WebSphere 動靜皆宜：WebSphere Process Server 整合開發環境

Agenda and Objectives

SOA on your terms and our expertise

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ON DEMAND BUSINESS™

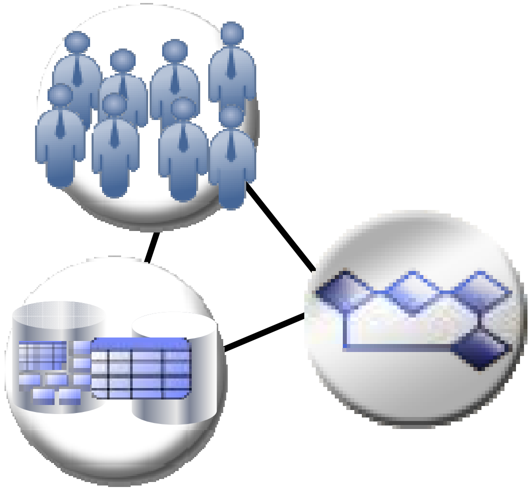
Agenda

13:30-14:10	Business Process Management Overview
14:10-15:00	WebSphere Process Overview
15:00~15:15	Break
15:15~16:00	WebSphere Integration Developer 6.1

What is BPM with SOA?

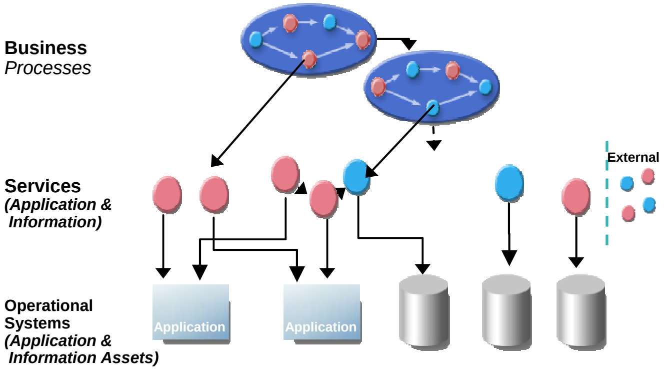
What is Business Process Management?

BPM is a *discipline* combining software capabilities and business expertise through people, systems, and information to accelerate time between process improvements, facilitating business innovation



What does BPM with SOA provide?

BPM with SOA provides process flexibility by improving how you design, manage, and optimize your business processes and reuse existing assets.


Business *Processes*
Services ***(Application & Information)***
External
Application
Application
Operational Systems ***(Application & Information Assets)***

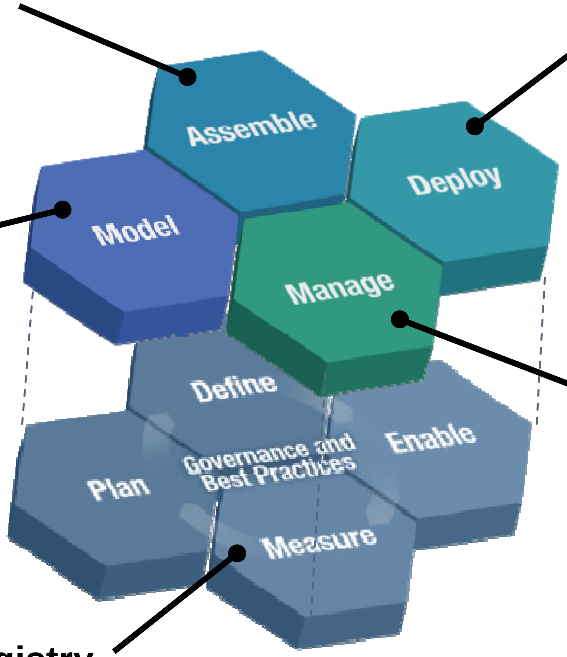
End-to-end process capabilities for your SOA

Components to manage business processes

WebSphere Integration Developer
Easy-to-use integration to simplify and speed the assembly of composite applications

WebSphere Process Server
Flexible deployment of business processes, making plug-and-play of components a reality

WebSphere ESB & Message Broker
Connectivity infrastructure for integrating applications and services to power your SOA



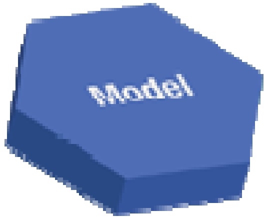
WebSphere Business Modeler
Simple to use process modeling for the business analyst to help maximize process and business resource re-use

WebSphere Business Monitor
Real-time visibility into process performance enabling process intervention and continuous improvement

WebSphere Service Registry and Repository
Manage your service metadata: Govern services throughout the SOA lifecycle, find and reuse for IT flexibility

Agenda

- Model
  - WebSphere Business Modeler
- Assemble / Deploy
  - WebSphere Process Server
  - WebSphere Integration Developer
- Manage
  - WebSphere Business Monitor
- Govern
  - WebSphere Service Registry & Repository

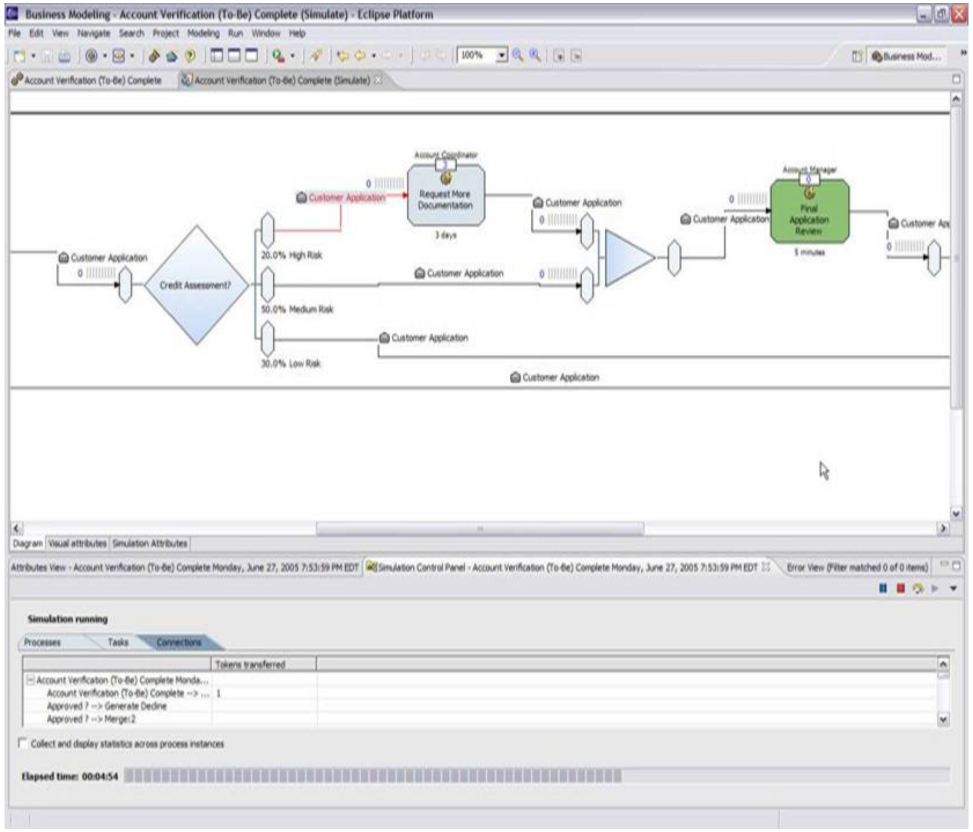


Why Customers do Business Process Modeling

- Modeling For Documentation & Compliance
  - Document processes to better understand your business
  - Understand and capture complex behaviors and domain expertise in processes
  - Use output for training, collaboration, and documentation, i.e. requirements for compliance regulations (Sarbanes-Oxley, Basel II)
  - Import existing Visio diagrams and add business relevant information
- Modeling For Redesign & Optimization
- Modeling For Execution

Simulate And Analyze – Understand And Predict

- Predict your business operation outcomes by running "what if" scenarios
- Help determine and justify projects that will generate the greatest returns on investments, and help build your business case
- Generate comprehensive information around cost, time, and resource savings
- Optimize by looking at bottlenecks and workload imbalances before moving any changes into production



Business Modeling - Account Verification (To-Be) Complete (Simulate) - Eclipse Platform

Attributes View - Account Verification (To-Be) Complete Monday, June 27, 2005 7:53:59 PM EDT | Simulation Control Panel - Account Verification (To-Be) Complete Monday, June 27, 2005 7:53:59 PM EDT | Error View (Filter matched 0 of 0 items)

Simulation running

Processes | Tasks | Connections

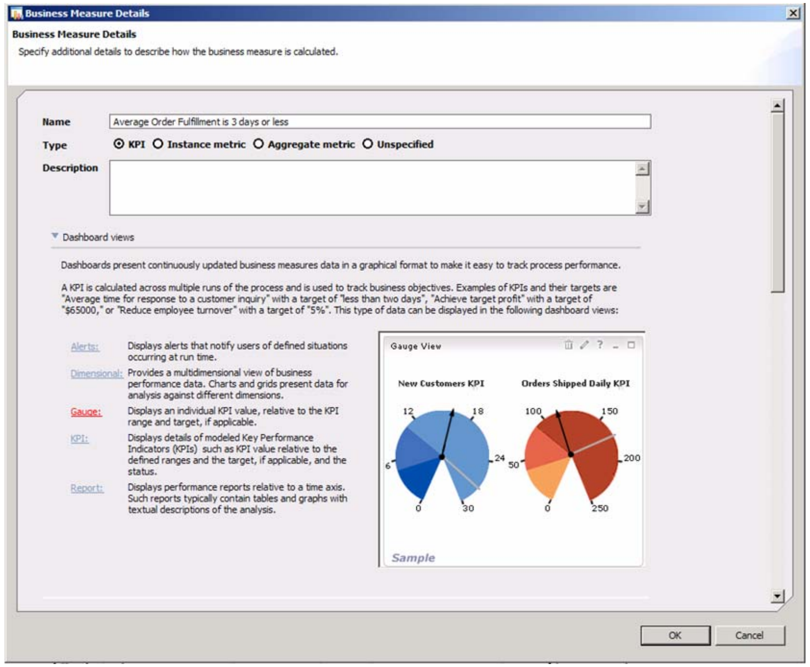
	Tokens transferred
⊟ Account Verification (To-Be) Complete Monda...	
Account Verification (To-Be) Complete --> ...	1
Approved ? --> Generate Decline	
Approved ? --> Merge:2	

□ Collect and display statistics across process instances

Elapsed time: 00:04:54

Define Key Performance Indicators

- Identifying key performance metrics is critical to your business
- Defining the measurements of your scorecard
  - What is to be measured
- More precision in business requirements
  - Simulation scenarios are key to understanding what will happen
  - Capture the key performance
- KPIs to be implemented in WID
  - How it is being measured



Business Measure Details

Business Measure Details

Specify additional details to describe how the business measure is calculated.

Name Average Order Fulfillment is 3 days or less

Type ● KPI ○ Instance metric ○ Aggregate metric ○ Unspecified

Description

Dashboard views

Dashboards present continuously updated business measures data in a graphical format to make it easy to track process performance.

A KPI is calculated across multiple runs of the process and is used to track business objectives. Examples of KPIs and their targets are "Average time for response to a customer inquiry" with a target of "less than two days", "Achieve target profit" with a target of "$65000," or "Reduce employee turnover" with a target of "5%". This type of data can be displayed in the following dashboard views:

Alerts: Displays alerts that notify users of defined situations occurring at run time.

Dimensional: Provides a multidimensional view of business performance data. Charts and grids present data for analysis against different dimensions.

Gauge: Displays an individual KPI value, relative to the KPI range and target, if applicable.

KPI: Displays details of modeled Key Performance Indicators (KPIs) such as KPI value relative to the defined ranges and the target, if applicable, and the status.

Report: Displays performance reports relative to a time axis. Such reports typically contain tables and graphs with textual descriptions of the analysis.

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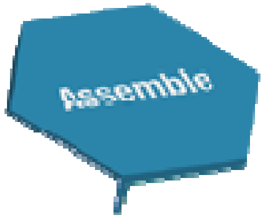
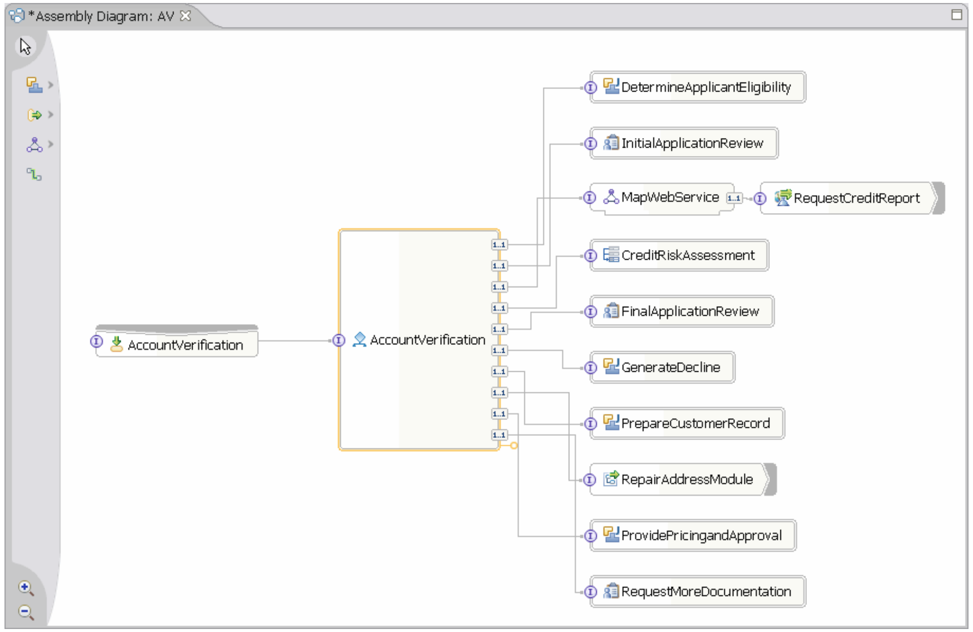
  - WebSphere Service Registry & Repository



WebSphere Integration Developer

Service-oriented Integration Application Development

- User-friendly Authoring Environment
- Component based Programming Model
  - Service Components & Modules
- Visual Editors minimize writing Code
  - Business Process
  - Human Task
  - State Machine
  - Business Rules …
- Team-based development
- Full Test Environment
  - Including Visual Debugger for all components
- Service discovery including WebSphere Service Registry & Repository



ON DEMAND BUSINESS™

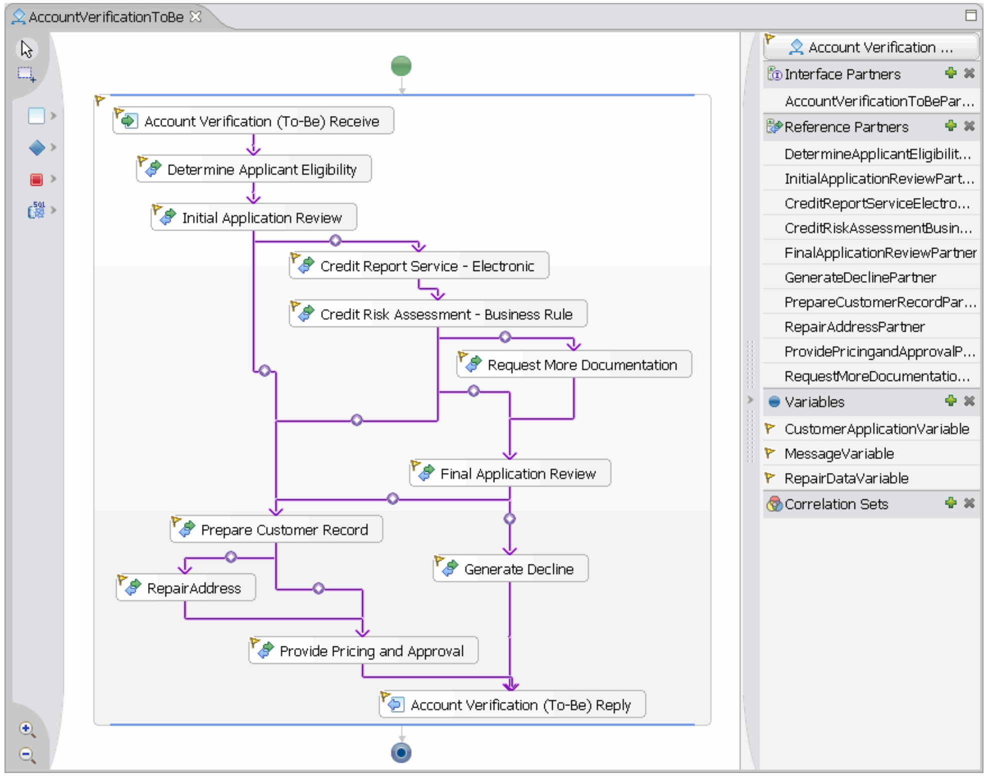
WebSphere Process Server
Comprehensive Business Flexibility

- A Single Server Environment for
  - Business Processes
  - State Machines
  - Human Tasks
  - Business Rules
  - Integration of existing assets
- Reliable, scaleable, secure
  - Fully leverages the breadth and capability of IBM WebSphere Application Server ND
- Integrated ESB For Range And Reach
  - Provides seamless access to available assets
  - Adapters provide the service on-ramp for existing applications
- B2B Capabilities to interoperate with your extended partner network

Comprehensive Support for Business Processes

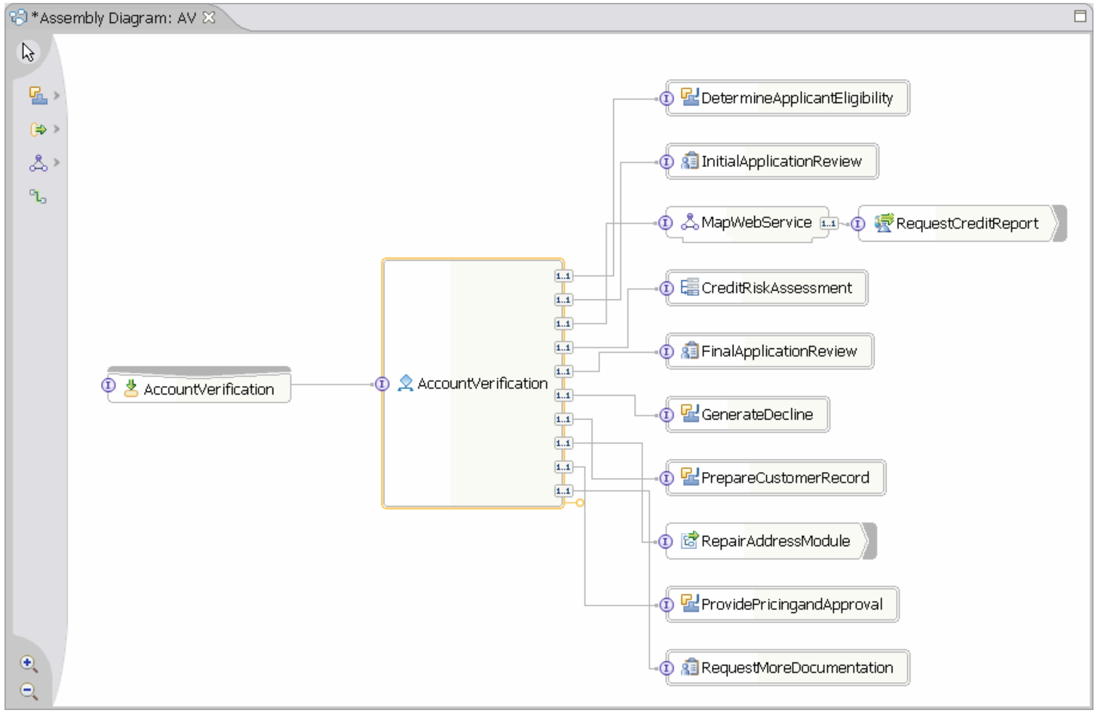
Standards Based Business Process Support without Coding

