WebSphere® Message Broker Version 6.1

Release themes

This presentation will give a high-level view of the key new functions in WebSphere Message Broker Version 6.1.

IBM Software Group

Agenda

- WebSphere Message Broker overview
- Release themes and feature summary

Release themes

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This session will first provide a high-level overview and summary of the WebSphere Message Broker product.

It will then discuss WebSphere Message Broker Version 6.1 in more detail, and look at the new themes addressed in this release.

WebSphere Message Broker (1)

- Universal connectivity
  - ▶ Simplify application connectivity to provide a flexible and dynamic infrastructure

- Routes and transforms messages FROM anywhere, TO anywhere
  - ▶ Supports a wide range of protocols
    - MQ, JMS 1.1, HTTP/s, Web services, file, user-defined
  - ▶ Supports a broad range of data formats
    - Binary (C/COBOL), XML, industry (SWIFT, EDI, HIPAA…), user-defined
  - ▶ Interactions and operations
    - Route, filter, transform, enrich, monitor, distribute, decompose, correlate…

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The next two slides summarize the principal characteristics of WebSphere Message Broker.

First, Message Broker provides connectivity to many diverse environments. Not only does Message Broker provide connectivity to the MQ transport, but also to a range of alternative transport protocols, including HTTP and JMS. This enables the Broker to act as an intermediary between many diverse systems.

Second, Message Broker provides many functions which allow the data from those systems to be interpreted and acted on. In addition to MQ and HTTP, Message Broker can connect using a standard Web services interface, a traditional file interface, or a unique user-defined interface. With all of these, there will be many diverse data formats. These will be custom interfaces, typically defined using a COBOL Copybook or C Header file, or an industry-standard interface, such as SWIFT in the finance industry or HIPAA or HL7 in the Health industry.

And each of these data formats need to be acted on a defined way. They can be routed or transformed or changed in a variety of manners as they pass through the Broker.
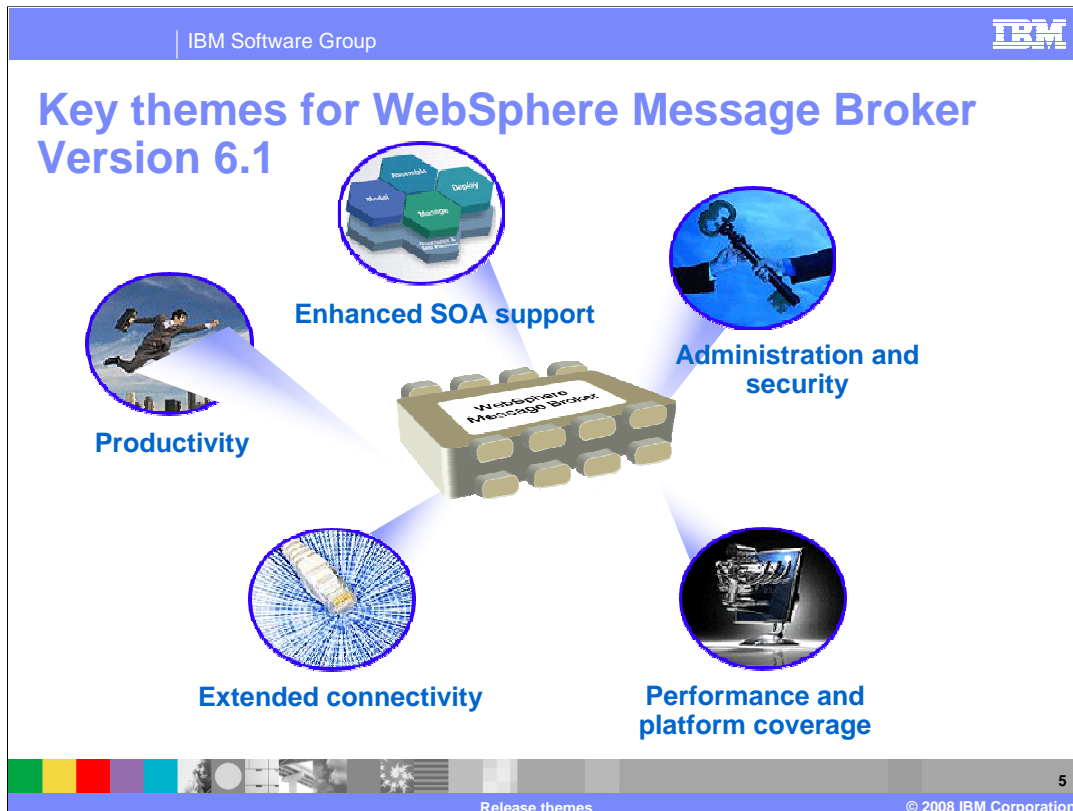
WebSphere Message Broker (2)

