantage of a responsive connectivity infrastructure that can adapt to business change quickly and easily.

### **For more information**

To learn more about IBM WebSphere Enterprise Service Bus, Version 6.1, contact your IBM representative or IBM Business Partner, or visit:

[ibm.com/software/integration/wsesb](http://ibm.com/software/integration/wsesb)

To join the Global WebSphere Community, visit:

[www.websphere.org](http://www.websphere.org)

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## IBM WebSphere Enterprise Service Bus, Version 6.1 at a glance

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### Hardware requirements

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- Any vendor hardware explicitly compatible with and fully capable of running the specified operating system, the corresponding supporting software and the associated applications, unmodified. Responsibility to provide a statement of full compatibility between machines lies with the original equipment provider.
  - Server requirements (one of the following)
    - IBM System p™ or IBM RS/6000® server
    - IBM System i server (support for logical partitioning)
    - IBM System z™ server
    - IBM System x™ and Intel® technology-based server (or equivalent)
    - Hewlett-Packard HP-9000 server (PA-RISC or Itanium®)
    - Sun SPARC server
    - x86-64
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### Software requirements

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For OS

- Operating environments
    - z/OS, Version 7 or later
    - i5/OS VR5R3, VR5R4
  - Supported databases (one of the following)
    - IBM Cloudscape 10.1
    - IBM DB2 for iSeries®, V5.3 or V5.4
    - IBM DB2 for z/OS, V7 or V8
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For AIX

- Operating environments
    - IBM AIX® 5L™, Version 5.2
    - AIX 5L, Version 5.3
  - Supported databases (one of the following)
    - IBM Cloudscape™, Version 10.1
    - IBM DB2 Universal Database™ Enterprise Server, Version 8.2 with FP 6
    - IBM DB2 Workgroup Server Edition, Version 8.2 with FP 6
    - IBM WebSphere Information Integrator, or Version 8.2 with FP 6
    - IBM Informix® Dynamic Server, Version 9.4 C8, or Version 10.00 C5
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
    - Microsoft SQL Server Enterprise 2000 with Service Pack (SP) 4For HP-UX
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For HP-UX

- Operating environments (one of the following)
    - HP-UX 11, Version 2
    - HP-UX 11, Version 3
  - Supported databases (one of the following)
    - Cloudscape, Version 10.1
    - DB2 Universal Database Enterprise Server, Version 8.2 with FP 6
    - DB2 Workgroup Server Edition, Version 8.2 with FP 6
    - WebSphere Information Integrator, Version 8.2 with FP 6
    - Informix Dynamic Server, Version 9.4
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
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## IBM WebSphere Enterprise Service Bus, Version 6.1 at a glance (continued)

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### Software requirements (continued)

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For Linux® on System i and Linux on System p

- Operating environments (one of the following)
    - Red Hat Enterprise Linux (RHEL) AS, Version 4.0 with Update 3
    - SUSE Linux Enterprise Server (SLES), Version 9.0 with SP3
    - SLES, Version 10.0
  - Supported databases (one of the following)
    - Cloudscape, Version 10.1
    - DB2 Universal Database Enterprise Server, Version 8.2 with FP 6
    - DB2 Workgroup Server Edition, Version 8.2 with FP 6
    - WebSphere Information Integrator, Version 8.2 with FP 6
    - Informix Dynamic Server, Version 9.4
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
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For Linux on System z

- Operating environments (one of the following)
    - RHEL AS, Version 4.0 with Update 3
    - RHEL, Version 5.0 Advanced Platform
    - SLES, Version 9.0 with SP3
    - SLES, Version 10.0
  - Supported databases (one of the following)
    - Cloudscape, Version 10.1
    - DB2 Universal Database Enterprise Server, Version 8.2 with FP 6
    - DB2 Workgroup Server Edition, Version 8.2 with FP 6
    - WebSphere Information Integrator, Version 8.2 with FP 6
    - Informix Dynamic Server, Version 9.4
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
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For Linux on Intel

- Operating environments (one of the following)
    - RHEL AS, Version 4.0 with Update 4
    - RHEL ES, Version 4.0 with Update 4
    - RHEL WS, Version 4.0 with Update 4
    - RHEL 5.0 Advanced Platform
    - RHEL, Version 5.0
    - RHEL, Version 5.0 Desktop (Supported only for application design, development and testing. It is not supported for production.)
    - Red Flag Data Center 5.0
    - SLES, Version 9.0 with SP3
    - SLES, Version 10.0
    - Red Flag Advanced Server, Version 5.0
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## IBM WebSphere Enterprise Service Bus, Version 6.1 at a glance (continued)

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### Software requirements (continued)

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- Supported databases (one of the following)
    - Cloudscape, Version 10.1
    - DB2 Universal Database Enterprise Server, Version 8.2 with FP 6
    - DB2 Workgroup Server Edition, 8.2 with FP 6
    - WebSphere Information Integrator, Version 8.2 with FP 6
    - Informix Dynamic Server, Version 9.4
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
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#### For Sun Solaris Operating Environment

- Operating environments (one of the following)
    - Sun Solaris, Version 9 (SPARC) with Patch Cluster
    - Sun Solaris, Version 10 (SPARC and Opteron x84-64)
  - Supported databases (one of the following)
    - Cloudscape, Version 10.1
    - DB2 Universal Database Enterprise Server, Version 8.2 with FP 6
    - DB2 Workgroup Server Edition, Version 8.2 with FP 6
    - WebSphere Information Integrator, Version 8.2 with FP 6
    - Informix Dynamic Server, Version 9.4
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
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#### For Windows 2003, Windows XP Professional and Windows Vista

- Operating environments (one of the following)
  - Windows 2003 Server Datacenter, Standard and Enterprise Edition
  - Windows XP Professional
  - Windows Vista

**Note:** Windows XP and Windows Vista are supported for application design, development and testing only; no support is provided for production use.

- Supported databases (one of the following)
    - Cloudscape, Version 10.1
    - DB2 Universal Database Enterprise Server, Version 8.2 with FP 6
    - DB2 Workgroup Server Edition, Version 8.2 with FP 6
    - WebSphere Information Integrator, Version 8.2 with FP 6
    - Informix Dynamic Server, Version 9.4
    - Oracle 9i Standard or Enterprise Edition Release 2—9.2.0.7
    - Oracle 10g Standard or Enterprise Edition Release 1—10.1.0.4, Release 2—10.2.0.2
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For the latest hardware and software requirements for WebSphere Enterprise Service Bus, Version 6.1, visit:

[ibm.com/software/integration/wsesb/sysreqs](http://ibm.com/software/integration/wsesb/sysreqs)



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