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WebSphere® Process Server V6
WebSphere® Integration Developer V6
WebSphere® Adapters V6

Adapter Introduction

@business on demand.

This presentation will provide an introduction to the purpose of adapters and how they integrate with WebSphere Process Server V6.0.

Goals

- Understand the purpose of Adapters

- Brief Introduction to Adapters and WebSphere® Process Server

The goals of this presentation are to help you understand the purpose of adapters and provide a brief introduction of how they are integrated with WebSphere Process Server process integration applications.

Section

Overview

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This section will provide an overview of Adapters.

Introduction

- Enterprise Information Systems (EIS) provide the information infrastructure for an enterprise
  - ▸ Users expect access to all business functions an enterprise can offer regardless of which system hosts those services and functions

- Examples of EIS include Enterprise Resource Planning (ERP), mainframe transaction processing (TP), and database systems

- Adapters provide a mechanism that allows for integration of existing EIS infrastructure and process integration applications

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Enterprise Information Systems (EIS) provide the information infrastructure for an enterprise. Users expect to be able to access all business functions and services available in the enterprise, regardless of which system hosts those functions and services. Examples of EIS include enterprise resource planning systems, mainframe transaction processing systems, and database systems. Adapters provide a mechanism that allows for integration of existing EIS infrastructure with process integration applications.

Adapters in Process Integration

- **Adapters provide**
  - ▸ EIS integration
  - ▸ Service oriented approach
  - ▸ Encapsulation of functions and events as Business Objects.
  - ▸ A consistent framework for access to back-end systems
  - ▸ Consistent configuration, deployment, and administration

- **Adapters can be categorized as:**
  - ▸ Application
  - ▸ Technology

- **Two major types**
  - ▸ WebSphere Business Integration Adapters - adapters used with WebSphere brokers
  - ▸ WebSphere Adapters - adapters based on Java™ 2 Enterprise Edition (J2EE™) Connector Architecture (JCA), version 1.5 specification
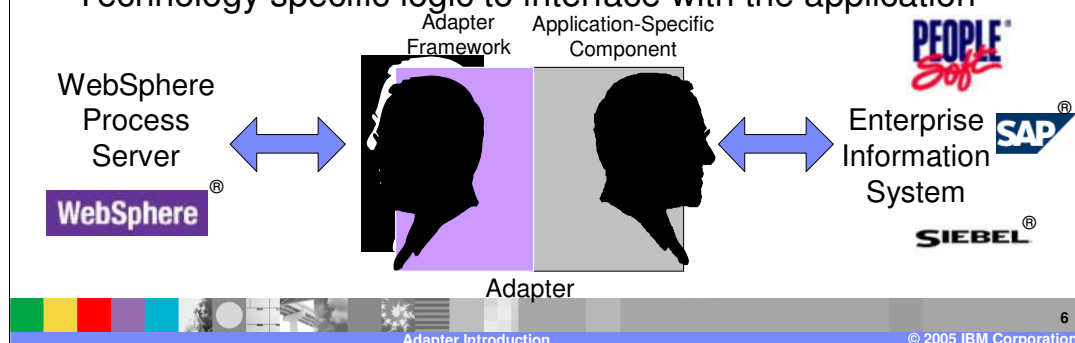
Adapters provide a service-oriented approach to EIS integration. In general, EIS applications are fairly sophisticated, have been in place for a long time, and have a fairly high degree of complexity. Each system generally has a set of application programming interfaces (API) that expose the business activities or business events, allowing you to interact with these activities using fine-grained, low-level programming constructs. Adapters abstract or expose the EIS business functions and events in the form of business objects, so instead of dealing with the low-level API of the application, you can simply interact through the adapter, by passing a business object that encapsulates the functions and events. For example, an adapter could be passed a business object of type purchase order with the function of create.