- Simple programming
  - ▶ Message Flows to describe application connectivity comprising…
  - ▶ Message Nodes which encapsulate required integration logic which operate on…
  - ▶ A Message Tree which describes the data in a format independent manner
  - ▶ Transformation options include graphical mapping, Java™, ESQL, XSL and WTX
- Operational management and performance
  - ▶ Extensive administration and systems management facilities for developed solutions
  - ▶ Wide range of operating system and hardware platforms supported
  - ▶ Offers performance of traditional transaction processing environments

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Message Broker provides several functions which allow the incoming data to be acted upon. First, a Message Flow describes the primary actions that are required to process the data. A Message Flow is analogous to an application in a traditional programming environment. It has a strong visual representation, and uses a set of Messages Nodes to define the processing for each request. These Message Nodes are selected from a standard set of supplied nodes. They include such functions as "MQ Input" to receive an MQ message, a Compute Node to perform processing logic, and Database Node to perform database access.

Many of the Message Nodes need access to the incoming data, and this is achieved by accessing a Message Tree. The Tree is a representation of the incoming data, after it has been parsed into its constituent components. Data manipulation can be achieved in several ways, including standard Java programming, extended SQL, with XML Style sheet processing, or with the WebSphere Transformation Extender toolset.

Finally, Message Broker provides a comprehensive set of operational management and administration tools. A wide variety of platforms are supported, giving a wide range of performance characteristics.

Key themes for WebSphere Message Broker Version 6.1

Enhanced SOA support

Administration and security

Productivity

Extended connectivity

Performance and platform coverage

This slide shows the key themes that have been addressed in Message Broker Version 6.1.

The first area is productivity. This covers items that are intended to focus on the tools used by developers. The focus is to provide tools that are easier to use, and to enable applications to be developed, tested and deployed more quickly. At the same time, these developers tools need to perform better, and use fewer resources.

The second area is that of Service Oriented Architecture. The increasing focus on application connectivity, using a standards-based approach, means that support of a Service Oriented Architecture is important. This release of Message Broker introduces many new features in the area of Web services, and the inclusion of new adapters using a standard JCA interface.

Next comes the area of Connectivity. In support of the Enterprise Service Bus, this new release introduces new facilities to enable connectivity to new protocols and new application environments. Connectivity to Files is introduced for the first time, using a set of built-in File Nodes. Direct connectivity to key application environments such as SAP, Siebel and PeopleSoft is provided, through the use of the new WebSphere Adapters, based on a JCA mechanism.

WebSphere Message Broker has always provided a high-performance environment, and Version 6.1 continues with this key requirement. Performance improvements are introduced in the area of XML parsing, through the use of advanced parsing technology. The platform coverage of Message Broker continues to grow, and this release sees the introduction of 64-bit platforms using Linux. Version 6.1 moves to a default 64-bit architecture on most UNIX platforms.

Finally, administration and management continues to be a key focus area. New facilities to manage security are introduced, taking advantage of security credentials held within an LDAP security repository. These facilities help to make the Message Broker environment even more secure, and are extended again for Web services, with the implementation of the WS-Security standard.

Version 6.1 feature overview (1)

- Productivity
  - ▸ Reducing the time to get started with Message Broker
  - ▸ Simplifying development tasks including debug; reducing the time to create working solutions
- Enhanced SOA support
  - ▸ Supporting Web services with WS-Security and WS-Addressing
  - ▸ DataPower SOA appliance for WS-Security
  - ▸ Integration and enhancement of WebSphere Service Registry and Repository
- Extended connectivity
  - ▸ Built-in nodes for EIS access: SAP, Siebel and PeopleSoft
  - ▸ Native support for very large file processing using file and FTP Nodes
  - ▸ New SMTP (e-mail) node
  - ▸ WebSphere Transformation Extender integration

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The next two slides summarize the new functions in Message Broker 6.1.

