WebSphere® Process Server V6.0.1
WebSphere Integration Developer V6.0.1
WebSphere Enterprise Service Bus V6.0.1

New Functions Overview – ESB, Clustering and Other Functions

This presentation focuses on the new functions in WebSphere Integration Developer V6.0.1, WebSphere Process Server V6.0.1 and the new WebSphere ESB V6.0.1. It provides an overview of the new functions. Other presentations provide more details on the new functions and enhancements.
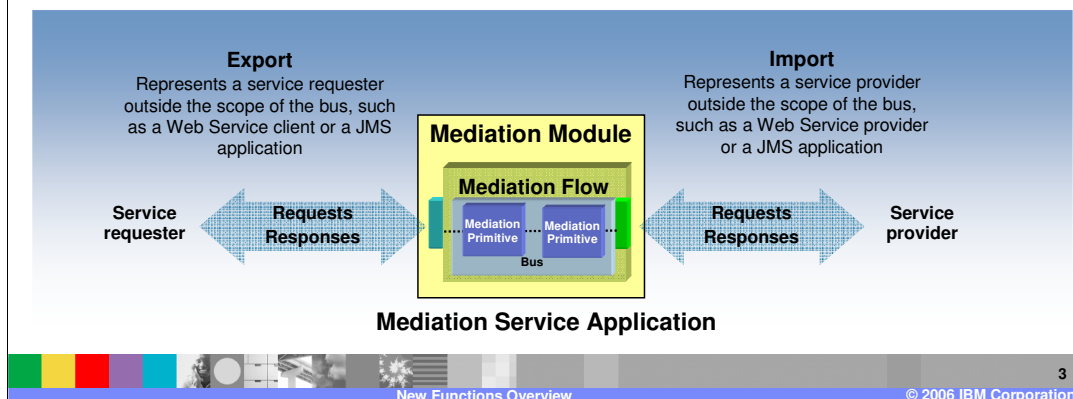
Agenda

- Overview of new ESB Functions

- WebSphere Integration Developer V6.0.1 - new functions and enhancements

- WebSphere ESB and Process Server V6.0.1 – new functions and enhancements

This presentation provides an overview of the new Enterprise Service Bus functions in WebSphere ESB and WebSphere Process Server V6.0.1, followed by an overview of the new enhancements in WebSphere Integration Developer V6.0.1, most of it to support the development of ESB applications, called mediation modules. Last, this presentation will provide an overview of the new enhancements in WebSphere ESB and Process Server V6.0.1.

New Function – Mediation Module

- Support for Enterprise Service Bus function with the new Mediation Module that allows processing of messages between service requesters and the service providers

- Tool and Runtime enhancements to support Mediation Module

Export
Represents a service requester outside the scope of the bus, such as a Web Service client or a JMS application

Import
Represents a service provider outside the scope of the bus, such as a Web Service provider or a JMS application

Service requester

Requests Responses

Mediation Module

Mediation Flow

Mediation Primitive .... **Mediation Primitive**

Bus

Requests Responses

Service provider

Mediation Service Application

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One of the main new features is the support for the Enterprise Service Bus. This is done by a new type of module called a Mediation module that allows processing of messages between different service requestors and providers. This enables loosely coupled connectivity and mediation services between different service requestors and provides for connecting through the bus.

WebSphere Integration Developer provides the easy to use development environment to create mediation modules. The new WebSphere ESB provides the runtime for the mediation modules, and WebSphere Process Server, built on top of WebSphere ESB, inherits the ESB runtime capabilities.

Uniform Model for Service Messages and Connectivity

- Unified Model for communications
  - ▸ Messaging
    - JMS 1.1 point to point and Publish-subscribe topics
    - TCP/IP, SSL, HTTP, HTTPS, Multicast
    - Interoperability with WebSphere Messaging family
      - WebSphere Application Server, WebSphere MQ, WebSphere MQ Broker/Event Broker
  - ▸ Web Services
    - SOAP/HTTP, SOAP/JMS, WSDL
    - UDDI 3.0 Service Registry
    - WS* Standards like WS-Security, WS-Atomic Transaction
  - ▸ WebSphere Adapters
    - JCA Adapters - SAP, PeopleSoft, Siebel, Files, JDBC™
    - WBI Adapters for all the rest

- Uniform Programming Model for Services and Mediations
  - ▸ Service Component Architecture and Business Objects

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WebSphere ESB and Process Server provides a uniform model for service messages and connectivity for the service requestors and providers, connecting to the Enterprise Service Bus.