- Import process models from WebSphere Business Modeler
- Intuitive drag-and-drop tools
  - Visually define the sequence and flow of business processes
- Develop Executable Process
  - WS-BPEL with or without IBM Extensions
- Integrated fault handling
- Compensation support
  - Provide a logical "undo" capability


AccountVerificationToBe
Account Verification (To-Be) Receive
Determine Applicant Eligibility
Initial Application Review
Credit Report Service - Electronic
Credit Risk Assessment - Business Rule
Request More Documentation
Final Application Review
Prepare Customer Record
Generate Decline
RepairAddress
Provide Pricing and Approval
Account Verification (To-Be) Reply
Account Verification ...
Interface Partners
AccountVerificationToBePar...
Reference Partners
DetermineApplicantEligibilit...
InitialApplicationReviewPart...
CreditReportServiceElectro...
CreditRiskAssessmentBusin...
FinalApplicationReviewPartner
GenerateDeclinePartner
PrepareCustomerRecordPar...
RepairAddressPartner
ProvidePricingandApprovalP...
RequestMoreDocumentatio...
Variables
CustomerApplicationVariable
MessageVariable
RepairDataVariable
Correlation Sets

Assembly With WebSphere Integration Developer

- Assemble Integration Applications from Service Components
  - An Assembly Editor for overall solution assembly
  - All the tools you need for building solution components (Editors for Business Processes, Business Rules….)
- Modular Development
  - Build modules for specific functionality
  - Link Modules through Imports / Exports
  - Update / Maintain Modules independently from each other
- Change Implementations without disrupting Module consumers
  - E.g. replace Human Task with Business Rule



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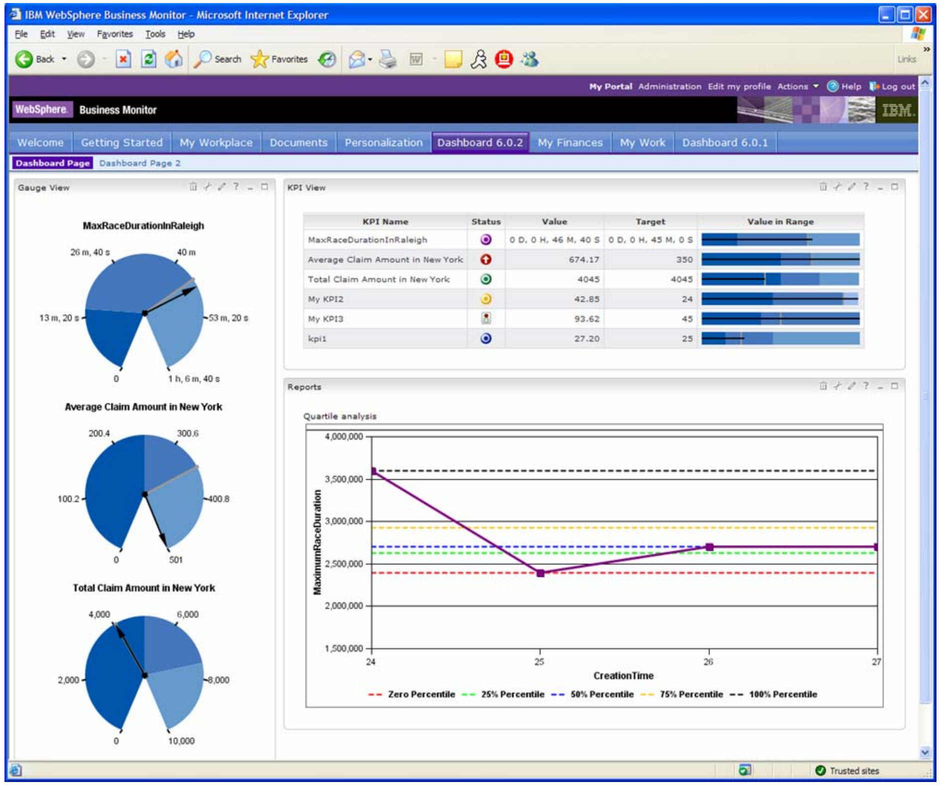
Real Time Visibility Into Business Performance

- Create high productivity role based Dashboards
- Monitor Business Process Performance
- Manage In-Flight Business Processes
- Gather Business Intelligence from Collected Data
- Detect Business Situations and Take Action


IBM WebSphere Business Monitor - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Links
My Portal Administration Edit my profile Actions Help Log out
WebSphere Business Monitor
Welcome Getting Started My Workplace Documents Personalization Dashboard 6.0.2 My Finances My Work Dashboard 6.0.1
Dashboard Page Dashboard Page 2
Gauge View
MaxRaceDurationInRaleigh
26 m, 40 s
40 m
13 m, 20 s
53 m, 20 s
0
1 h, 6 m, 40 s
Average Claim Amount in New York
200.4
300.6
100.2
400.8
0
501
Total Claim Amount in New York
4,000
6,000
2,000
8,000
0
10,000
KPI View
Reports
Quartile analysis
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
MaximumRaceDuration
24
25
26
27
CreationTime
Zero Percentile
25% Percentile
50% Percentile
75% Percentile
100% Percentile
Trusted sites

KPI Name	Status	Value	Target	Value in Range
MaxRaceDurationInRaleigh	●	0 D, 0 H, 46 M, 40 S	0 D, 0 H, 45 M, 0 S	
Average Claim Amount in New York	●	674.17	350	
Total Claim Amount in New York	●	4045	4045	
My KPI2	●	42.85	24	
My KPI3	●	93.62	45	
kpi1	●	27.20	25	

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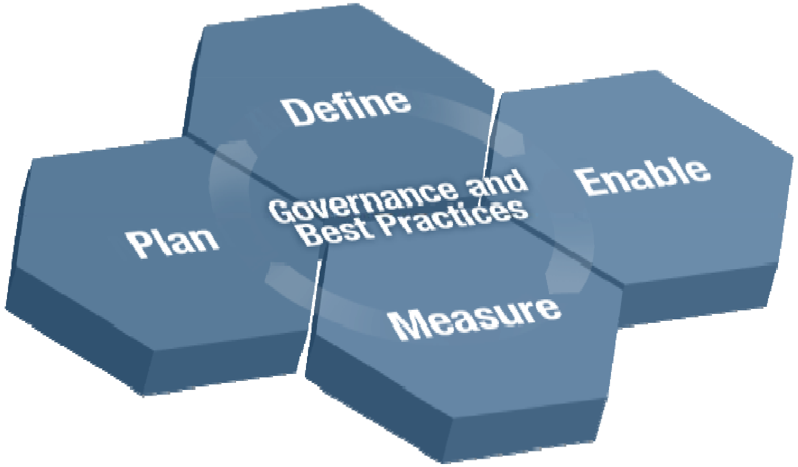
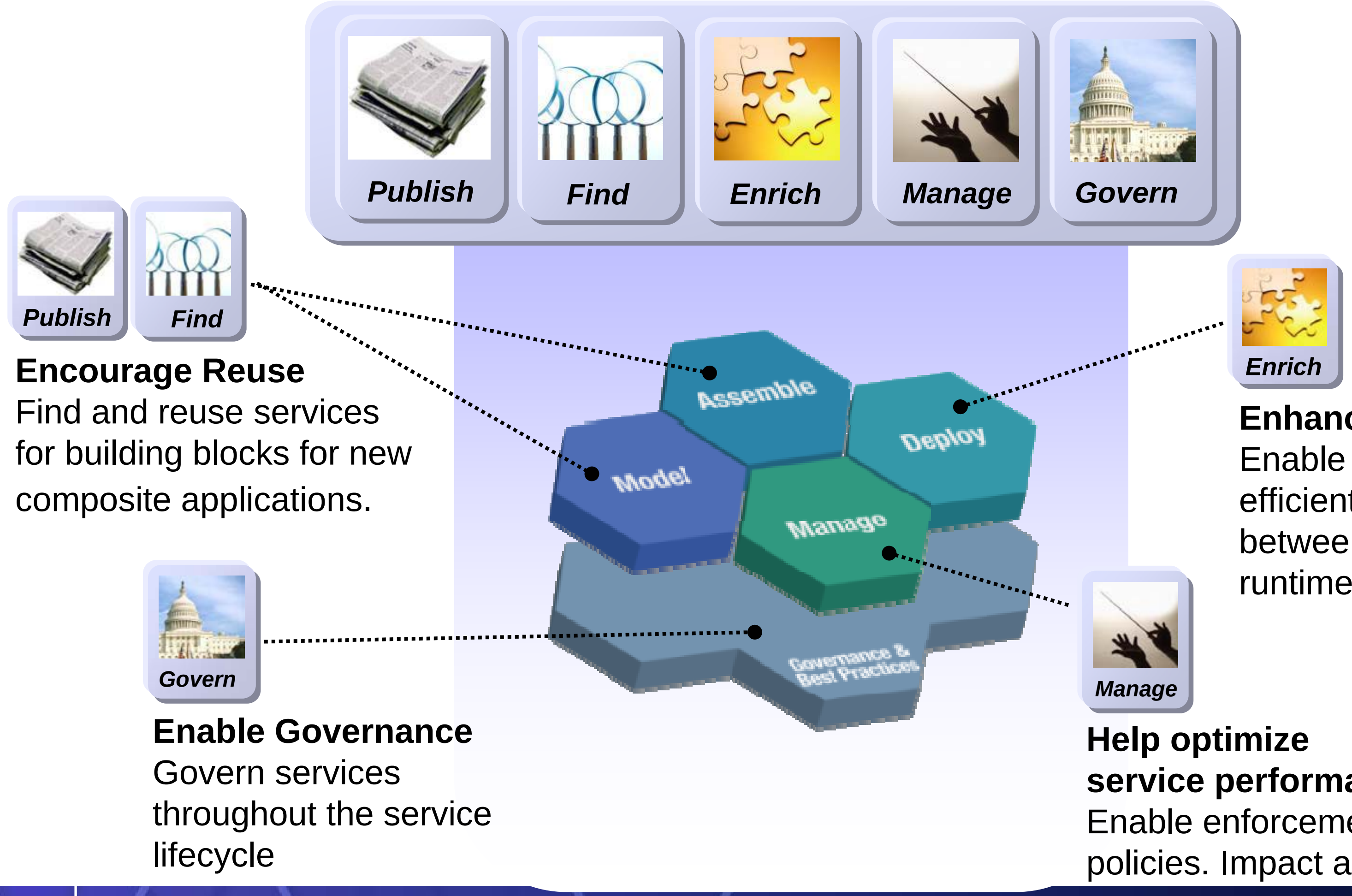


The WebSphere Service Registry and Repository provides value throughout the SOA lifecycle

WebSphere Service Registry and Repository



Encourage Reuse
Find and reuse services for building blocks for new composite applications.

Enhance Connectivity
Enable dynamic and efficient interactions between services at runtime.

Enable Governance
Govern services throughout the service lifecycle

Help optimize service performance
Enable enforcement of policies. Impact analysis

Summary

- IBM SOA unleashes the Real Value of BPM
- IBM delivers the most comprehensive Business Process Management solution to power your SOA!
  Increase business flexibility and responsiveness with:
  - WebSphere Business Modeler
  - WebSphere Process Server
  - WebSphere Integration Developer
  - WebSphere Business Monitor
  - WebSphere Service Registry & Repository
- IBM has been a leader in the IT architectural evolution and continues to be on the forefront as the leading provider of Web Services / SOA platforms

धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบคุณ

Thai

Спасибо

Russian

Gracias

Spanish

Thank You

English

شكرا

Arabic

Merci

French

Obrigado

Brazilian Portuguese

Grazie

Italian

多谢

Simplified Chinese

Danke

German

நன்றி

Tamil

ありがとうございました

Japanese

감사합니다

Korean

IBM Software Group

WebSphere Process Server
Technical Overview

TechWorks

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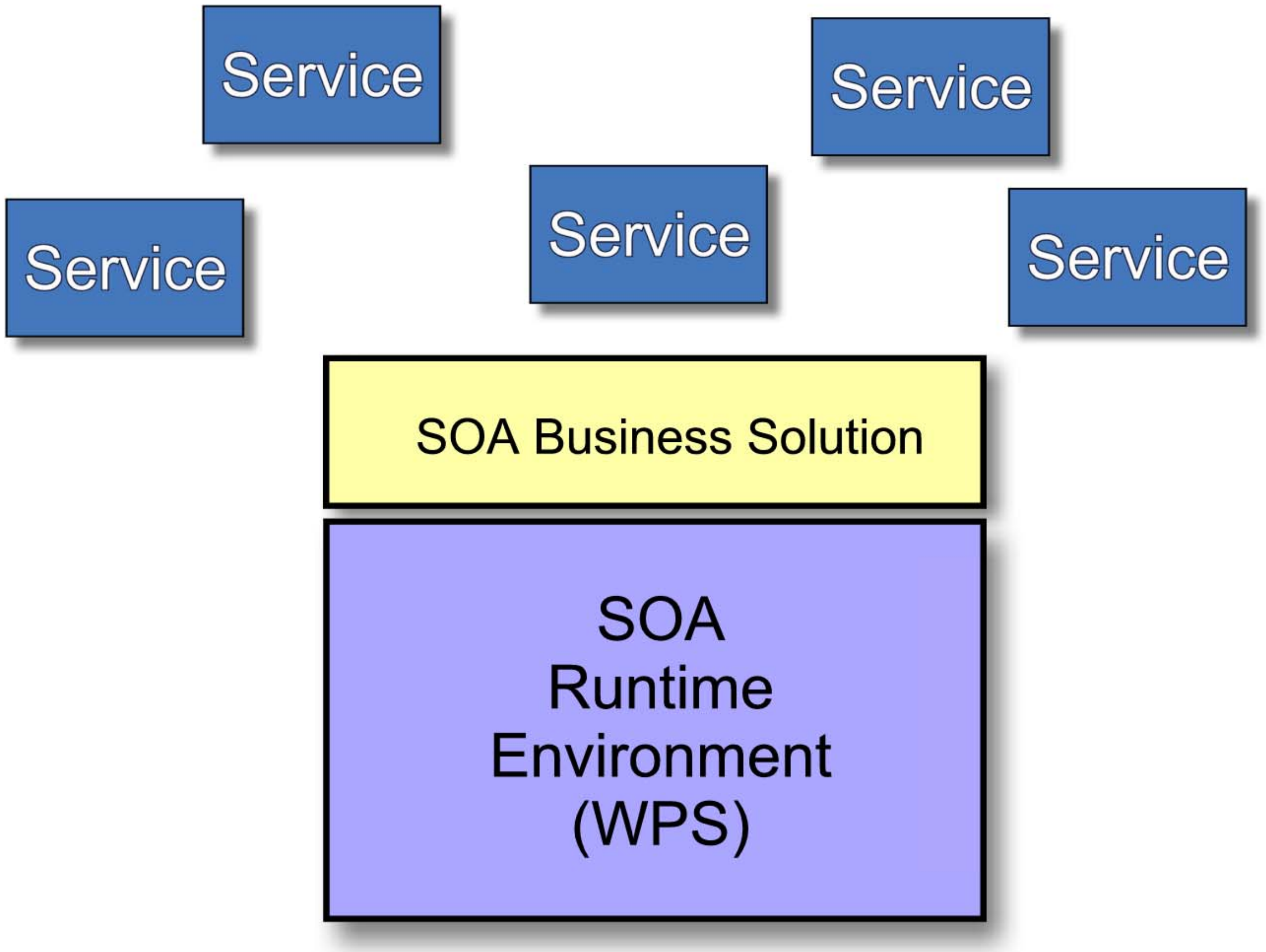
Why you want to hear this …

- What is WebSphere® Process Server?
- Why is it based on J2EE?
- How do we achieve solution assembly?
- What are the functional services provided by WebSphere Process Server?