First, in the area of application development, new function is provided to enable better productivity. These include new wizards to create message flows and message sets, and improved capability in the area of testing and debugging.

In the area of support for Service Oriented Architecture, this release introduces new standard nodes for Web services, known as SOAP nodes. Support is also provided for the key Web services standards of WS-Security and WS-Addressing. In the area of security with Web services, the WS-Security capability is also extended by using the DataPower hardware appliance, to offload security processing. New nodes are provided to enable easy integration with the WebSphere Service Registry and Repository product.

In the connectivity area, many new standard nodes have been introduced. First, direct access is provided to several enterprise information systems. Message Broker Version 6.1 provides support for access to SAP, Siebel and PeopleSoft. Direct access to files is provided for the first time on Windows, Linux and UNIX platforms. This is achieved through a set of new file nodes, enabling sequential files to be read or written directly from the Message Broker environment. This is again extended by the inclusion of a new FTP node.

Further new nodes provide direct access to e-mail capability, using the SMTP protocol, and to native TCP protocol using the TCP Node.

Version 6.1 feature overview (2)

- Administration and systems management
  - Enterprise-wide identity, authentication and authorization with Tivoli and LDAP
  - Message Broker Explorer Eclipse administration
- Platform support and performance
  - 64 bit Linux; JDBC XA support; Java 5
  - Ultra high performance XML parser including schema validation
  - Compacted memory footprint; real-time graphical performance analysis
  - Significant performance improvement on ALL platforms

This release introduces significant new function in the area of security management. Incoming requests to the Message Broker can now be authenticated as they pass into the Broker, and the security credentials can then be passed into the Broker to enable authorization checking. Access to resources within the Broker can then be authorized, using these security credentials. Administration of the Message Broker environment is improved, in conjunction with the facilities provided by the MQ Explorer Eclipse GUI.

Finally, support is provided for 64-bit Linux environments, and full support for XA transactions when used in conjunction with JDBC database access. The Java 5 level of Java is also supported.

A number of improvements are provided to enhance performance. A new XML parser is designed to improve the performance of XML parsing, and this same parser provides the ability to perform schema validation. Enhanced tools to examine the performance of Message Flows are also provided.

Platform support

- Broad range of operating system and hardware platforms supported
  - AIX®, HP-UX (PA-RISC, Itanium®), Linux® on Intel®, Linux on Power, Linux on zSeries®, Solaris (x86-64 and SPARC), Windows®, z/OS®

- 64-bit support
  - All Linux and UNIX® platforms have 64 bit capability
    - Default execution group size is 64 bit & commands are all 64 bit
    - Where necessary 32-bit execution groups remain for migration
      - HP Itanium, Solaris Opteron and Linux pSeries® are only 64 bit
    - Windows and Linux x86 remain 32 bit and z/OS remains 31 bit for V6.1

- Full range of industry standard databases
  - DB2®, Oracle, Sybase, SQL Server®, Informix® (User database only)

- Java
  - JDBC XA all Windows and UNIX broker platforms
  - Java 5 on all platforms

This slide describes the platform support available for Message Broker 6.1

A broad range of operating system and hardware platforms are supported. Included are AIX, HP-UX, Linux on Intel, Linux on Power, Linux on zSeries, Solaris, Windows and z/OS.

64-bit platform support has been extended across the supported operating systems. WebSphere Message Broker operates in 32-bit mode, or 64-bit mode, or both, on supported operating systems. All Linux and UNIX platforms have 64-bit capability. Windows, Linux x85 and z/OS platforms continue to operate in 32-bit mode. On operating systems where both modes are supported, 64-bit operation is the default mode. If you do not specify a size when you create an execution group on operating systems on which both 32-bit and 64-bit modes are supported, a 64-bit execution group is created. The use of 64-bit execution groups for a broker depends on support by the underlying hardware and software.

If you are migrating to Version 6.1 from previous versions, you might have to complete additional actions because the default operating mode is 64-bit mode; in previous versions the default mode is 32-bit mode. Where necessary, 32-bit execution groups will remain for migration purposes. However, HP Itanium, Solaris Opteron and Linux pSeries operate only in 64-bit mode.