For the uniform model of connectivity, the runtime supports Messaging using JMS 1.1 point to point or publish-subscribe topics, using the underlying WebSphere Application Server V6 messaging infrastructure. Additionally, Web Services protocol over HTTP or JMS can be used by the service requestors and providers. In addition, the bus can connect to other EIS platforms like SAP, Siebel, PeopleSoft, and so on through the use of WebSphere Adapters.

Internally, the bus uses a uniform programming model for Services and Mediations through the use of Service Component architecture (SCA) and uniform data model through the use Business objects.

Section

- Overview of ESB Functions

- **WebSphere Integration Developer V6.0.1 - new functions and enhancements**

- WebSphere ESB and Process Server V6.0.1 – new functions and enhancements

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The next section provides an overview of the new functions in WebSphere Integration Developer V6.0.1, mainly to support the development of mediation module for ESB.

WebSphere Integration Developer: Mediation Module Tool Support

- New Mediation Module
  - Business Module represents the business application and Mediation module represents the mediation of the service message
- Assembly diagram editor enhanced to support Mediation Module
  - Create Mediation Flow in the assembly diagram
- New Mediation Flow Editor to create the operation connection and the request/response message flow and to insert the necessary mediation primitives for the mapped connections
- New Visual Debugger for Mediation and Business Module
  - Allows adding breakpoints in the mediation flow
 - Designed to run within the Test client

WebSphere Integration Developer V6.0.1 provides all the development tools needed to construct mediation modules to be deployed in WebSphere ESB or Process Server V6.0.1. It allows creating the mediation module as well as the business modules

The assembly editor has been enhanced to work on the mediation module. The assembly editor palette contains icons for imports, exports, mediation flow components and other components needed to build the mediation module.

A new mediation flow editor provides the tools to create the connection mapping between the input and the output operations of the services. It allows developers to insert the mediation primitives for the mapped request and response connections. The mediation flow editor contains the icons for the built-in mediation primitives and a property panel to customize the primitives.

Finally, a new debugger has been added to allow visual debugging of mediation and business modules.

Assembly Tool for Mediation Application
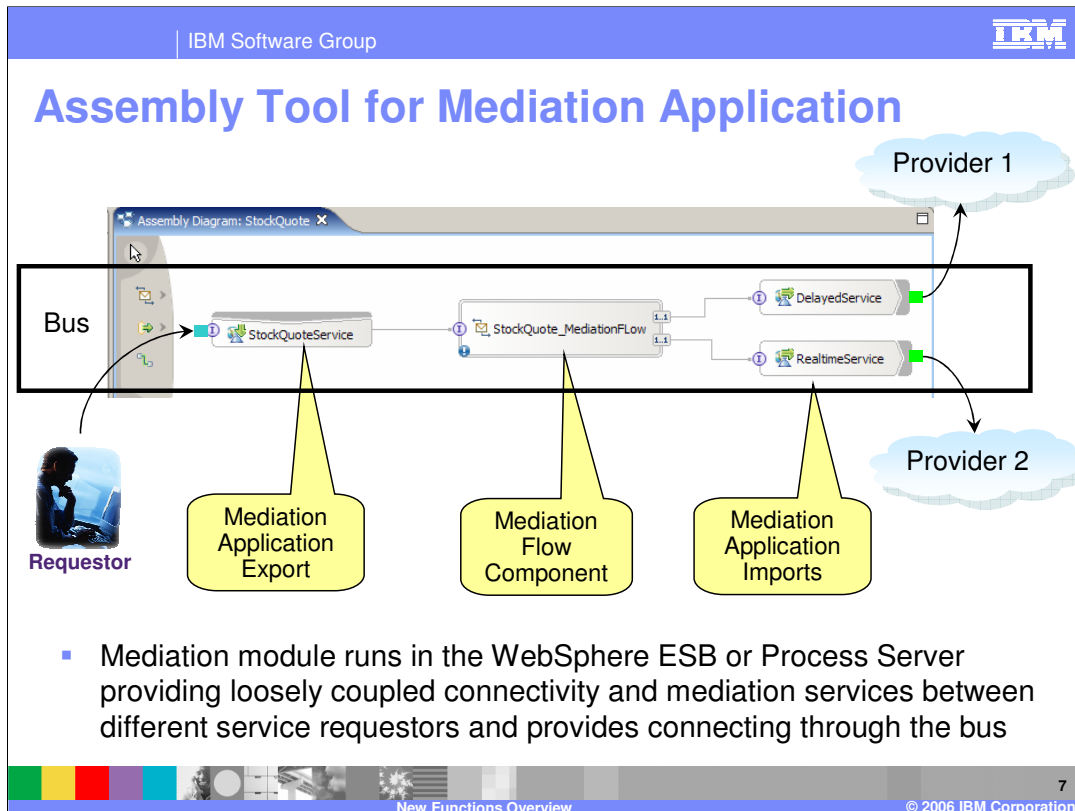
The slide shows the assembly diagram editor for the mediation module.