What is WebSphere Process Server? …



Service

Service

Service

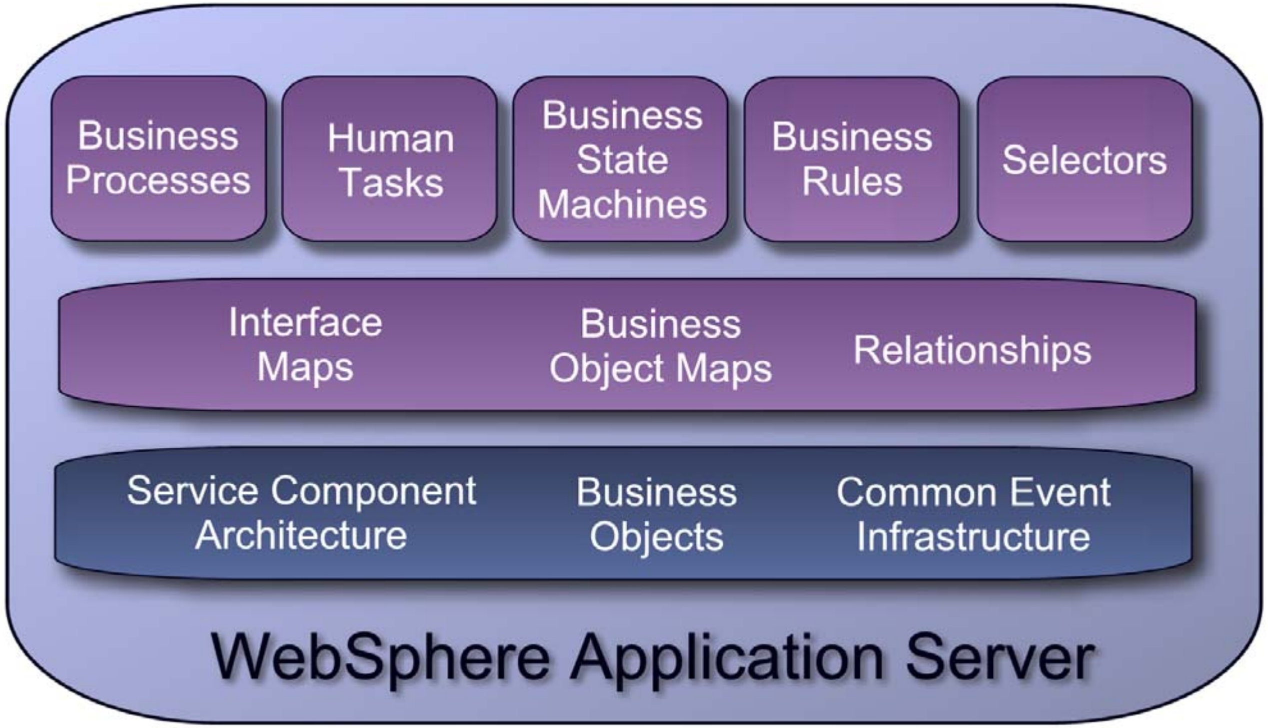
Service

Service

SOA Business Solution

SOA Runtime Environment (WPS)

WebSphere Process Server …



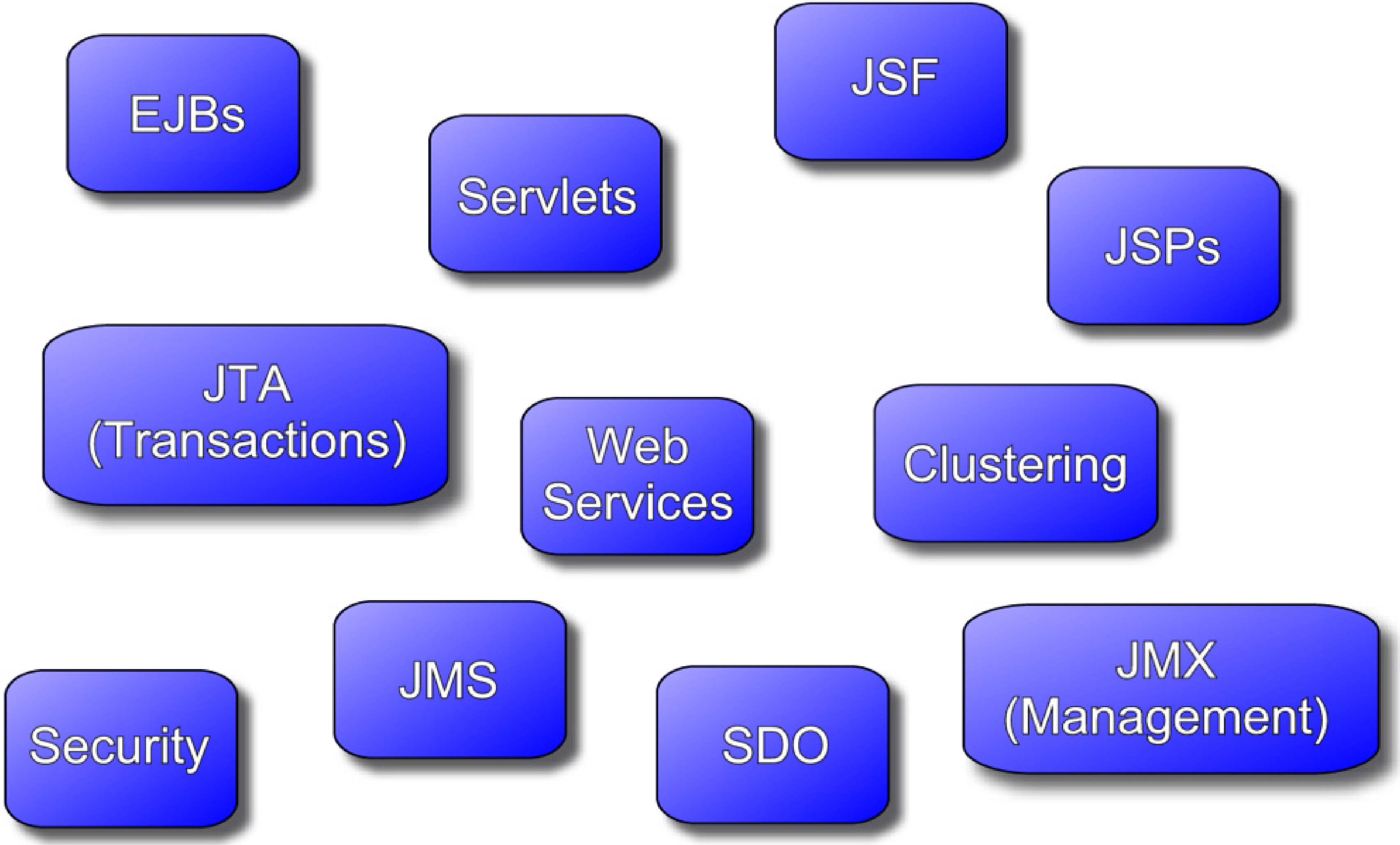
Service Components are the added-value components

Supporting Services simplify common integration tasks

SOA Core is the foundation technology

WebSphere Application Server V6 foundation

Based on WebSphere Application Server …



EJBs

Servlets

JSF

JSPs

JTA (Transactions)

Web Services

Clustering

Security

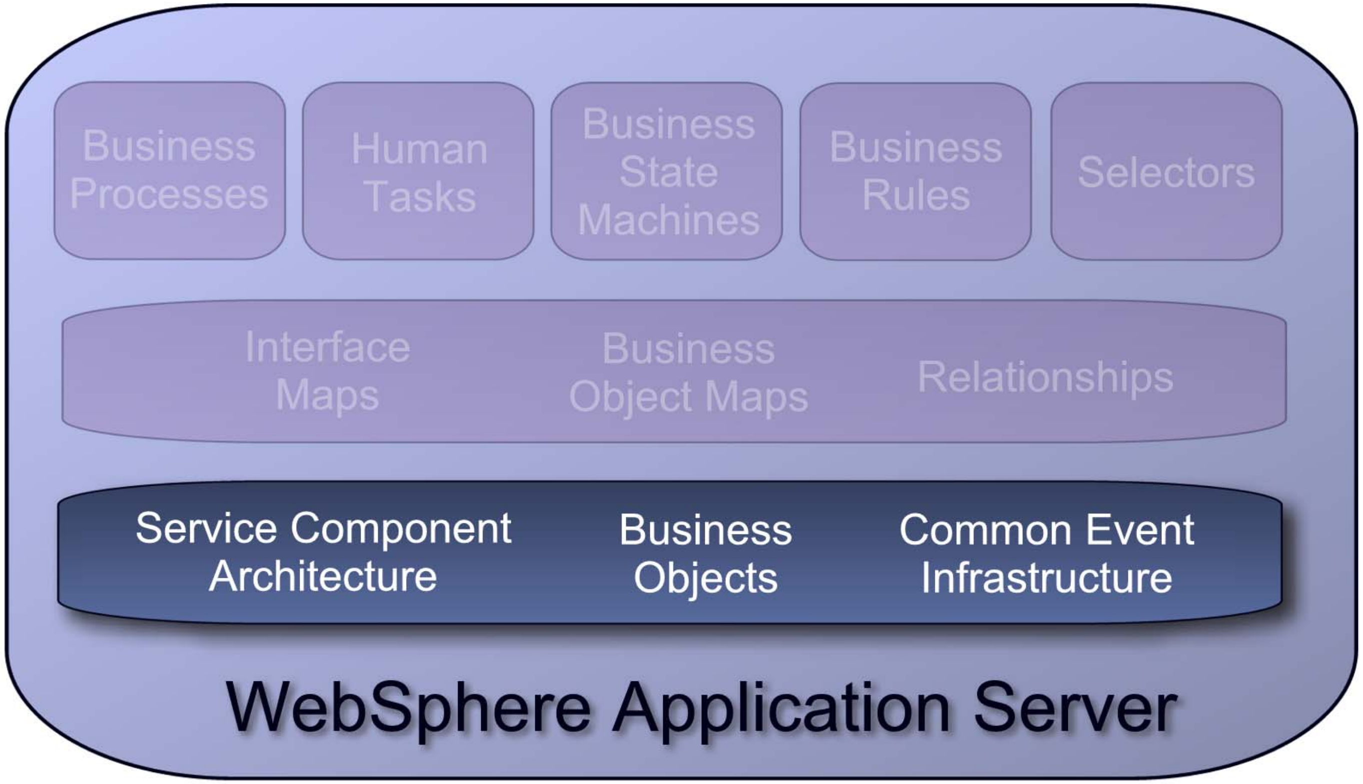
JMS

SDO

JMX (Management)

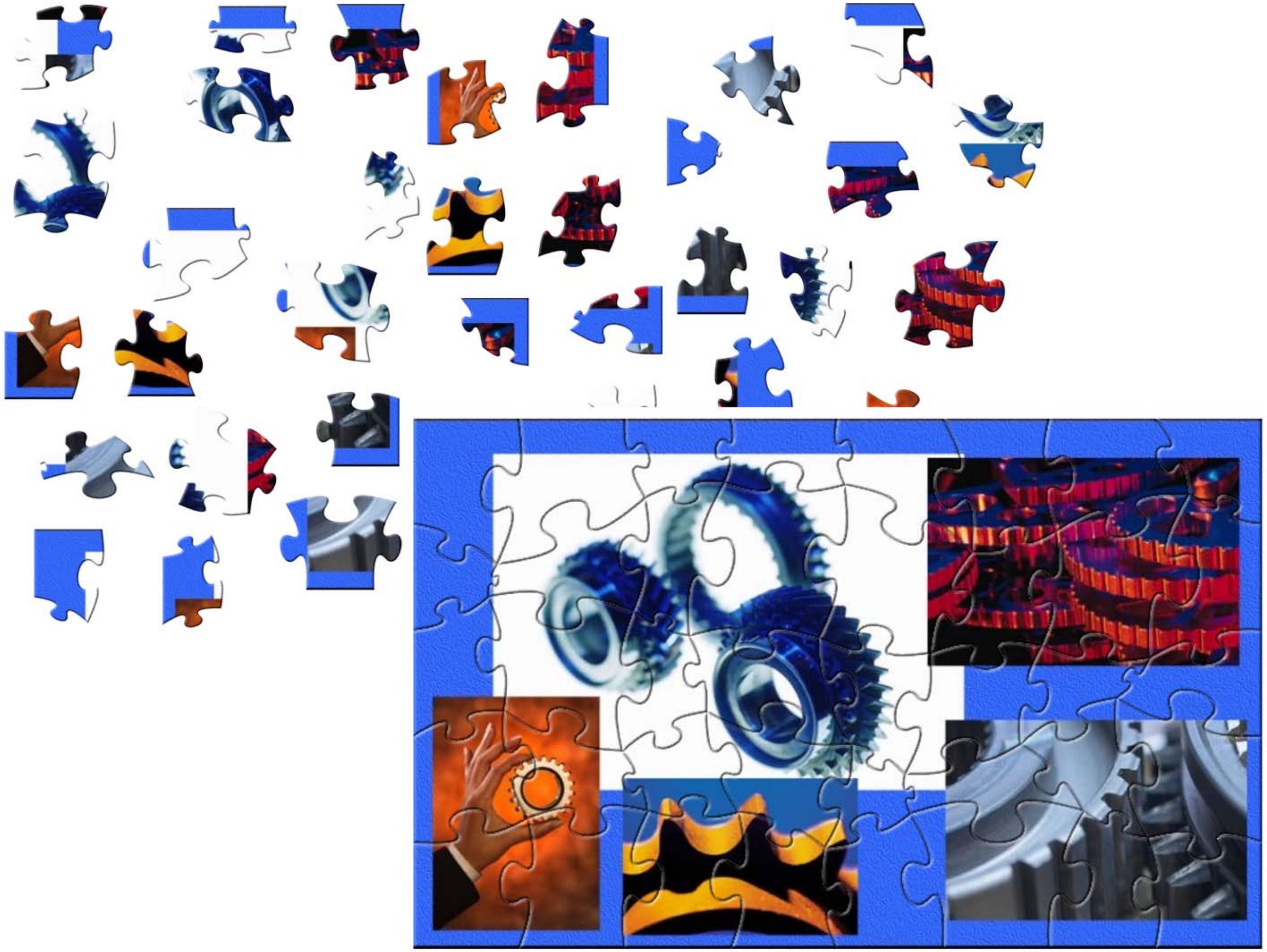
WebSphere Process Server …

SOA Core



SOA Core is the foundation technology

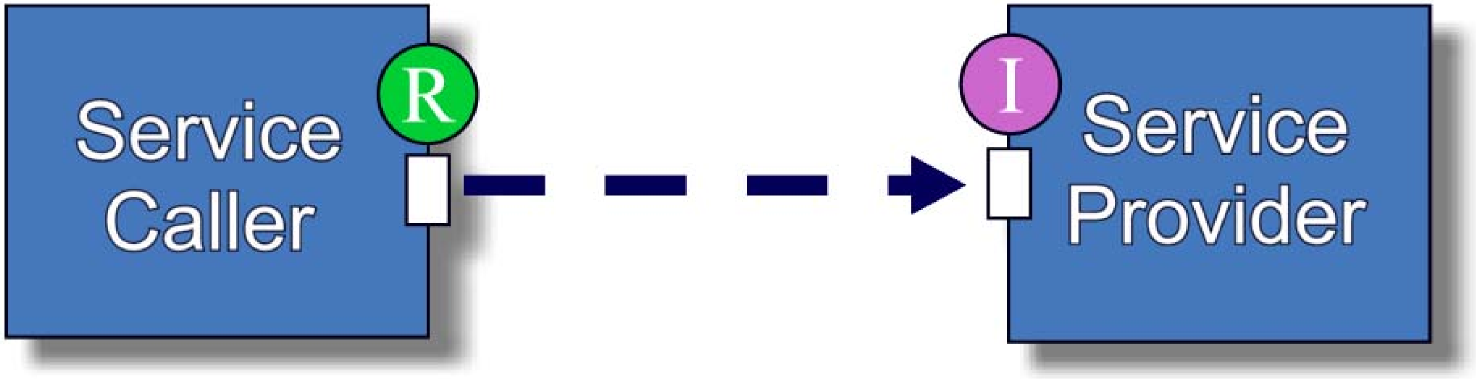
Assembling the Services …



A Basic Service …

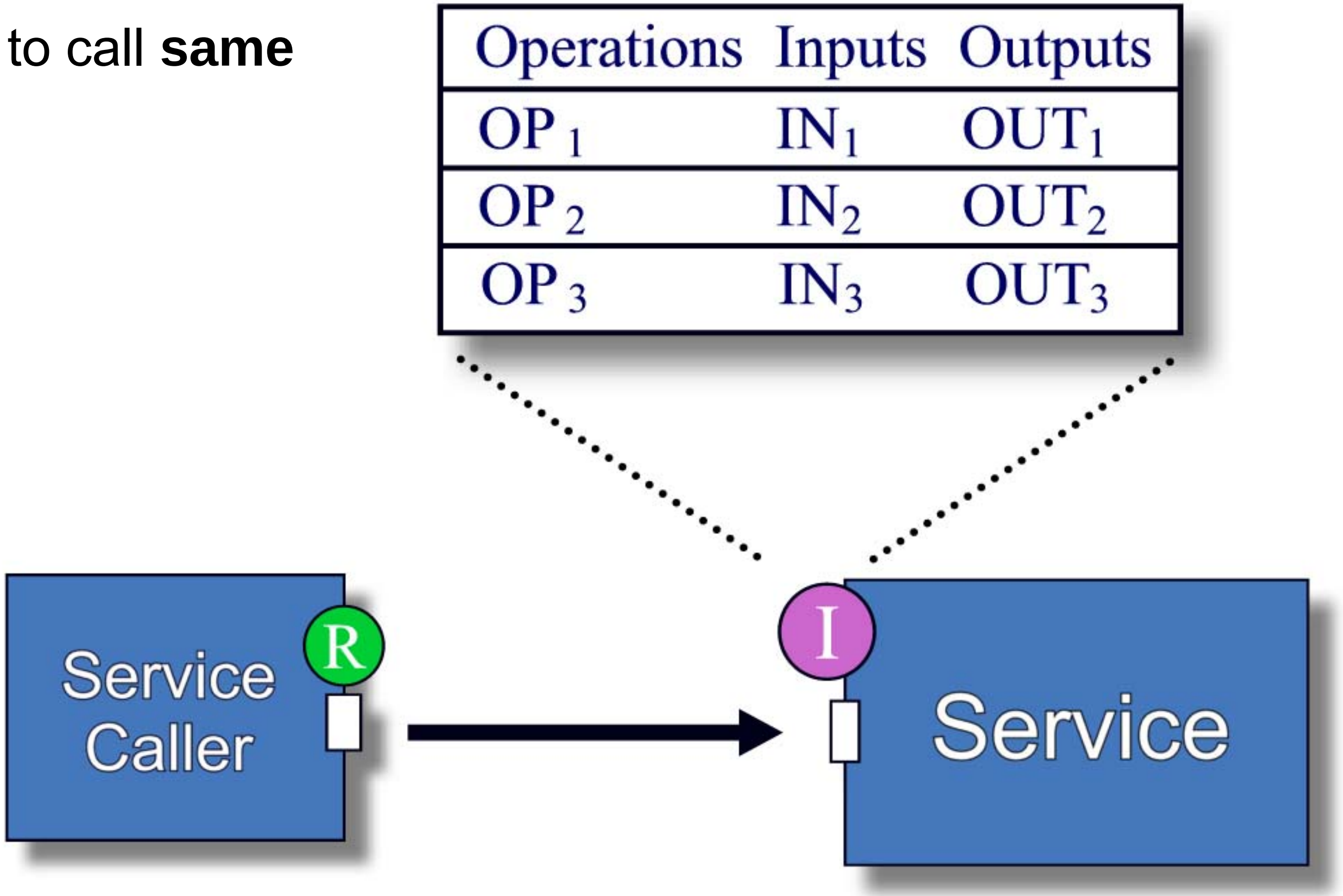
- Service Provider provides an Interface
- Service Caller invokes the Service Provider’s Interface

- Logical components:
  - Interface – Contract for the Service
  - Reference – Service needed in order to execute