A broker requires access to a database to store operational and state data, you can also deploy message flows that access databases . Databases from IBM and other suppliers are supported for this purpose. DB2, Oracle, Sybase and SQL Server can be used as the broker database. However, Informix is supported only as a user database (that is, accessed by message flows), you cannot create a broker database as an Informix database.

A Java runtime environment (JRE) is required on all platforms. On distributed platforms, JRE Version 5 SR5 is embedded in product components. On z/OS, you must acquire and install a JRE which must be at Version 5 SR5 or later.

WebSphere Message Broker supports any JMS 1.1 provider. You must consider both this level of support and the supported JRE when you select a JMS provider whose client will be embedded in the broker. JDBC XA is supported on all Windows and UNIX broker platforms.

Getting started with version 6.1 (1)

- New users
  - ▶ 1 hour for new user to install a working system and run a supplied sample

- Installation
  - ▶ Simple packaging allows easy identification of appropriate install asset
  - ▶ Single installation DVD for Windows and Linux desktops
  - ▶ InstallShield installer for all platforms, SMP/E for z/OS
  - ▶ Quick start and full hardcopy installation guide as necessary

- Default configuration
  - ▶ Allows you to understand broker components and configuration
  - ▶ Quickly create a working system for development

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This slide describes the new 'Getting Started' experience.

Getting started with version 6.1 is similar to version 6. New users can be up and running with a working system and some realistic samples in an hour.

Installation uses an InstallShield installer on all platforms except z/OS, where SMP/E is used. For the Windows and Linux desktop environments a single installation DVD is provided. Simplification of packaging allows for the easy identification of the appropriate assets for installation. The Quick Start and Installation guides can be obtained in hardcopy if required.

As in version 6, the default configuration wizard allows you to quickly set up a working broker configuration. This allows you to easily understand the various broker components and configuration. It also allows for a development environment to be quickly created.

Getting started with version 6.1 (2)

- Samples gallery
  - Comprehensive "Samples Gallery" for all new and existing function
  - Single click to install and run using default configuration
  - New sample message sets, for example. CSV.
  - Learn how to use all 6.1 capabilities using realistic, working samples

- Product prerequisites
  - WebSphere MQ V6 or above
  - A database (Cloudscape provided for development and test systems)

There is a comprehensive set of WebSphere Message Broker samples in the Samples Gallery in the Message Broker Toolkit. The samples in the Samples Gallery are categorized as either Application samples or Technology samples. The Application samples are small end-to-end WebSphere Message Broker applications that demonstrate how to transform and route messages through message flows. The Technology samples are small WebSphere Message Broker applications that each demonstrate a specific feature of WebSphere Message Broker. The samples can be easily installed into the default configuration from the Message Broker Toolkit, using a single click. Some of the new samples that have been added to the gallery include example message sets for key industry formats such as SITA, Accord and so on.

As part of the simplified packaging and installation, the only product prerequisites are now MQ version 6 and a database. There is an embedded Derby database provided. You can use the embedded Derby database for verification, evaluation, and test purposes only. For a production system, install and configure your chosen enterprise database. The Remote Agent Controller is no longer a requirement for flow debugging.

Migration

- ## Support migration from version 5 and version 6
  - Event Broker V5 and V6 migrated to Message Broker 6.1

- ## Compatibility

- ## Message flows, message sets, ESQL, Java, Maps and XSLT run without change
  - Including 64 bit execution groups

- ## Rollback support
  - Migrate back to previous release with single command if necessary

This slide describes the supported migration to version 6.1.

First, migration to Message Broker version 6.1 is supported for version 5 and version 6 brokers. However, migration from version 2.1 brokers is not supported.

With some restrictions, all Version 5.0 and Version 6.0 components can participate in a Version 6.1 broker domain, and all Version 6.1 components can participate in a Version 5.0 or Version 6.0 broker domain. Because Version 6.1 components can coexist with components from previous versions, you do not have to migrate all of your components at the same time. You can migrate those components in stages that are convenient to you. The User Name Server has not changed between versions, therefore you can choose not to migrate this component. You can use a previous version of this component with components that you have migrated to Version 6.1. With the exception of Version 5 maps, all other resources that you have created using the Version 5.0, Version 5.1, or Version 6.0 toolkit can be accessed unchanged in the Version 6.1 toolkit. If you subsequently edit and save resources in the Version 6.1 toolkit, you can continue to access them in the Version 6.0 toolkit but not in the Version 5.0 or Version 5.1 toolkit.

