IBM Software Group

IBM® WebSphere® Application Server V6

Service Integration Technologies

Overview

This presentation will provide an overview of the new Service Integration Technologies in WebSphere Application Server V6.

Goals

- Describe the Service Integration Technologies infrastructure within WebSphere Application Server V6

- Describe the differences in messaging between V5 and V6

- Provide an overview of how Service Integration Technologies fits into the Enterprise Service Bus (ESB) concept

The goal of this presentation is to provide an overview of the new Service Integration Technologies infrastructure and enhancements to the messaging infrastructure provided by Service Integration Technologies as compared to the Embedded messaging in WebSphere V5

Section

Service Integration Technologies

Overview

Service Integration Technologies - Overview

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Next few pages will cover the Big picture and the overview of the new Service Integration Technologies

Service Integration Technology – At a Glance
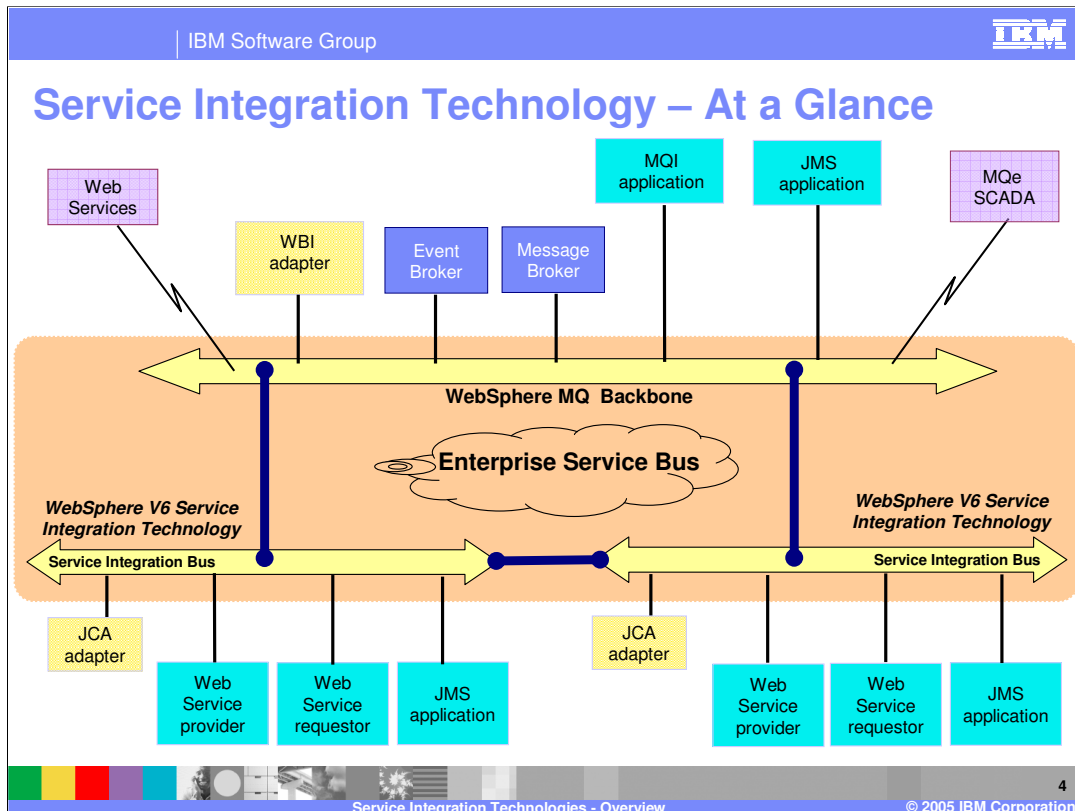
The existing WebSphere messaging products provide a comprehensive range of functions which enable customers to build an ESB today

This will be augmented by the new Service Integration Technology which provides greater support for J2EE and Web Services standards, and provides a more flexible and integrated messaging solution for the Application Server with connectivity onto the Enterprise Service Bus as shown here.

It provides links to WebSphere MQ or other Service Integration Bus, as well as support for Web Services and JMS applications to communicate with the bus.

Service Integration Technology

- IBM Service Integration Technologies in WebSphere Application Server V6 implements a Service Integration Bus that provides a framework that enables the adoption of a Service Oriented Architecture (SOA)

- Is an important component of the Enterprise Service Bus concept

- Java™ Messaging Service (JMS) support and Web Services integration in WebSphere Application Server are built on the IBM Service Integration Technologies

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The service integration functionality within WebSphere Application Server provides a highly-flexible messaging fabric that supports a service-oriented architecture with a wide spectrum of quality of service options, supported protocols, and messaging patterns. It supports both message-oriented and service-oriented applications.

Service Integration Technology: Big Picture

- Integrated asynchronous messaging capabilities for the WebSphere Application Server
  - ▸ Fully compliant JMS 1.1 provider
  - ▸ Web Services integration

- Service Integration Bus
  - ▸ Infrastructure for SOA
  - ▸ Unifies SOA, messaging, message brokering and publish/subscribe

- Interoperates with WebSphere MQ

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Service Integration Technology provides the Integrated asynchronous communication capability supporting the JMS messaging infrastructure.

It also provides the infrastructure needed to support Service-Oriented architecture. The Service Integration Bus also provides an underpinning for many enterprise applications required for products such as WebSphere Business Integration.

Features

- **Multiple messaging APIs and protocols**
    - ▶ Default messaging provider is a J2EE 1.4 compliant JMS provider
    - ▶ Support for Web Services standards
        - JSR101 and JSR109

- **Reliable message transport capability**

- **Clustering enablement for scalability and High Availability (HA)**

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Different quality of service options are supported.