The Logical Interface …

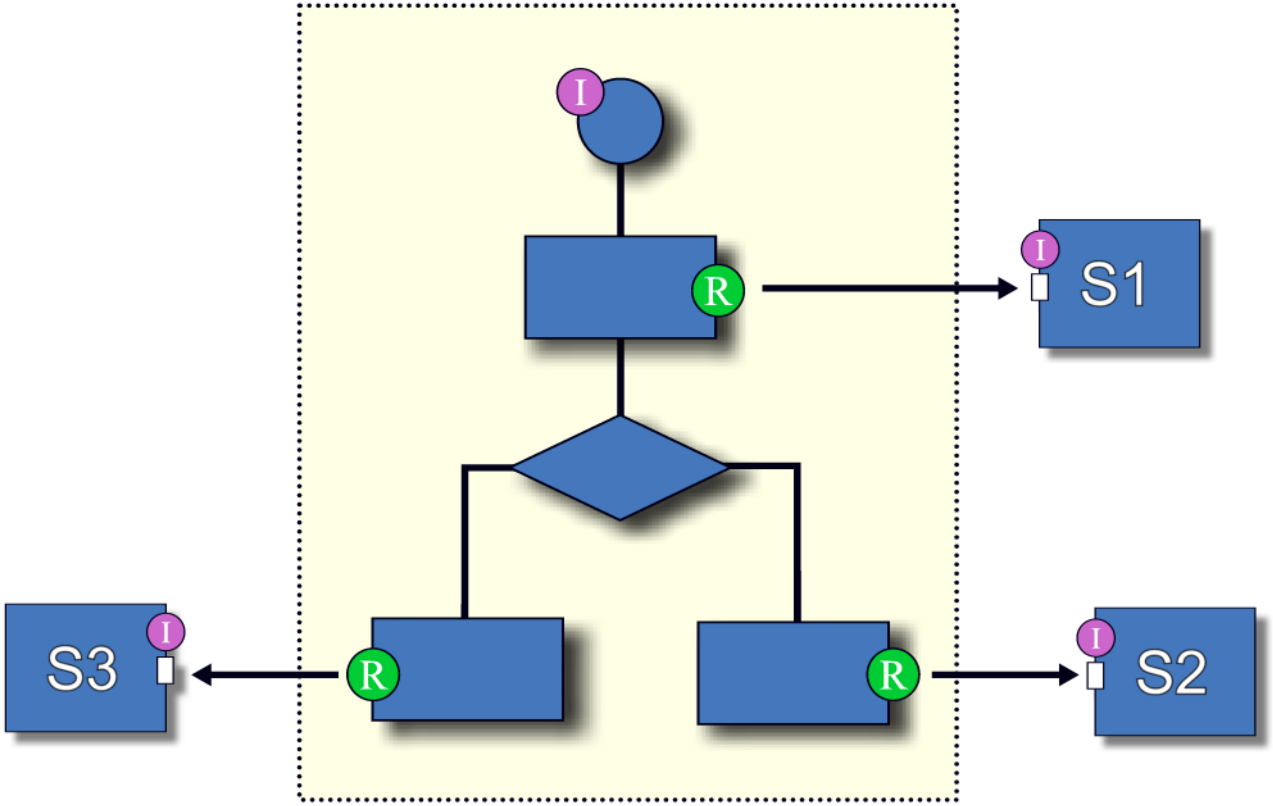
- Service provides an Interface
- Caller expects to call **same** Interface



Operations	Inputs	Outputs
OP_1	IN_1	OUT_1
OP_2	IN_2	OUT_2
OP_3	IN_3	OUT_3

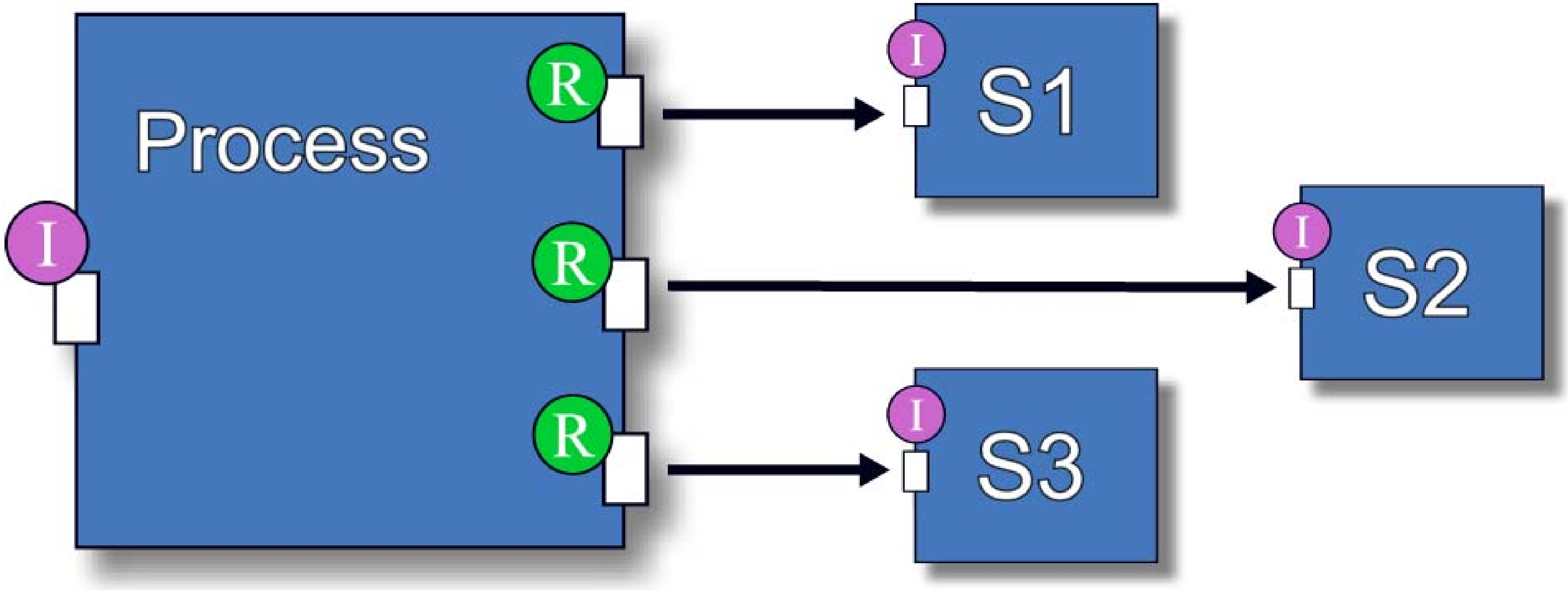
Processes and Services …

- Process invokes Services
- Process exposes an Interface



Logical View of Processes and Services …

- Process exposes an Interface
- Process invokes Services
- It looks just like any other Service

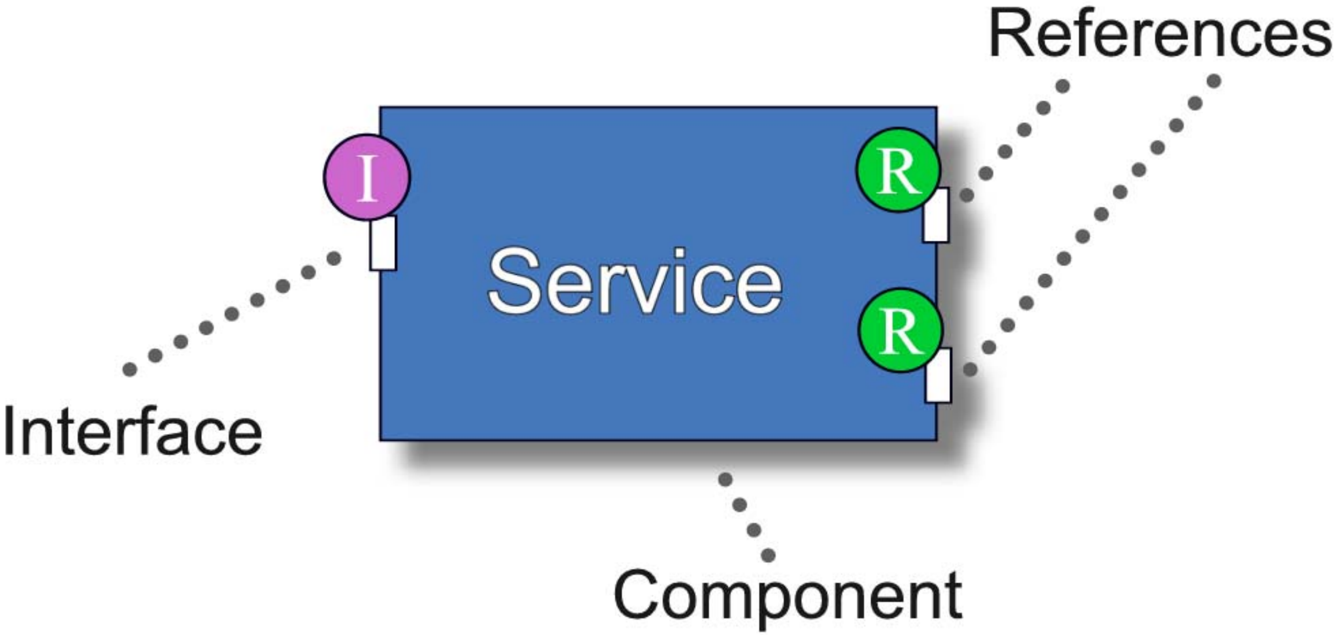


The Problems …

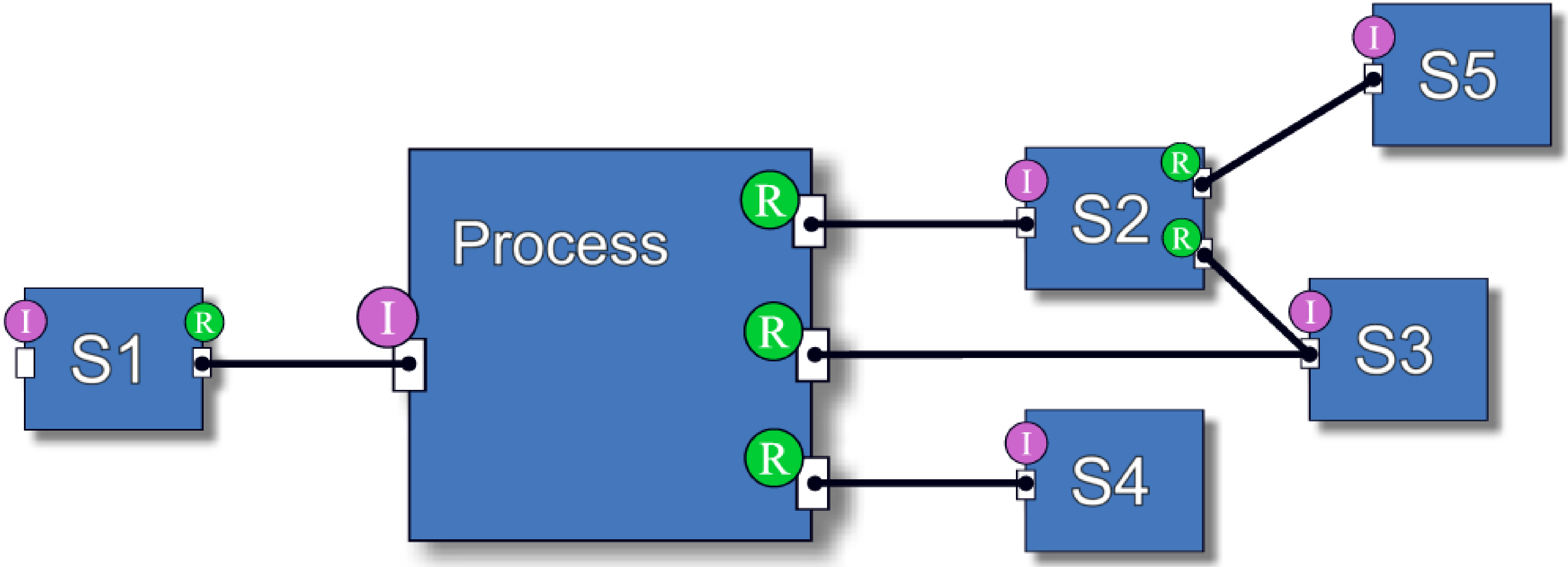
- Coupling of Callers to Services is too tight
  - How do I replace one Service with another?
  - What if the provider’s Interface changes?
  - Protocol and other implementation details exposed!
- How do I specify extra qualities of Service?
  - Transactionality
  - Security
  - Others…
- How do I manage which Services invoke which other Services?

Service Component Architecture …

- Core Concepts …
  - Services are called Components
  - Each Component has an Interface
  - A caller of a Component has a Reference to that Component



Assembling Components …

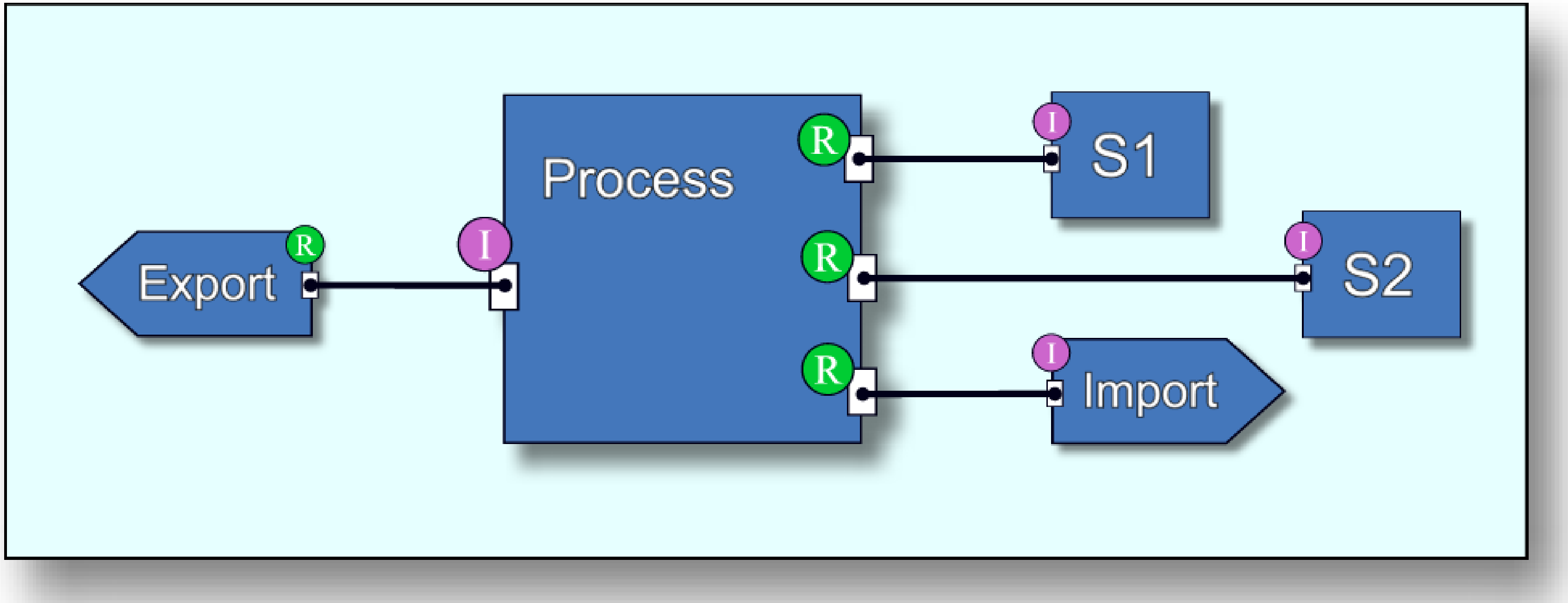


Imports and Exports …

- Exports advertise capability out from a module

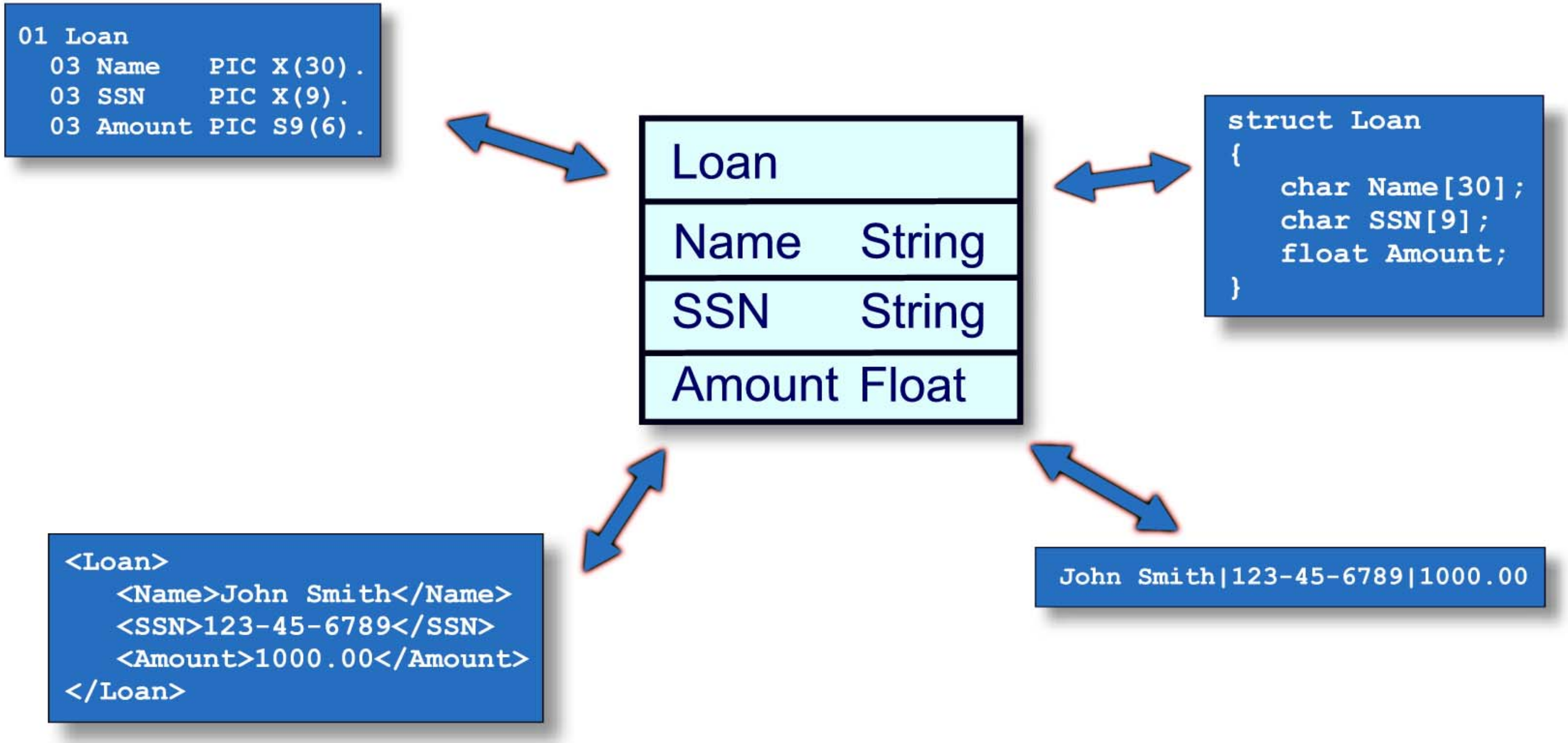
- Imports include capability from external services or modules

Module



The Business Object …

- Business Data !!
- Named collection of attributes or fields



```
01 Loan
   03 Name    PIC X(30).
   03 SSN     PIC X(9).
   03 Amount  PIC S9(6).
```