You can restore or revert migrated components to previous versions of WebSphere Message Broker using a command line interface. For some components, you restore them to the previous version and their original state. For other components, you revert them to the previous version, but keep any changes that you have made to them, such as deployed message flows. You might want to restore or revert components if you encounter a problem after you have migrated your broker domain to Version 6.1. By restoring or reverting components to the previous level, you can fix the problem with Version 6.1. You do not need to revert the entire domain; revert only those components that are causing a problem. For example, if a message flow does not work as expected in Version 6.1, revert that broker until you can resolve the problem.

Co-existence

- WebSphere Message Broker version 6.1 will co-exist with version 5 and version 6.0
- Enables incremental migration

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WebSphere Message Broker Version 6.1 can coexist and interoperate with previous versions and with other products. When you migrate from a Version 5.0 or Version 6.0 product to WebSphere Message Broker Version 6.1, you do not have to uninstall the Version 5.0 or Version 6.0 product before installing Version 6.1. You can install WebSphere Message Broker Version 6.1 in a different location on the same computer, migrate your components and resources to Version 6.1. When you are sure that you no longer need it, you can uninstall the previous installation.

Productivity and ease of use (1)

- Continue version 6.0.2 toolkit improvements
  - ▸ User interface, productivity aids

- Toolkit installation size
  - ▸ Significant reduction from version 6

- Debugging and test enhancements
  - ▸ Direct debug using Java Debug removes Rational® Agent Controller
  - ▸ "Visual Trace" to display message path

There have been many improvements to the Toolkit in the areas of increased productivity and ease of use of Version 6.1 of the Message Broker Toolkit. These are summarized here, and each of these points will be discussed in more detail later in this presentation.

This release of the Message Broker extends the improvements that were introduced in the Version 6.0.2 Message Broker Toolkit update. It also sees a significant reduction in the installation size of the Toolkit.

In the areas of debugging and testing, the use of the Java Debug removes the need for the Rational Agent Controller. The visual debugger allows for 'Visual Trace', showing the path of the message, and allowing for reliable interactive debugging.

Productivity and ease of use (2)

- New nodes do not require any "programming"
  - ▶ Configuration driven philosophy
    - Extra compute nodes only necessary for more advanced scenarios
  - ▶ "Message Viewer" simplifies node configuration
    - Graphically identify message locations
  - ▶ Simplified routing and filtering for messages, database

- Graphical mapping enhancements
  - ▶ Call Java directly from a map
  - ▶ Stored procedure mapping across all databases

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From the development perspective, building message flows has been simplified with the use of new nodes that require 'no programming'. This means that, in most cases, nodes can be included in a message flow through simple configuration. The use of additional compute nodes is typically only necessary for more advanced scenarios. Many enhancements around transport headers, for example, eliminate what previously required compute nodes and SQL programming. The "Message Viewer" also simplifies node configuration by giving a graphical representation of message locations to be popped up to select fields required for node configuration . New nodes specifically for routing and filtering for both messages and databases have been added.

In the area of graphical mapping, wizards have been added to allow access to Java methods directly from map nodes. Stored procedure mapping has been enhanced for all databases.

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WebSphere Message Broker 6.1 summary

- Builds on success of Message Broker version 6.0
  - ▶ Introduces significant new opportunities for high performance integration
- Five key themes satisfying a broad range of customer requirements
  - ▶ Productivity
  - ▶ Enhanced SOA support
  - ▶ Administration and systems management
  - ▶ Extended connectivity
  - ▶ Platform support and performance
- Message Broker is a key IBM integration technology
  - ▶ Unparalleled range of integration options and capabilities
  - ▶ Supports users' range of experience and needs
  - ▶ Industry leading performance in a broad range of scenarios

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To summarize, WebSphere Message Broker version 6.1 is a key integration technology, and forms the basis of an Enterprise Service Bus.

The Five Key themes show a strong ongoing commitment to satisfying a broad range of customer requirements. These include significant new function in the area of Web services and related standards, the ability to connect to many new types of application environment, and many new functions in the area of security and administration. Finally, user productivity is improved with many new features in the Message Broker Toolkit to enable faster and more reliable application development.

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