Another key benefit of adapters is that they allow you to build and compose process integration applications based on several EIS services in a quick and efficient manner, rather than spending time building custom modules just for interacting with the EIS. In addition, adapters provide a consistent framework for accessing back-end systems, as well as a consistent means of configuration, deployment, and administration. There are two broad categories of adapters, application adapters and technology adapters. Application adapters are designed to interface with a specific application programming interface for a specific version of an EIS. Technology adapters are designed to support a standard technology interface to any EIS that supports the same interface. There are two major types of adapters, the WebSphere Business Integration Adapters which can be used to integrate EIS applications with several different IBM® WebSphere brokers, (in this case, the WebSphere Process Server would be the broker); as well as the WebSphere Adapters, which are adapters based on the J2EE™ Connector Architecture (JCA) version 1.5 specification.
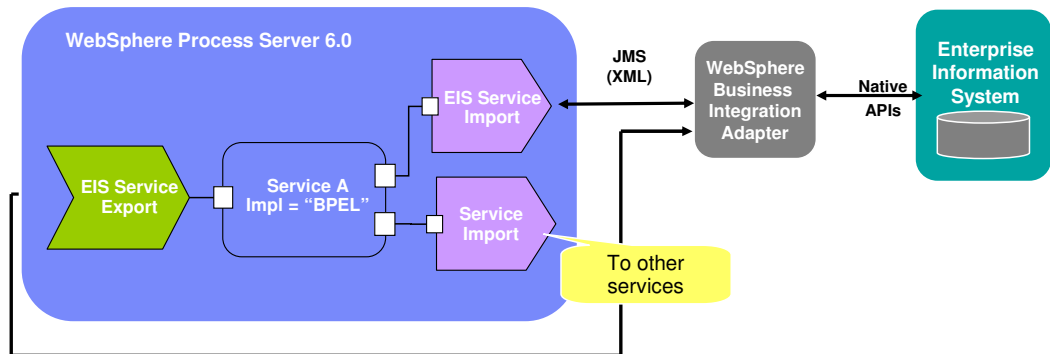
The Two Faces of an Adapter

- Adapters can exchange data with the WebSphere Process Server

- Adapters can exchange data with an application

- Common Adapter Framework for interacting with the integration server

- Technology specific logic to interface with the application

WebSphere Process Server

WebSphere®

Adapter Framework

Application-Specific Component

PEOPLESoft®

Enterprise Information System

SAP®

SIEBEL®

Adapter

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The high-level architecture of each IBM adapter is common across all the adapters. Each adapter consists of an application-facing component, which is the part of the adapter that has explicit internal coding and knowledge of how to interact with the application or technology. For example, with a database adapter, the application-facing component has database API calls to access the database. The adapter's application specific components are different for each different type of adapter. IBM has implemented the code to enable access to the applications or technologies. All that remains to be done by the user of the adapter is the application specific configuration such as user access authority or table names that are to be manipulated. All the work of coding low-level APIs to access the application has already been accommodated.
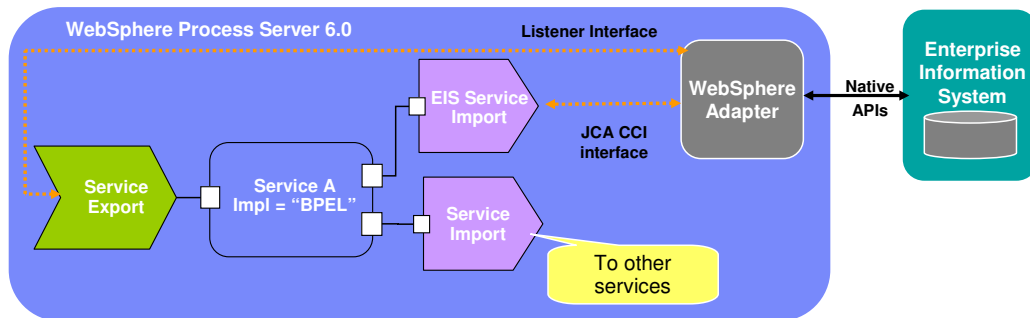
The second part of the adapter is the integration server-facing component. This component is responsible for interacting with the WebSphere Process Server by forming communications to send and receive the adapter's data. This component functionality is common in all adapters. It has the built-in capability to transform the application originated or destined data to and from a common data representation for transmission to the integration server. The data content that is sent to and from the integration server is the business object or business graph.

WebSphere Business Integration Adapter v2.4 and v2.6 Deployment Architecture

WebSphere Process Server 6.0

EIS Service Export

Service A Impl = "BPEL"

EIS Service Import

Service Import

To other services

JMS (XML)

WebSphere Business Integration Adapter

Native APIs

Enterprise Information System

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Adapter Introduction

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This graphic depicts the high level overview of the integration of the WebSphere Process Server's "Service A" business integration application, implemented as a BPEL process, with an EIS using a WebSphere Business Integration Adapter. The WebSphere Business Integration Adapter runs in a separate process, outside the WebSphere Process Server, and communicates with the server using the JMS transport protocol.