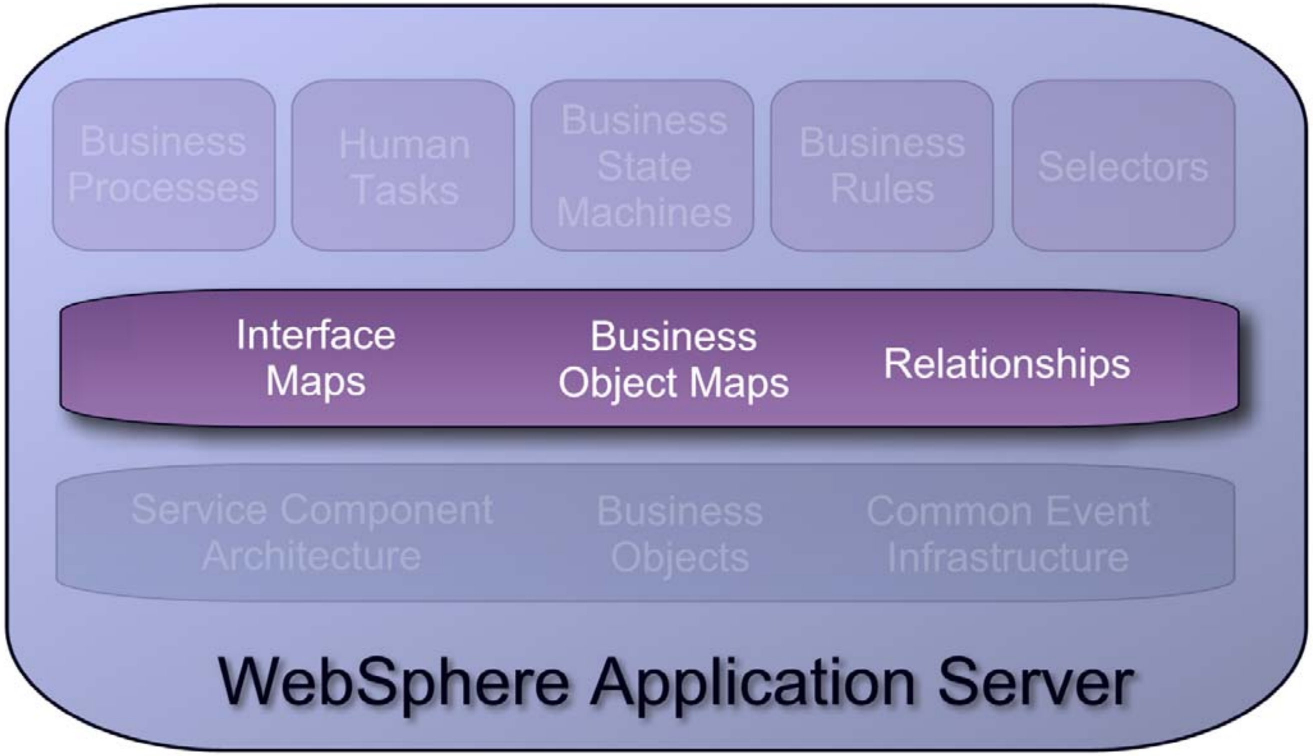
Loan	
Name	String
SSN	String
Amount	Float

```
struct Loan
{
    char Name[30];
    char SSN[9];
    float Amount;
}
```

```
<Loan>
    <Name>John Smith</Name>
    <SSN>123-45-6789</SSN>
    <Amount>1000.00</Amount>
</Loan>
```

```
John Smith|123-45-6789|1000.00
```

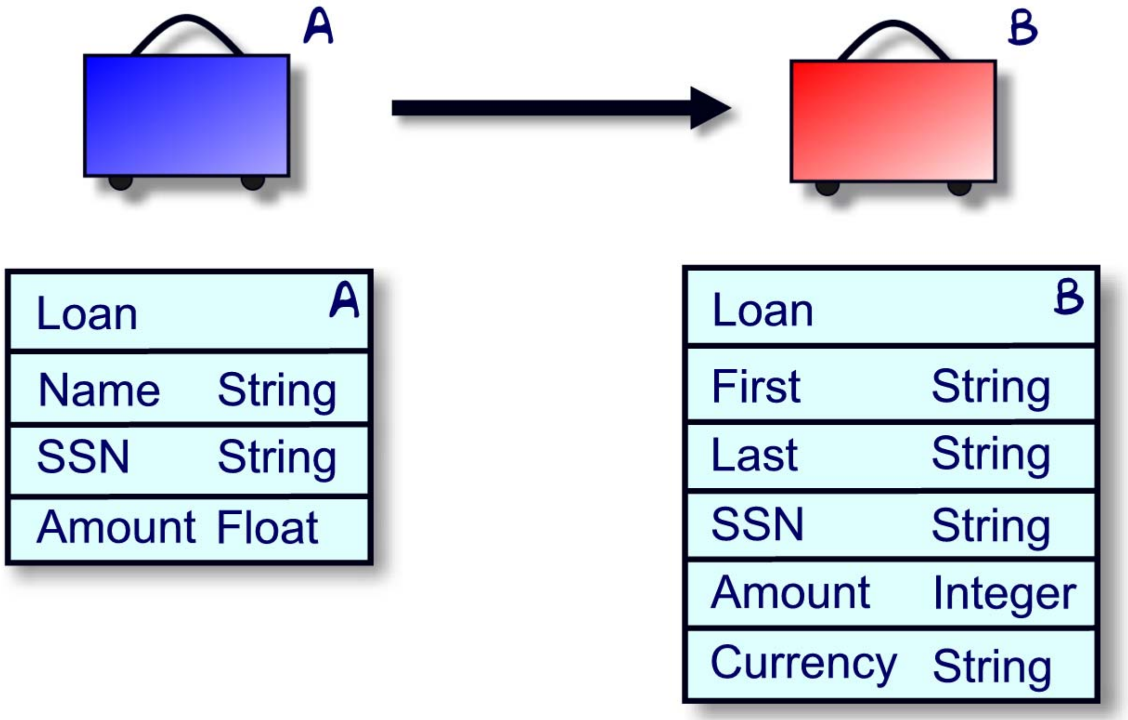
WebSphere Process Server …



Supporting Services simplify common integration tasks

Business Object Maps …

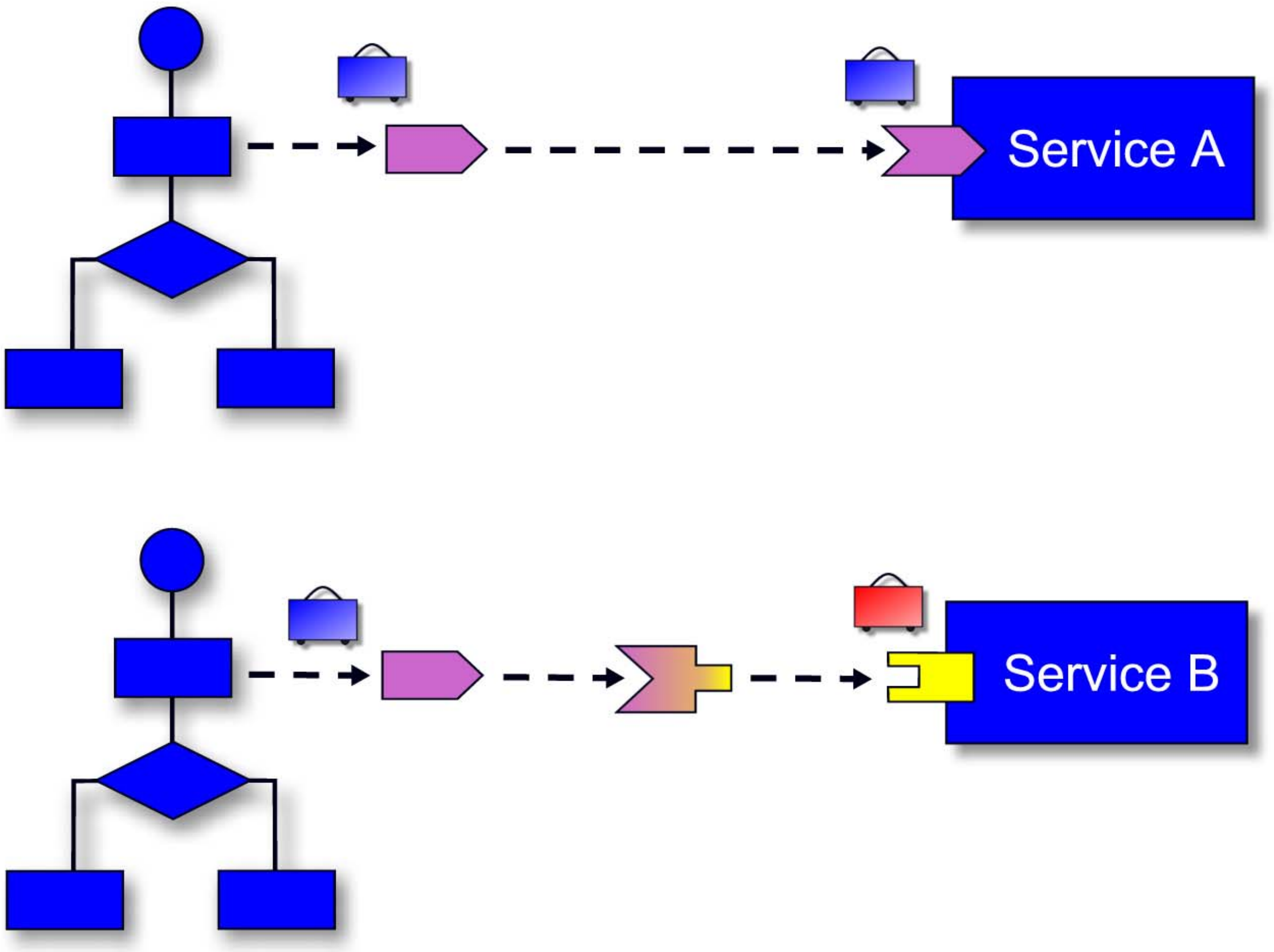
- Capability to map one Business Object to another
- Map attributes in one Business Object to attributes in another
- A variety of transformation rules available



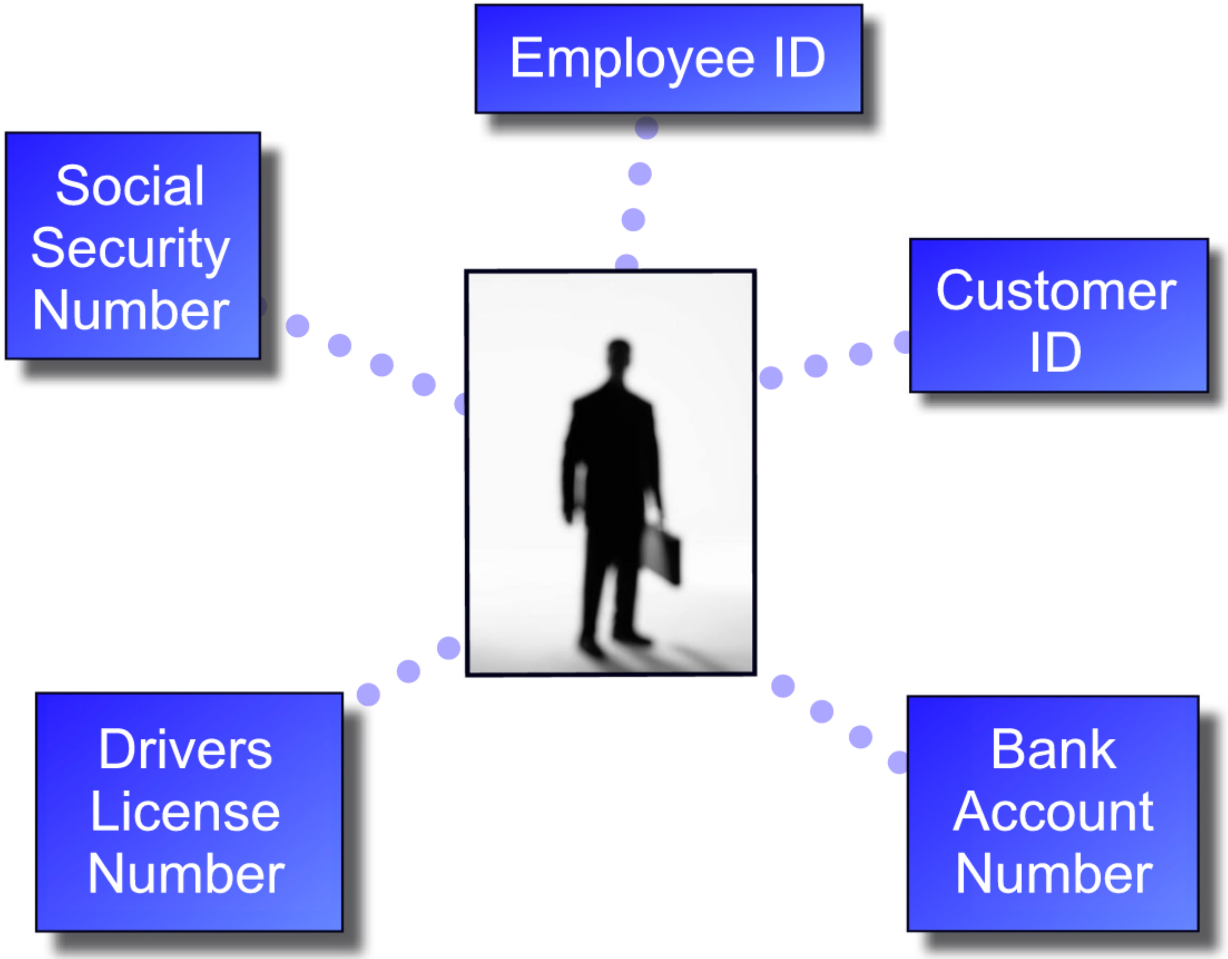
Loan A	
Name	String
SSN	String
Amount	Float