The exports represent the connection from the service requestor. The imports represent the connection to the service providers. The import and export bindings dictate the protocol by which the service requestor and provider communicate with the mediation module.

In the center is the mediation flow component that contains the logic for how to process the message. The Integration developer uses the mediation flow editor to provide the logic for the message between the service requestors and the providers

The mediation module runs in the WebSphere ESB or WebSphere Process Server.
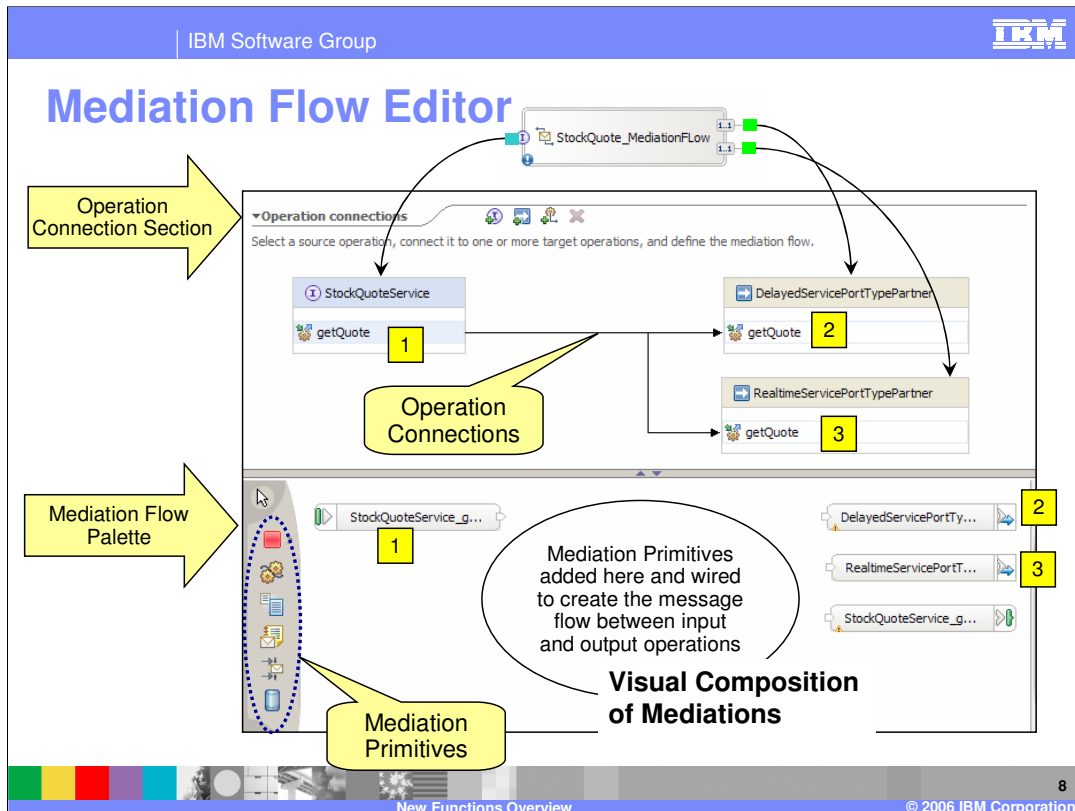
An example of the mediation flow editor is shown on the slide.
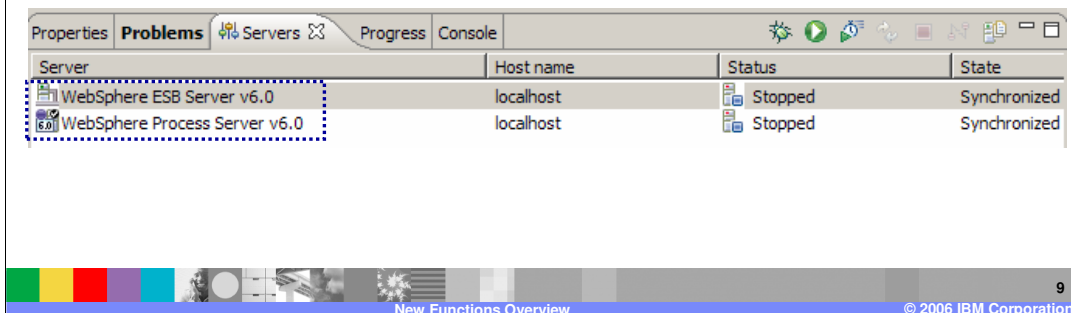
The editor contains two sections:

The top Operation Connection Palette is used to connect the input operations of the Mediation flow to the output operations.

The bottom Mediation Flow palette is used to insert mediation primitives for a given connection for both the request and response flows. Using the visual wiring of the connection and the wiring of the primitives with the input and output operations, the Mediation Flow editor provides an easy visual way of developing mediation modules.

Tools: Support for ESB Server Unit Test

- Added support for WebSphere Enterprise Bus Server as a unit test server, along with WebSphere Process Server unit test server

- Can now target the Mediation Service Application to either WebSphere ESB or Process Server

Properties	Problems	Servers ⋈	Progress	Console			
Server				Host name		Status	State
WebSphere ESB Server v6.0				localhost		Stopped	Synchronized
WebSphere Process Server v6.0				localhost		Stopped	Synchronized

WebSphere Integration Developer V6.0.1 adds WebSphere ESB V6.0.1 as another unit test server available for testing and debugging the mediation modules. Developers will have a choice to use either the WebSphere ESB or the WebSphere Process Server as their test environments for mediation modules. The business module can be tested and debugged only in WebSphere Process Server.

Section

- Overview of ESB Functions

- WebSphere Integration Developer V6.0.1 - new functions and enhancements

- **WebSphere ESB and Process Server V6.0.1 – new functions and enhancements**

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The next section provides an overview of the new functions in WebSphere ESB and WebSphere Process Server V6.0.1.

WebSphere ESB and Process Server:
New Runtime Functions Overview

- Support for Enterprise Service Bus function with the new Mediation Module

- Expose SCA modules as objects administered with Administrative console and wsadmin

- Ability to dynamically modify the import SCA bindings to point to another module SCA export, with same interface, in the same cell
  - ▸ Saves reinstall roundtrip from tools to the server

Besides the support for running mediation modules, WebSphere ESB or the WebSphere Process Server exposes the SCA modules as administrative objects. The solution administrator can list, show, start, or stop SCA modules. The runtime allows changing the import SCA binding to point to another SCA module with the same interface within the same cell. This allows administratively rerouting the requests to another SCA component without the need to go back to WebSphere Integration Developer to change the module design.

Clustering Support for WebSphere ESB and Process Server

- Support Clustering of WebSphere ESB V6.0.1 and Process Server V6.0.1 in a Network Deployment Cell
  - ▶ WebSphere Process Server V6.0.0 supported only single server profiles

- Inherits the benefits of Cell Topology
  - ▶ Scalability and High Availability
  - ▶ One central point of administration for all the servers in the entire cell

- Certain limitations apply to the federation of WebSphere ESB and Process Server
  - ▶ This is discussed in detail in the clustering presentation

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WebSphere Process Server V6.0.1 adds support for clustering, which is needed for scalability and fail over. This function was not available in the initial V6.0.0 release. WebSphere ESB V6.0.1 has the same clustering support.

More detail on clustering and how to create a cell environment is provided in a separate clustering presentation.

Section

Summary

The next section covers the summary of the presentation.

Summary

- WebSphere ESB and Process Server V6.0.1 provides the ESB functionality that can satisfy most of the enterprise ESB requirements

- WebSphere Integration Developer V6.0.1 provides an easy to use visual way of construction ESB mediation applications

- WebSphere ESB and Process Server V6.0.1 now include clustering support which provides higher quality of service scalability and fail over functionality

In summary, WebSphere ESB and Process Server V6.0.1 includes the ESB functionality that becomes one of the core IBM ESB products along with more advanced ESB in WebSphere Message Broker.

The WebSphere Integration Developer V6.0.1 has been enhanced to provide an easy-to-use visual interface for building ESB mediation applications.

Clustering support for scalability and fail over is now part of both WebSphere ESB and WebSphere Process Server V6.0.1.

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New Functions Overview

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