WebSphere Adapter Deployment Architecture

WebSphere Process Server 6.0

Listener Interface

EIS Service Import

JCA CCI interface

WebSphere Adapter

Native APIs

Enterprise Information System

Service Export

Service A Impl = "BPEL"

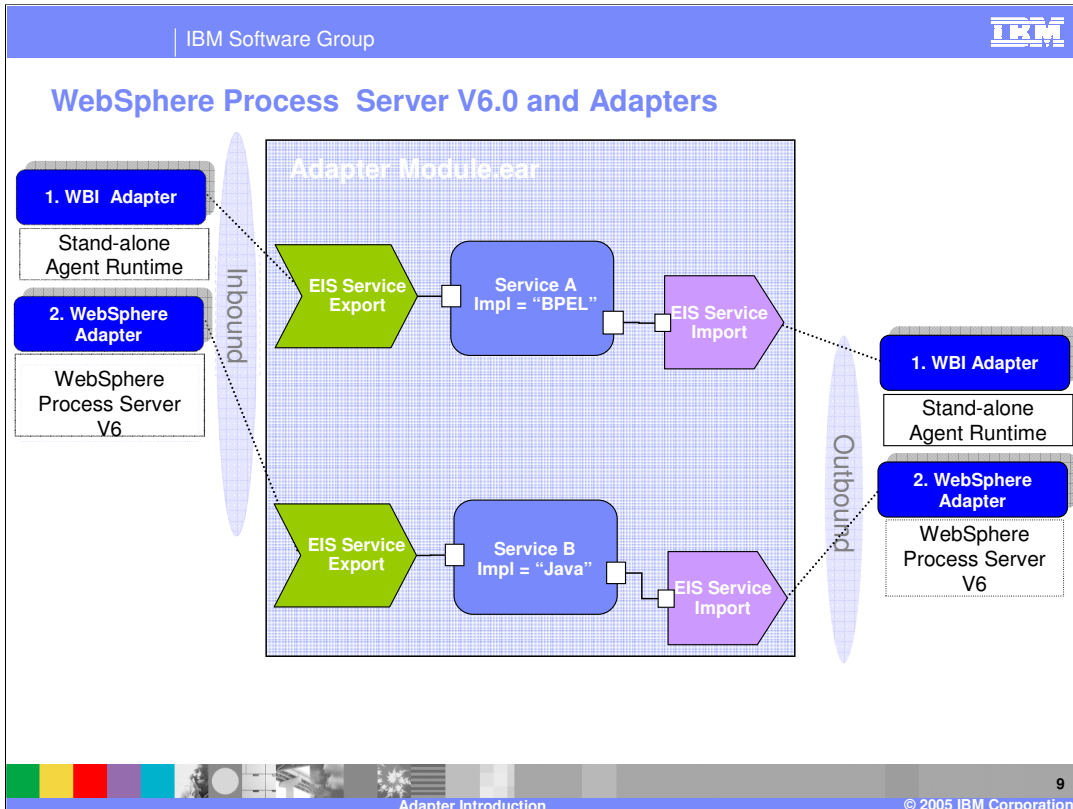Service Import

To other services

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This graphic depicts the high level overview of the integration of the WebSphere Process Server's "Service A" business integration application, implemented as a BPEL process, with an EIS using a WebSphere Adapter. The WebSphere Adapter runs in the same process as the WebSphere Process Server, and communicates with the server using the J2EE Connector Architecture (JCA) 1.5 implementation.

WebSphere Process Server V6.0 and Adapters

Adapter Module.ear

1. WBI Adapter

Stand-alone Agent Runtime

2. WebSphere Adapter

WebSphere Process Server V6

Inbound

EIS Service Export

Service A Impl = "BPEL"

EIS Service Import

EIS Service Export

Service B Impl = "Java"

EIS Service Import

Outbound

1. WBI Adapter

Stand-alone Agent Runtime

2. WebSphere Adapter

WebSphere Process Server V6

Adapter Introduction

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Here you see that through the use of adapters, whether WebSphere Business Integration Adapters or WebSphere Adapters, you are able to integrate your process integration applications running on the WebSphere Process Server with the services available from EIS systems.

Summary

- Enterprise Information Systems host infrastructure (data and services) for enterprises

- Process integration applications need access to EIS data and services

- WebSphere Business Integration Adapters and WebSphere Adapters provide a services-oriented approach to EIS integration

To summarize, Enterprise Information Systems host the infrastructure for enterprises and your process integration applications need access to that EIS data and services. WebSphere Business Integration Adapters and WebSphere Adapters provide you with a services-oriented approach to EIS integration.

Section

Reference

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This section will provide some additional references.

WPSWIDv6_AdapterIntro.ppt

For Additional Information

- J2EE Connector Architecture Specification Version 1.5
  - ▶ http://java.sun.com/j2ee/connector/download.html

- Enterprise Metadata Discovery Specification Version 1.0
  - ▶ http://www.ibm.com/developerworks/library/specification/j-emd/

- WBI Adapter Information Center
  - ▶ http://www-306.ibm.com/software/integration/wbiadapters/library/infocenter/

Template Revision: 3/09/2005 9:40 AM

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Adapter Introduction

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