Loan B	
First	String
Last	String
SSN	String
Amount	Integer
Currency	String

Interface Maps …



Relationship Mapping …



Employee ID

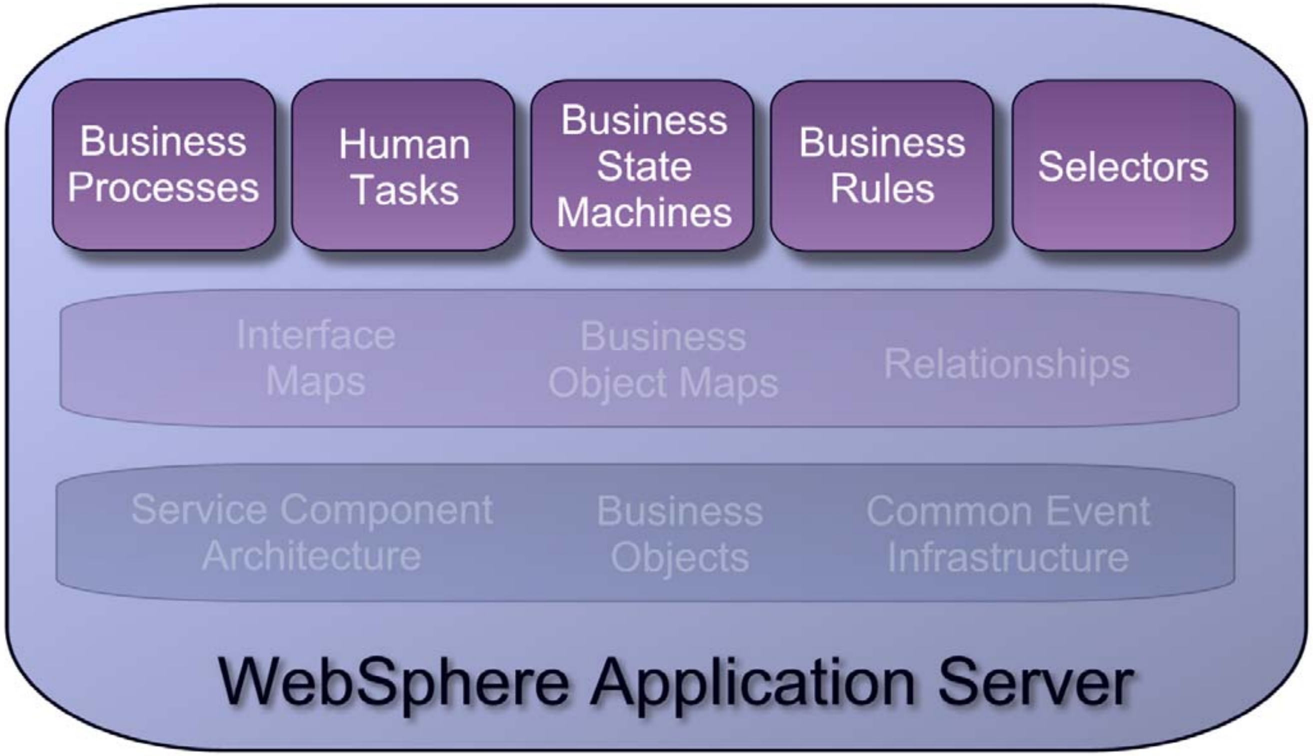
Social Security Number

Customer ID

Drivers License Number

Bank Account Number

WebSphere Process Server …

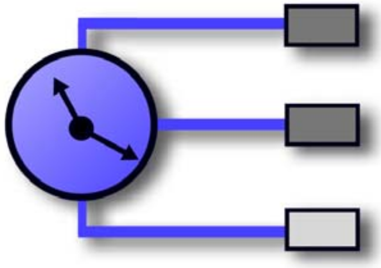


Service Components are the added-value components

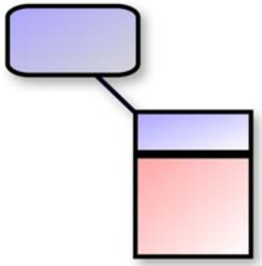
Supplied Components …

Human Task

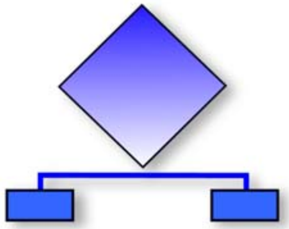
Selector



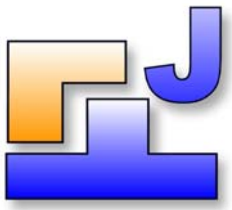
State Machine



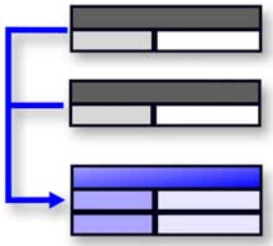
Process



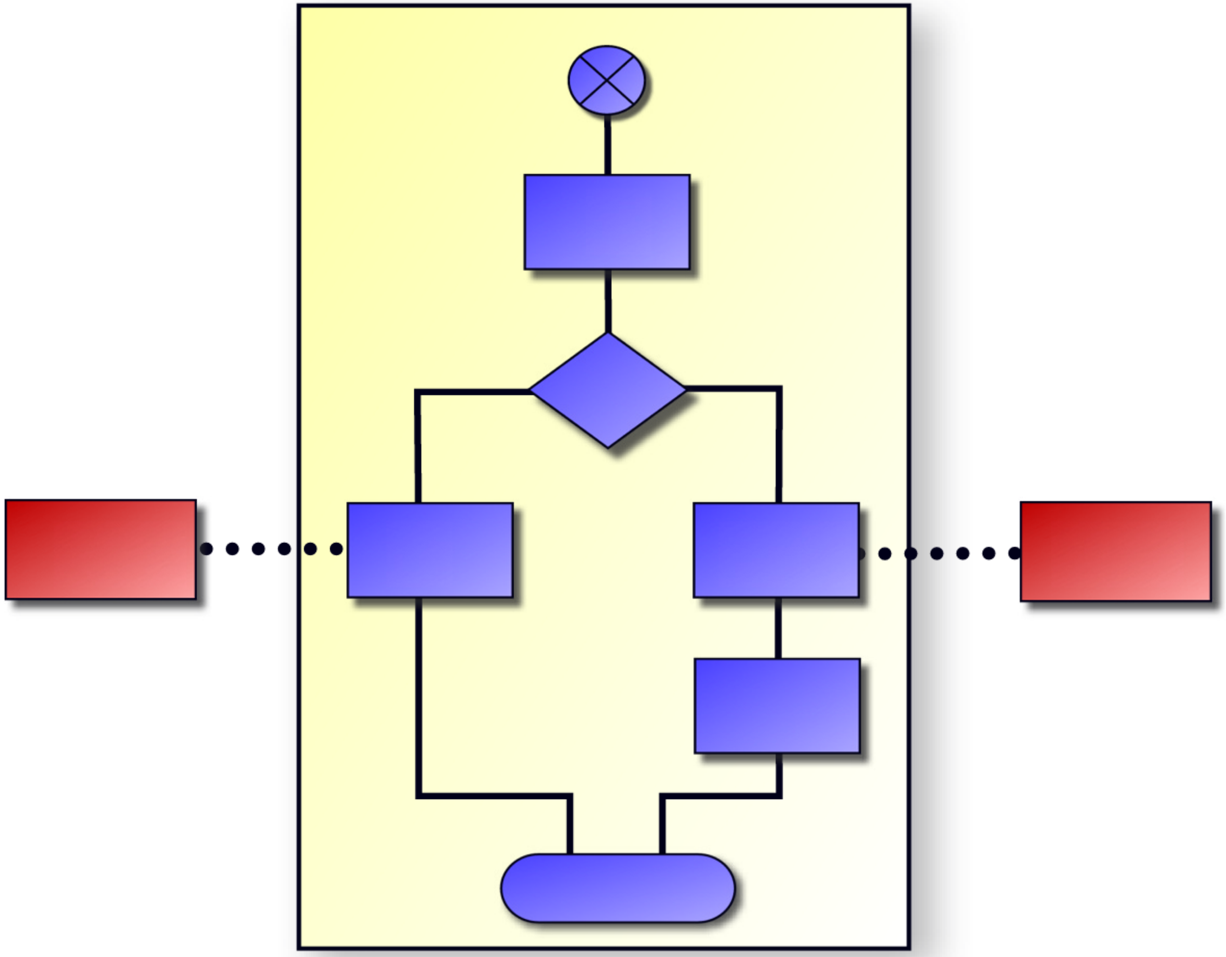
Java



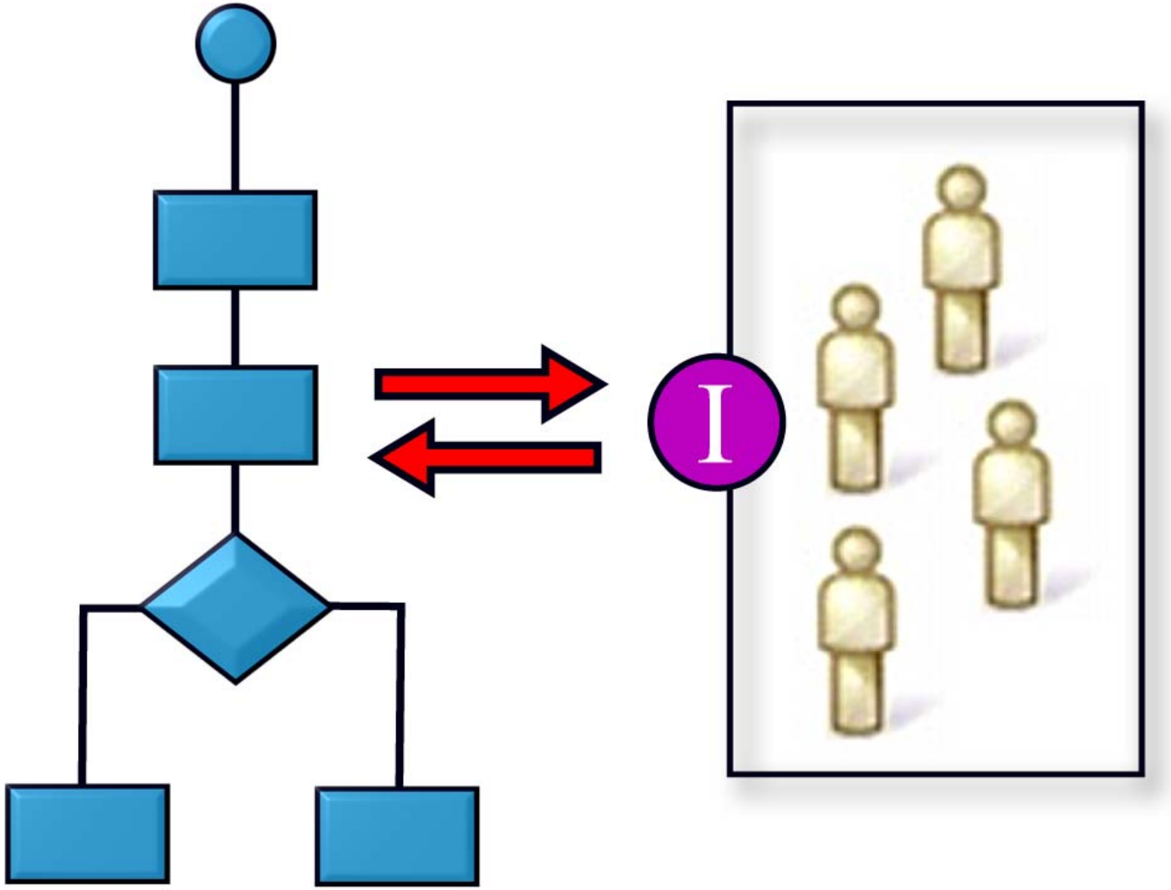
Business Rules



Business Processes …



Human Task Manager …



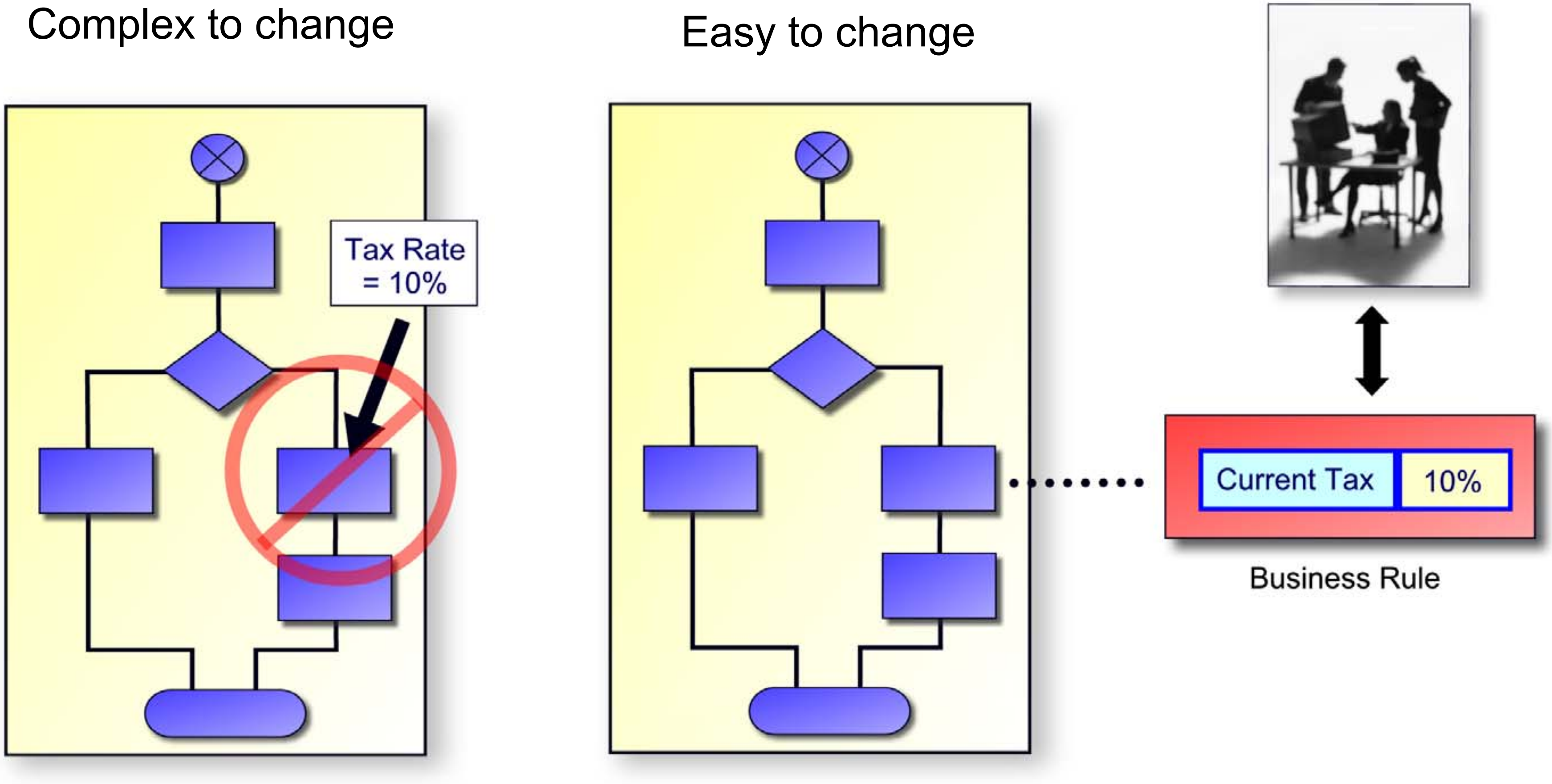
Business Rules …

Brittle

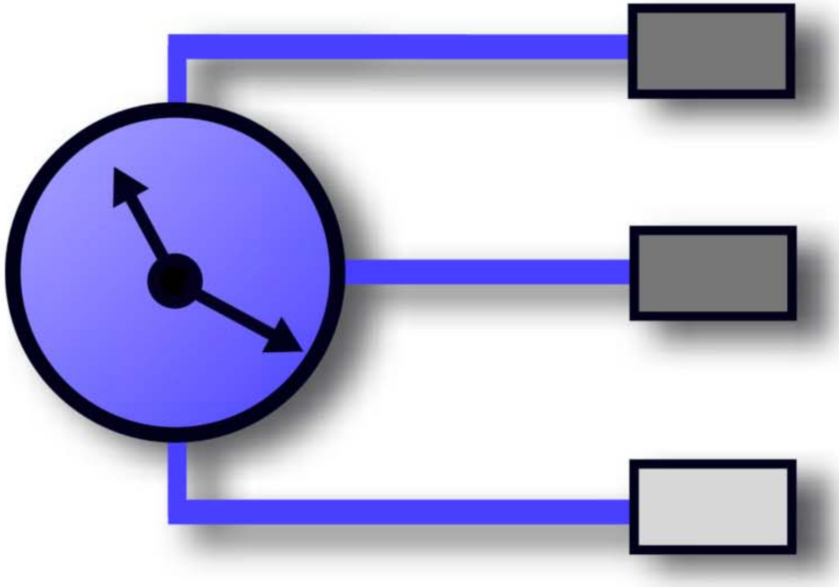
Complex to change

Flexible

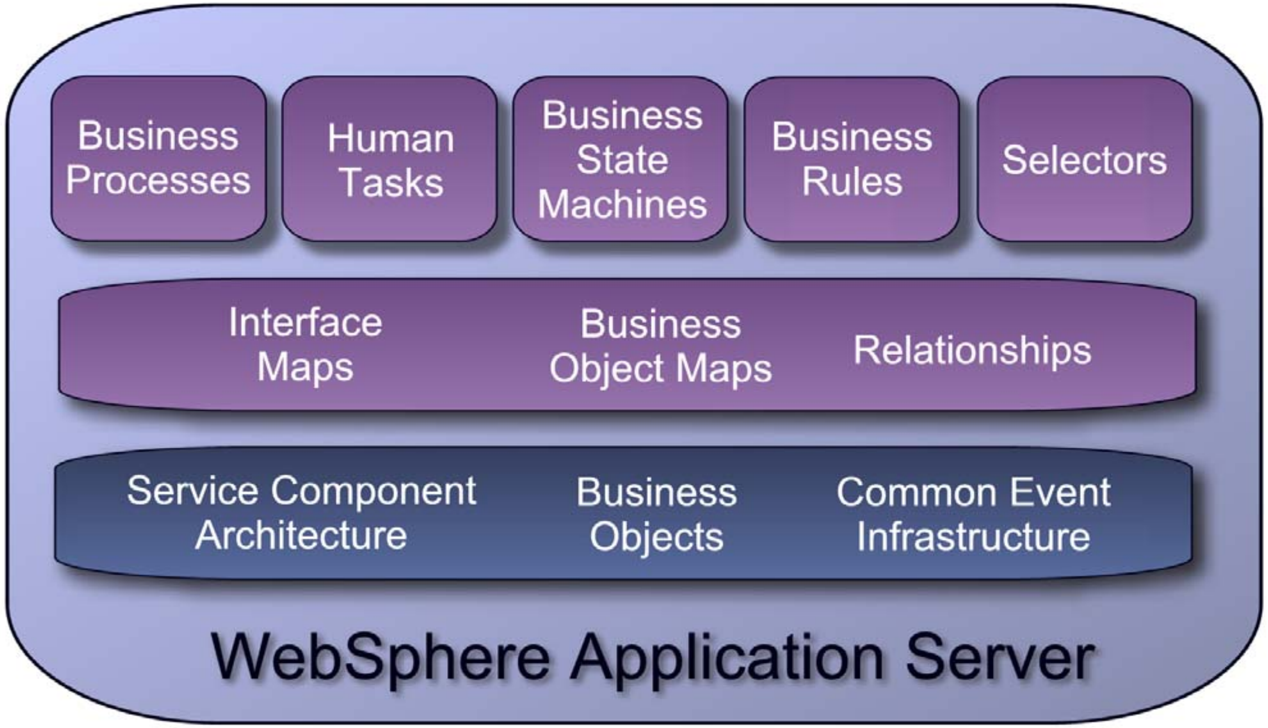
Easy to change



Selectors …



WebSphere Process Server … Summary …



Service Components are the added-value components

Supporting Services simplify common integration tasks

SOA Core is the foundation technology

WebSphere Application Server V6 foundation

Thank You

IBM Software Group

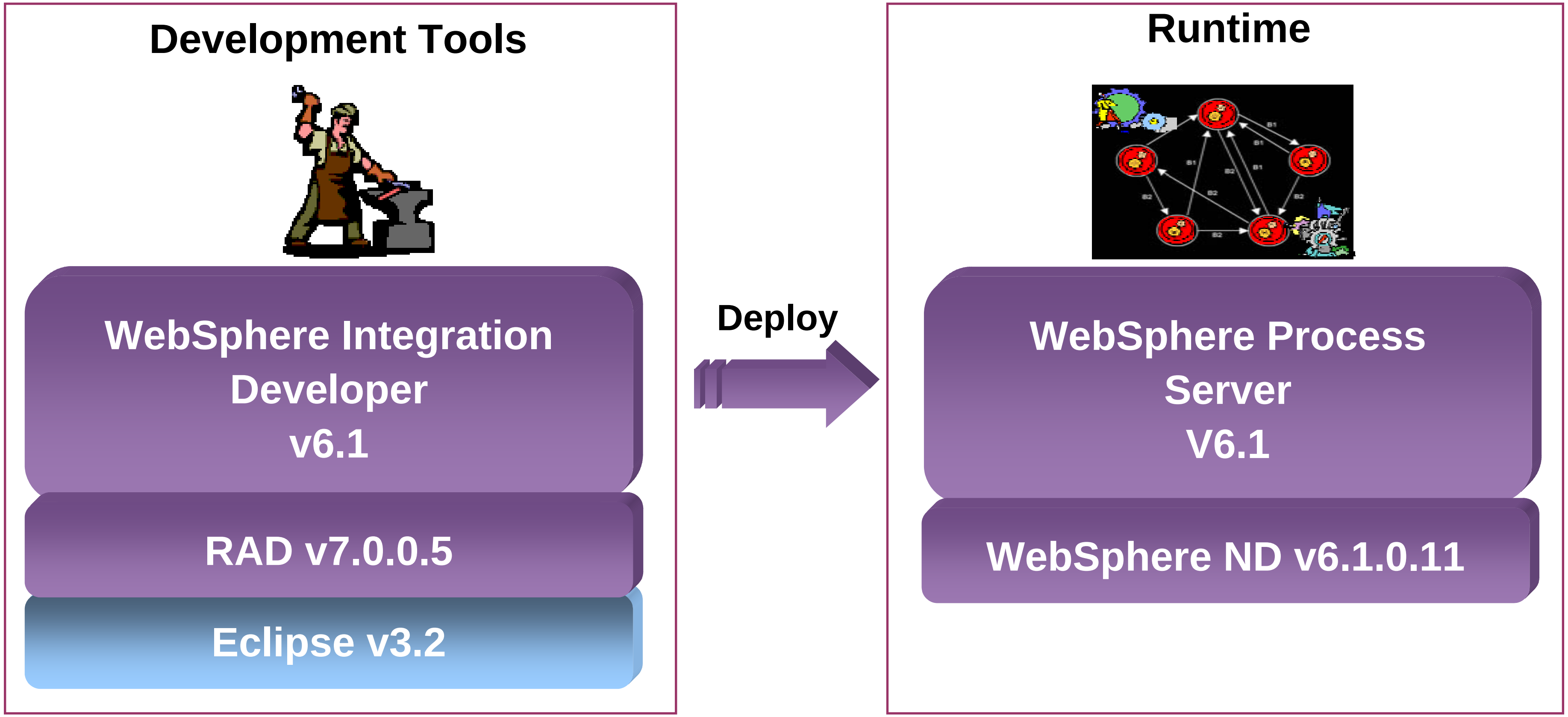
WebSphere Integration Developer

Technical Overview

An IBM Proof of Technology

TechWorks

Base Tools and Runtimes

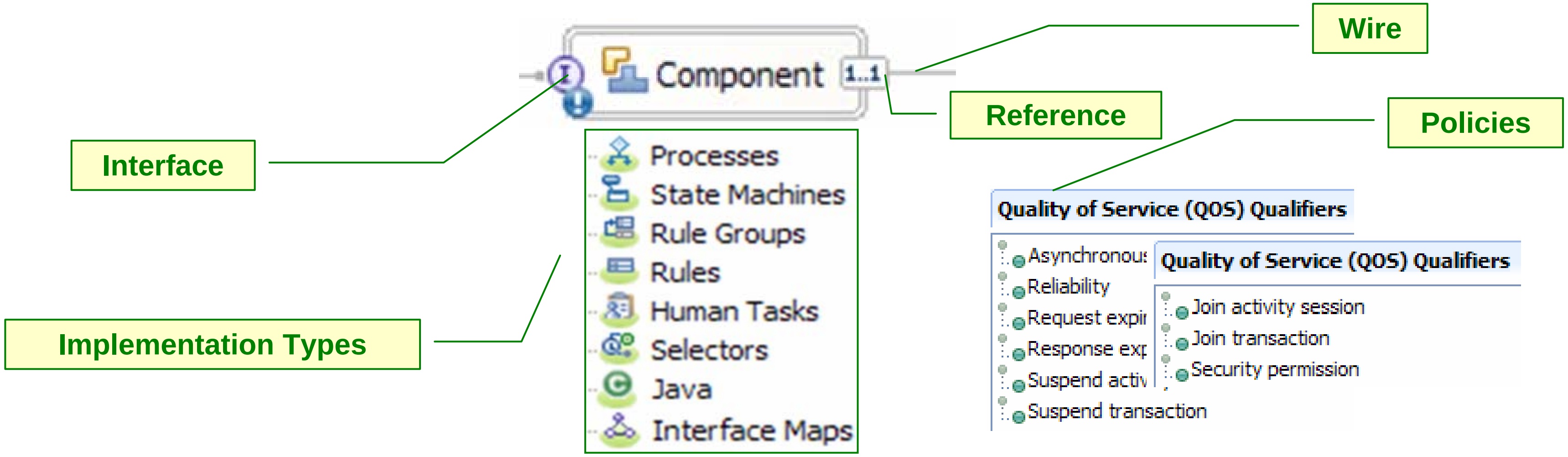


- WebSphere Integration Developer is based on a <u>subset</u> of Rational Application Developer (RAD) v7.0.0.5