Support for the WebSphere Business Integration programming model, which converges functions from workflow, message brokering, collaborations, adaptors and the Application Server

Features (cont.)

- Fully integrated within WebSphere Application Server V6
  - ▶ Full function JMS 1.1 provider
  - ▶ Integrated with administration and runtime (Systems Management, Security, Thread Pools, and so on)
  - ▶ Managed through the Administrative Console
  - ▶ Pure Java implementation within the server process
    - No external processes

- Flexible Qualities of Service (QOS) for message delivery

- Intermediary logic (*mediations*) that can alter, reroute, or take other actions on a message

- Connectivity into a WebSphere MQ network

- Uses Java Database Connectivity (JDBC) message persistence, buffering, etc.

Service Integration Technologies are an integral part of the Application Server, and makes use of other components such as System Management, security, and logging.

Embedded Messaging Server Support V5 ➜ V6
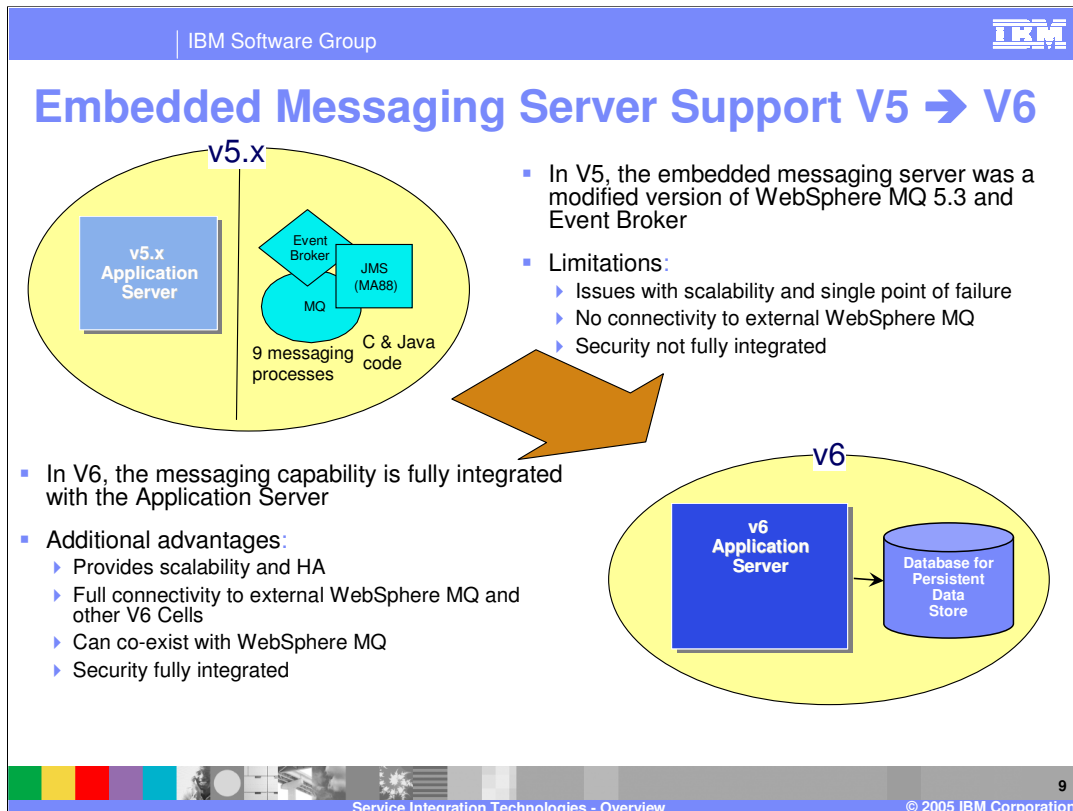
WebSphere Application Server V6 provides a pure Java JMS 1.1 provider that is installed as part of the base server installation and runs completely inside the application server JVM.

Uses JDBC and supports embedded Cloudscape for persistent messages, in additional to DB2, Oracle, etc.

No separate messaging server process (all contained in the application server)

Fully integrated with the application server (Systems Management, RAS, Security, PMI, Threads)

Each server can have its own, interconnected messaging engine

Interoperable with WebSphere MQ

Improved performance for in-process messaging

> Messages traveling between applications running in the application server process can be passed in memory

Web Services Integration

- Support for:
  - ▶ Requestors implementing JAX-RPC
  - ▶ Providers running in WebSphere Application Server as stateless session beans and servlets
  - ▶ Requestors or providers using SOAP/HTTP or SOAP/JMS protocols

- Web Services are represented as destinations on the bus
  - ▶ WSDL import creates the necessary 'service' destinations
  - ▶ An existing destination (such as a JMS queue) can be exported as a Web Service provider

- Mediations can be applied, as with any other destination
  - ▶ Can implement routing, logging, and so on using mediations

Service Integration Technologies - Overview

Besides JMS messaging, Service Integration supports Web Services applications where the Bus provides end points for J2EE 1.4 Web Service providers using HTTP or JMS transport protocols. Using the Service Integration Enablement for Web Services enables additional functionality, such as Mediations.

Summary

- Service Integration Technologies provides integrated synchronous and asynchronous messaging capabilities for the WebSphere Application Server

- Provides the foundation of Enterprise Service Bus

- Supports interoperability with WebSphere MQ

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In summary, the new Service Integration Technologies provides a powerful platform for SOA applications and capability to be part of Enterprise Service Bus infrastructure.

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