- WebSphere Process Server is based on WebSphere Application Server ND v6.1.0.11

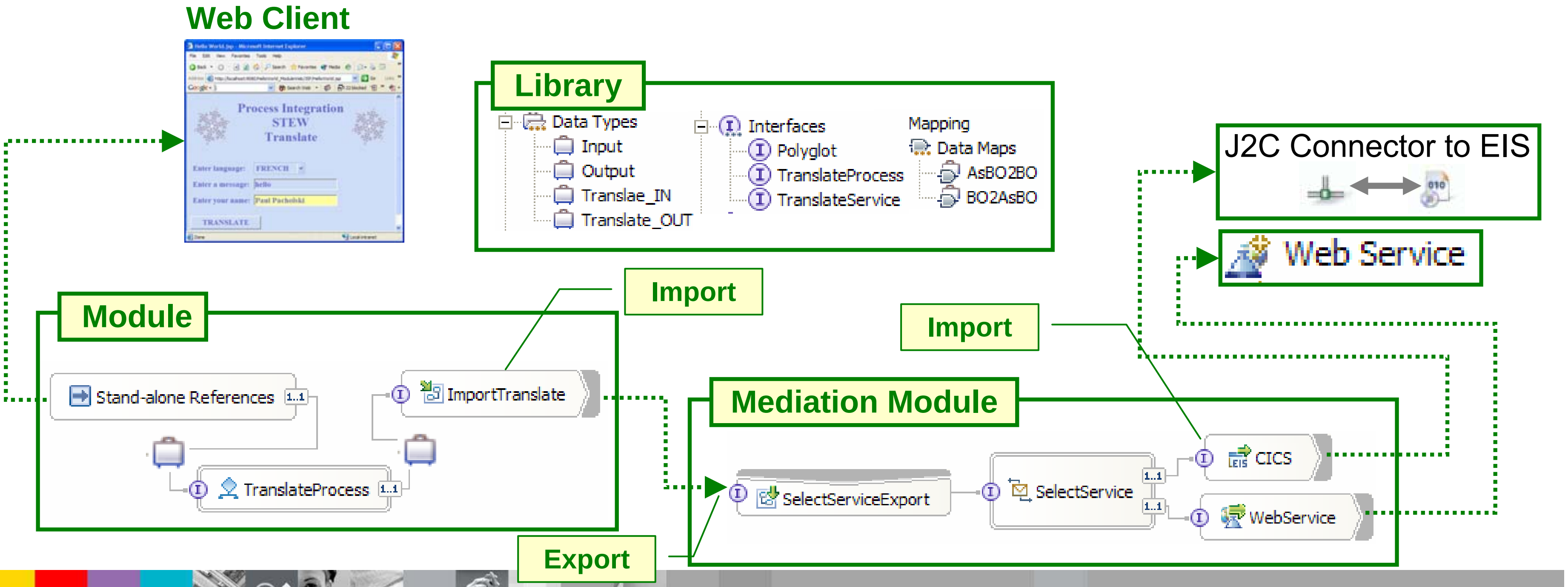
Service Components – Key Concepts

- Invocation – static or dynamic, synchronous or asynchronous
- Interfaces – define how to invoke a Component (can be WSDL or Java Interfaces)
- References – specify how a Component can call other Components
- Policies – define quality of service
- Implementation Types – can be BPEL, Java, Mediation, etc…
- Wires – define how a Reference connect to an Interfaces



WebSphere Process Server Programming Model

- Service Components are assembled into **Modules**
- Reusable assets reside in **Libraries**
- **Imports** – make external SCA Interfaces and non-SCA artifacts visible inside a Module
- **Exports** – make internal (to the Module) Interfaces visible outside the Module
- Service Components use Business Objects for data
- Integration Solution is a collections of Modules and Libraries

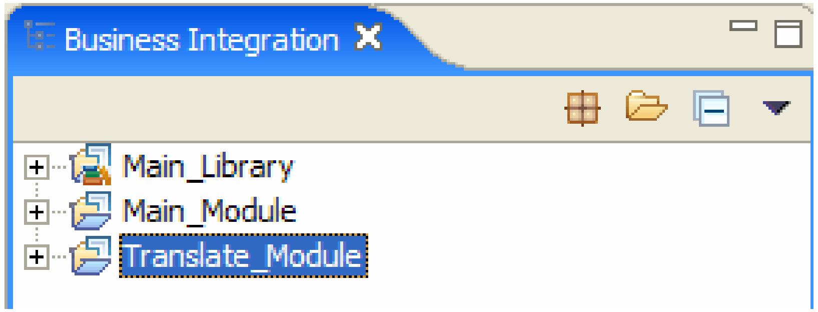


Process Integration
STEW
Translate

Enter language: FRENCH
Enter a message: hello
Enter your name: Paul Pachelski
TRANSLATE

Modules and Libraries

- *New Project Wizard* creates Libraries and Modules
- Libraries
  - Contain artifacts sharable across Modules
    - Data Types, Interfaces, Mapping
- Modules
  - Contain Components
- Module Dependency editor
  - Allows to specify what Libraries are visible to a Module

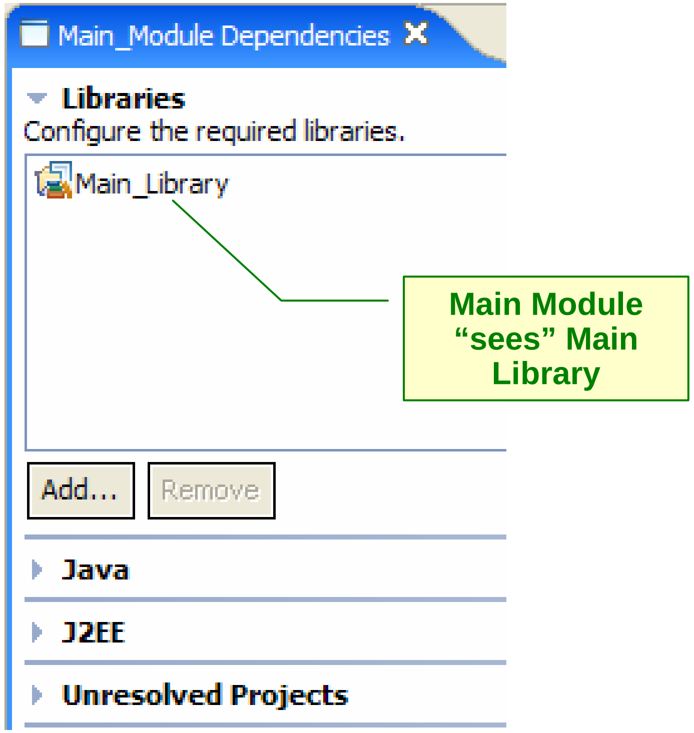


Business Integration

Main_Library

Main_Module

Translate_Module



Main_Module Dependencies

Libraries

Configure the required libraries.

Main_Library

Java

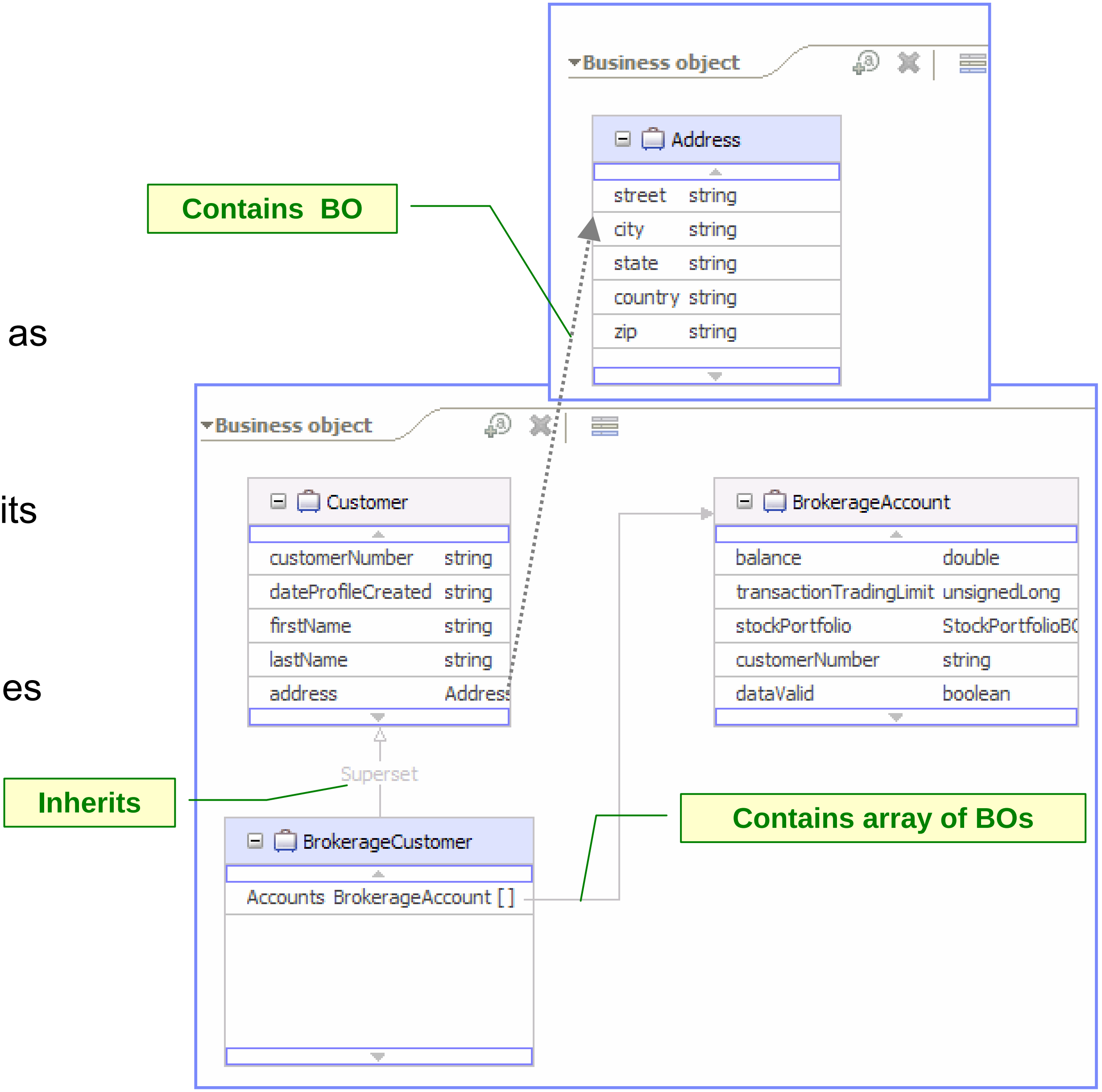
J2EE

Unresolved Projects

Main Module "sees" Main Library

Business Objects

- *Business Object Editor*
  - Compose new Business Objects
  - Creates BOs (implemented as XSDs)
- Inheritance
  - Create a new BO that inherits data from exiting BO
- Derived BOs
  - Create a new BO form entries in an existing BO
- Nesting
  - A BO may contain scalars/arrays of other BOs



Contains BO

Inherits

Contains array of BOs

Address

street	string
city	string
state	string
country	string
zip	string

Customer

customerNumber	string
dateProfileCreated	string
firstName	string
lastName	string
address	Addres

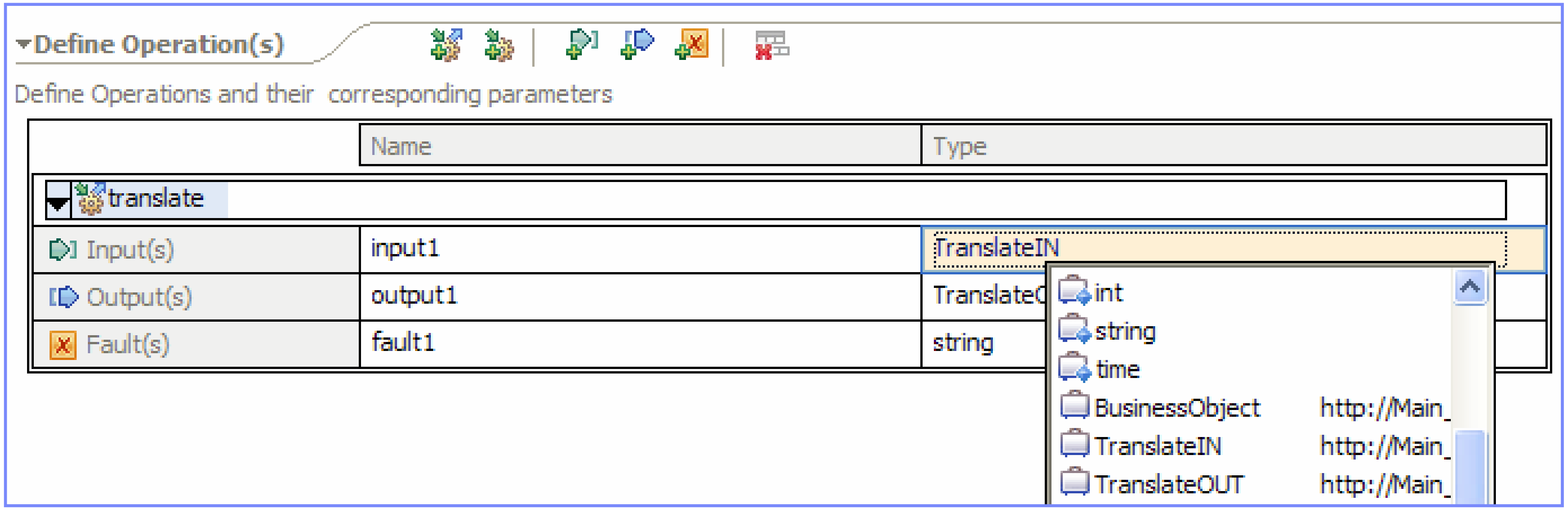
BrokerageAccount

balance	double
transactionTradingLimit	unsignedLong
stockPortfolio	StockPortfolioB
customerNumber	string
dataValid	boolean

BrokerageCustomer

Accounts	BrokerageAccount [ ]

Component Interfaces



Define Operation(s)

Define Operations and their corresponding parameters

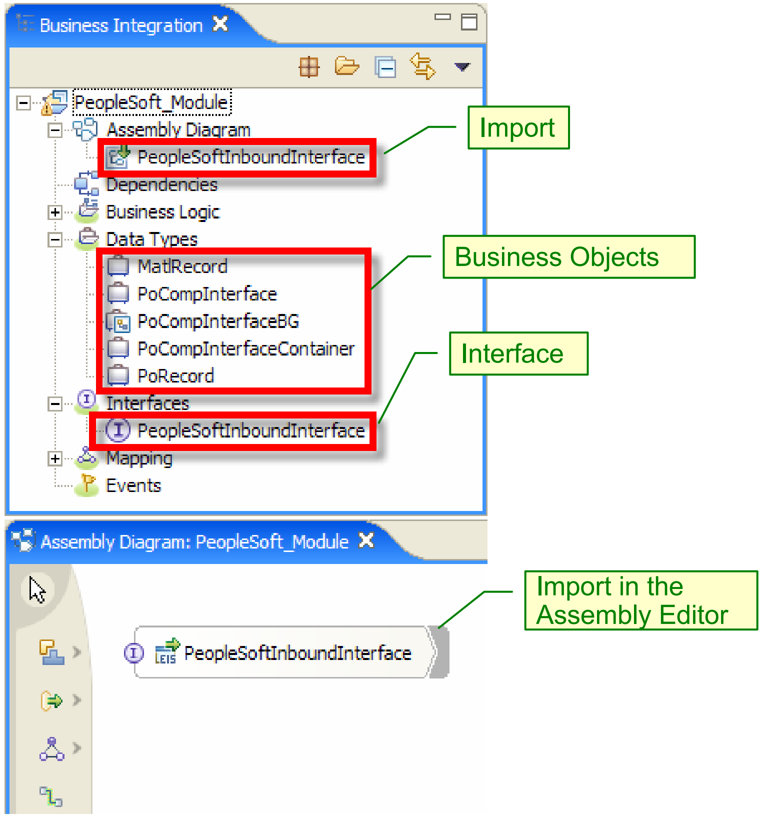
	Name	Type
translate		
Input(s)	input1	TranslateIN
Output(s)	output1	TranslateO
Fault(s)	fault1	string

int	
string	
time	
BusinessObject	http://Main_
TranslateIN	http://Main_
TranslateOUT	http://Main_

- *Interface Editor*
  - Simple and easy way to define a WSDL interface
  - Creates WSDL with no Services and no Bindings section
- Multiple Operations
- Operation
  - One-Way or Request Response
  - Messages
    - May be BOs or simple types
  - Faults

Enterprise Metadata Discovery

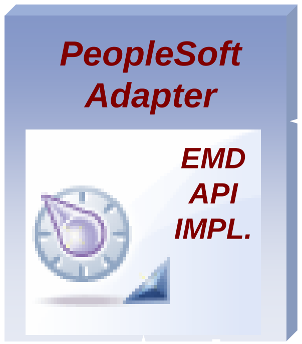
EIS via Connector

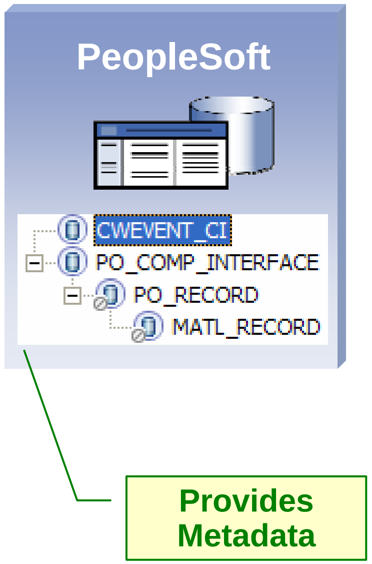


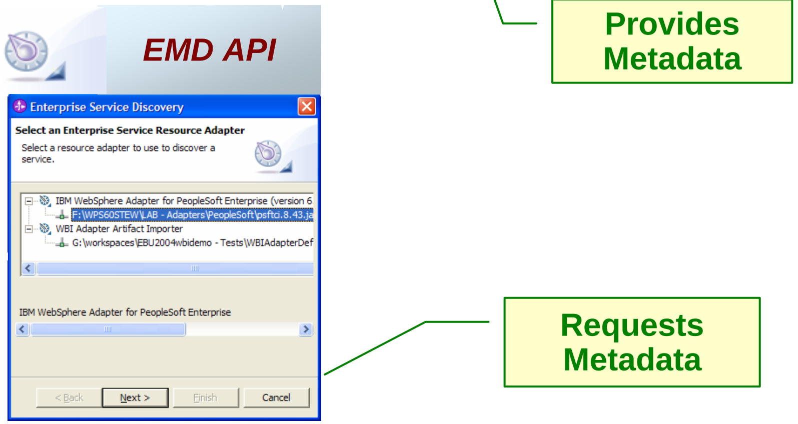
Business Integration

PeopleSoft_Module
- Assembly Diagram
  - PeopleSoftInboundInterface
- Dependencies
- Business Logic
- Data Types
  - MatlRecord
  - PoCompInterface
  - PoCompInterfaceBG
  - PoCompInterfaceContainer
  - PoRecord
- Interfaces
  - PeopleSoftInboundInterface
- Mapping
- Events

Assembly Diagram: PeopleSoft_Module







Enterprise Service Discovery

Select an Enterprise Service Resource Adapter

Select a resource adapter to use to discover a service.

- IBM WebSphere Adapter for PeopleSoft Enterprise (version 6
  - F:\WPS60STEW\LAB - Adapters\PeopleSoft\psftci.8.43.ja
- WBI Adapter Artifact Importer
  - G:\workspaces\EBU2004wbidemo - Tests\WBIAdapterDef

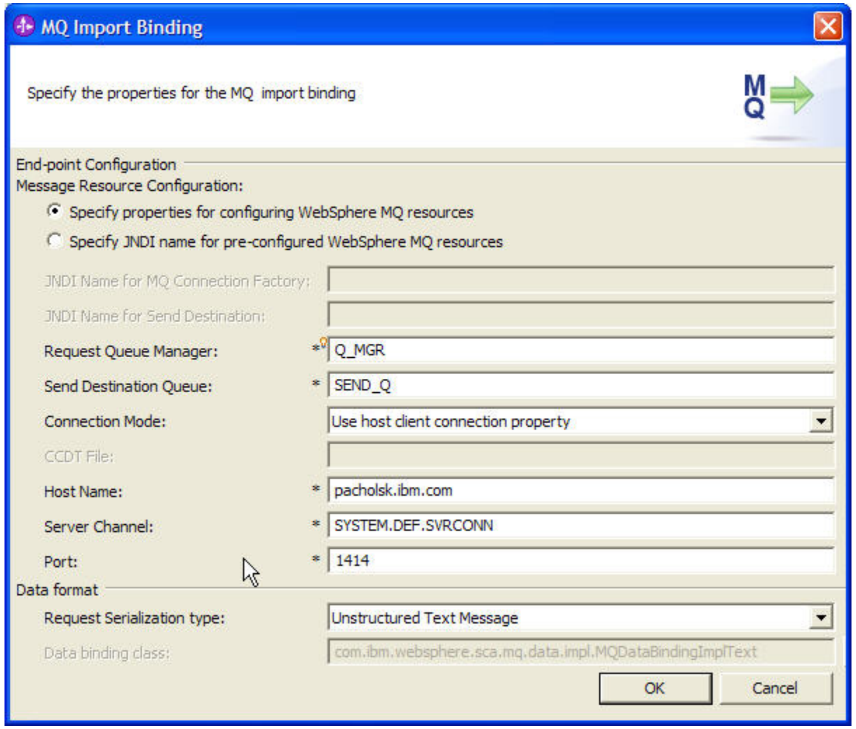
IBM WebSphere Adapter for PeopleSoft Enterprise

< Back | Next > | Finish | Cancel

- J2C Adapter Wizard discovers operations offered by an EIS

Bottom-up Development: Messaging

- Generated by Generate Bindings Wizard on Assembly Editor
- MQ Binding
  - Define JMS Provider in Admin Console
  - Uses WebSphere MQ API to directly access WMQ Queue Manager and WMQ Queues
  - Provides mapping between SCA messages and WMQ message headers and bodies
  - You can work with real MQ messages/headers!
- MQ-JMS Binding
  - Define JMS Provider in Admin Console
  - Uses WebSphere MQ as the JMS Provider
  - More direct access than via JMS binding and MQ Link!
- JMS Binding
  - JMS Provider is the WAS native SI-Bus
  - Used for internal WebSphere Application Server/WebSphere Process Server messaging



MQ Import Binding

Specify the properties for the MQ import binding

End-point Configuration

Message Resource Configuration:

● Specify properties for configuring WebSphere MQ resources

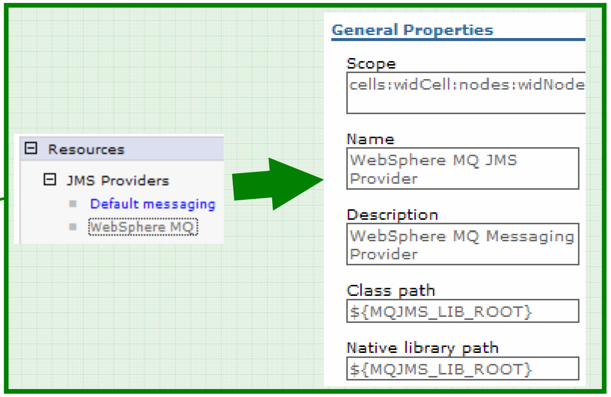
○ Specify JNDI name for pre-configured WebSphere MQ resources

JNDI Name for MQ Connection Factory:	
JNDI Name for Send Destination:	
Request Queue Manager: *	Q_MGR
Send Destination Queue: *	SEND_Q
Connection Mode:	Use host client connection property
CCDT File:	
Host Name: *	pacholsk.ibm.com
Server Channel: *	SYSTEM.DEF.SVRCONN
Port: *	1414

Data format

Request Serialization type:	Unstructured Text Message
Data binding class:	com.ibm.websphere.sca.mq.data.impl.MQDataBindingImplText

Define JMS Provider



Resources
JMS Providers
Default messaging
WebSphere MQ

General Properties

Scope: cells:widCell:nodes:widNode

Name: WebSphere MQ JMS Provider

Description: WebSphere MQ Messaging Provider

Class path: ${MQJMS_LIB_ROOT}

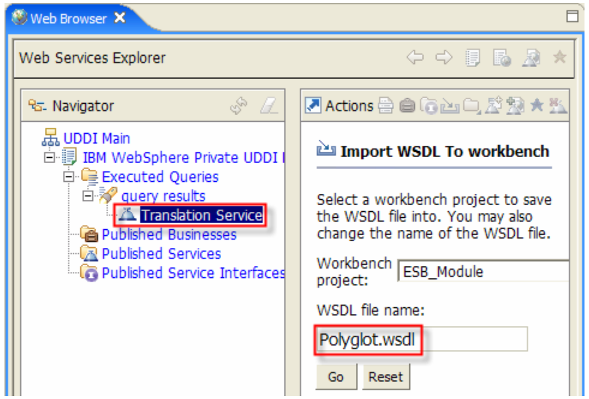
Native library path: ${MQJMS_LIB_ROOT}

Web Service Import

Web Service

- Import a Web Service to a Module from:

UDDI



Web Browser

Web Services Explorer

Navigator

- UDDI Main
  - IBM WebSphere Private UDDI I
    - Executed Queries
      - query results
        - Translation Service
    - Published Businesses
    - Published Services
    - Published Service Interfaces

Actions

Import WSDL To workbench

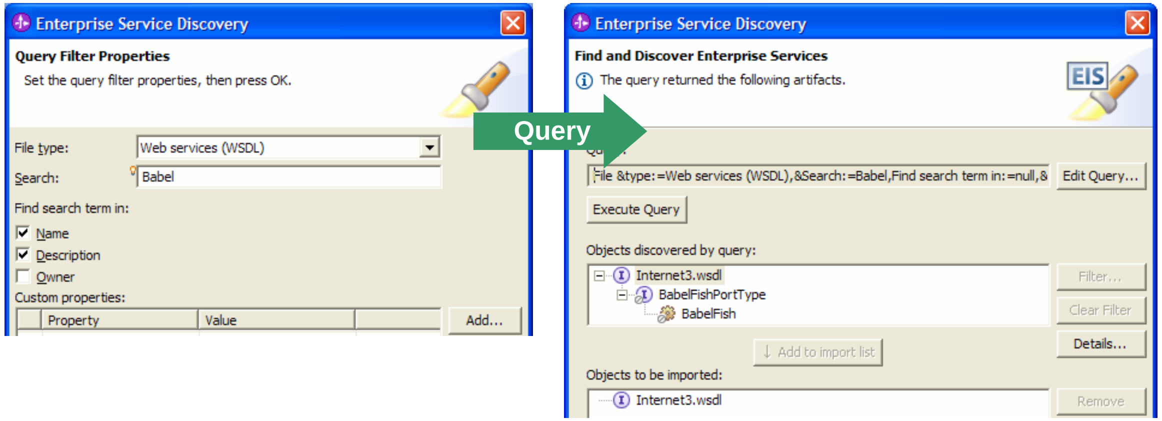
Select a workbench project to save the WSDL file into. You may also change the name of the WSDL file.

Workbench project: ESB_Module

WSDL file name: Polyglot.wsdl

Go Reset

WSRR



Enterprise Service Discovery

Query Filter Properties

Set the query filter properties, then press OK.

File type: Web services (WSDL)

Search: Babel

Find search term in:

☑ Name

☑ Description

□ Owner

Custom properties:

Property	Value

Add...

Query

Enterprise Service Discovery

Find and Discover Enterprise Services

The query returned the following artifacts.

Query: File &type:=Web services (WSDL),&Search:=Babel,Find search term in:=null,&

Edit Query...

Execute Query

Objects discovered by query:

- Internet3.wsdl
  - BabelFishPortType
    - BabelFish

Filter... Clear Filter Details...

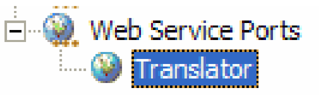
Add to import list

Objects to be imported:

- Internet3.wsdl

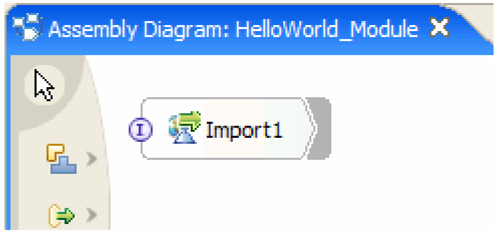
Remove

- Creates Web Services port the in Navigator



- Web Service Ports
  - Translator

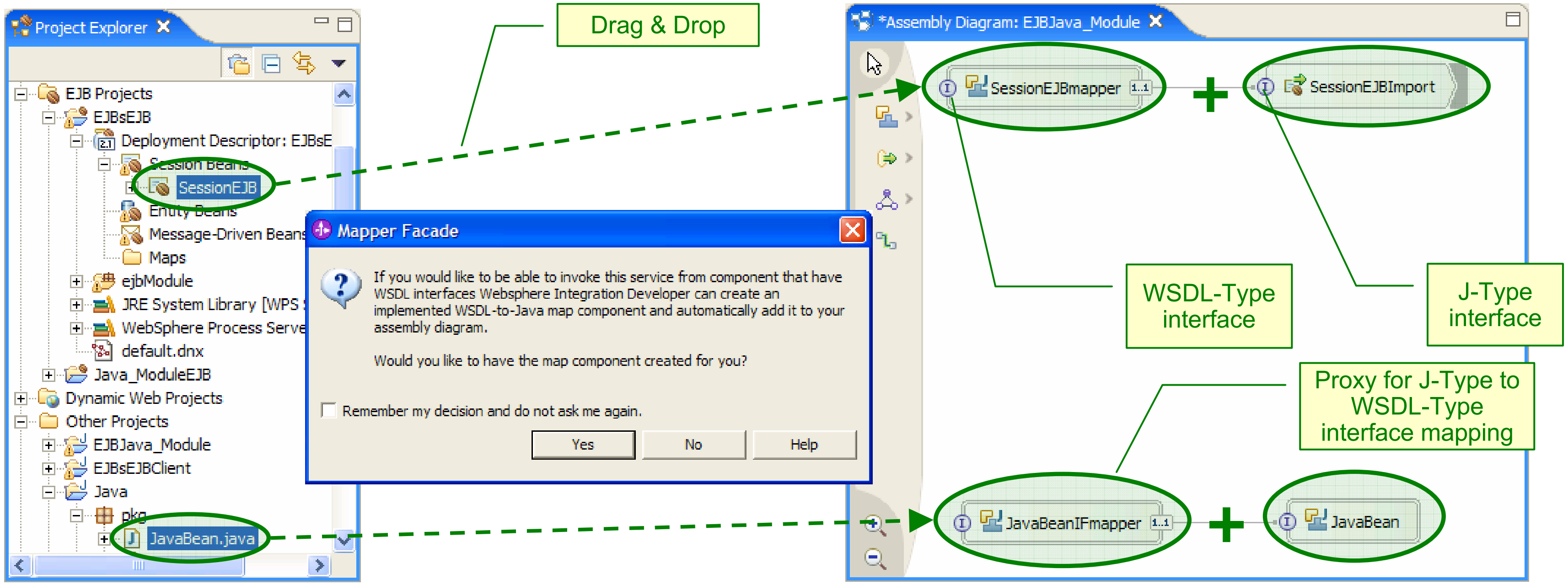
- Add Web Services port to Assembly Editor



Assembly Diagram: HelloWorld_Module

Java and EJB Artifact Consumptions

Java, Session EJB



Drag & Drop

WSDL-Type interface

J-Type interface

Proxy for J-Type to WSDL-Type interface mapping

Mapper Facade

If you would like to be able to invoke this service from component that have WSDL interfaces Websphere Integration Developer can create an implemented WSDL-to-Java map component and automatically add it to your assembly diagram.

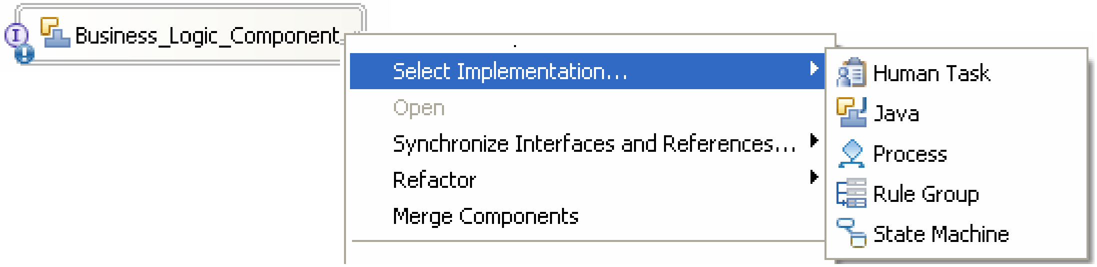
Would you like to have the map component created for you?

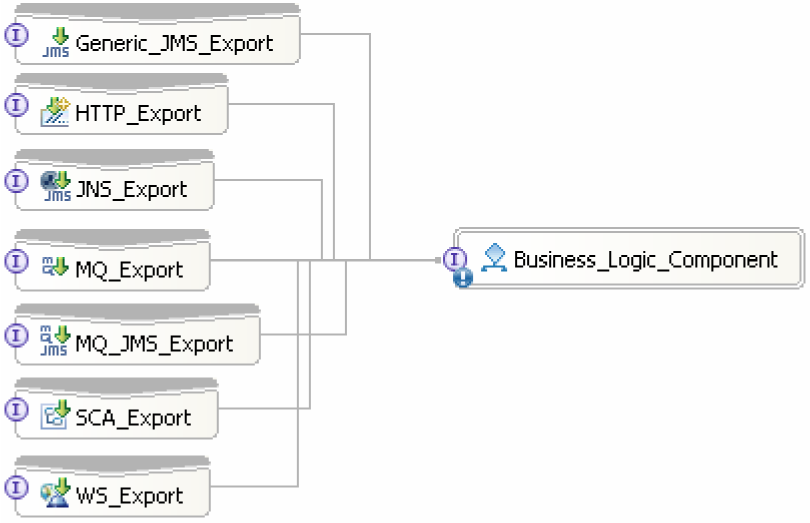
□ Remember my decision and do not ask me again.

- Drag and drop a Session EJB or Java Class on the Assembly Editor
  - EBJ Import
  - Java Component
- A proxy for J-Type to WSDL-Type interface mapping is generated automatically

Top-Down Development

- A Choice of several implementation types:
  - Process Component
  - State Machine
  - Business Rule
  - Hum Task
  - Java
  - Web Services Fabric (if WSF toolkit is installed)
- A choice of several invocation bindings
  - Web Services
  - Messaging
    - MQ, JMS, MQ-JMS, Generic-JMS
  - HTTP
  - SCA
    - Used for component to component interactions in WebSphere Integration Developer

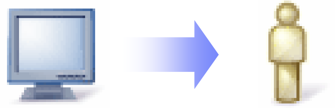




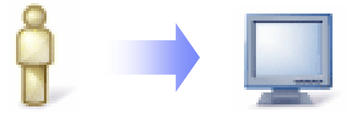
Human Tasks Component

Human Task

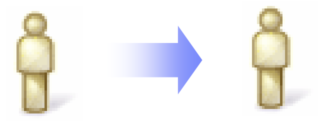
- A stand-alone Component not restricted to invocation form a BPEL Process



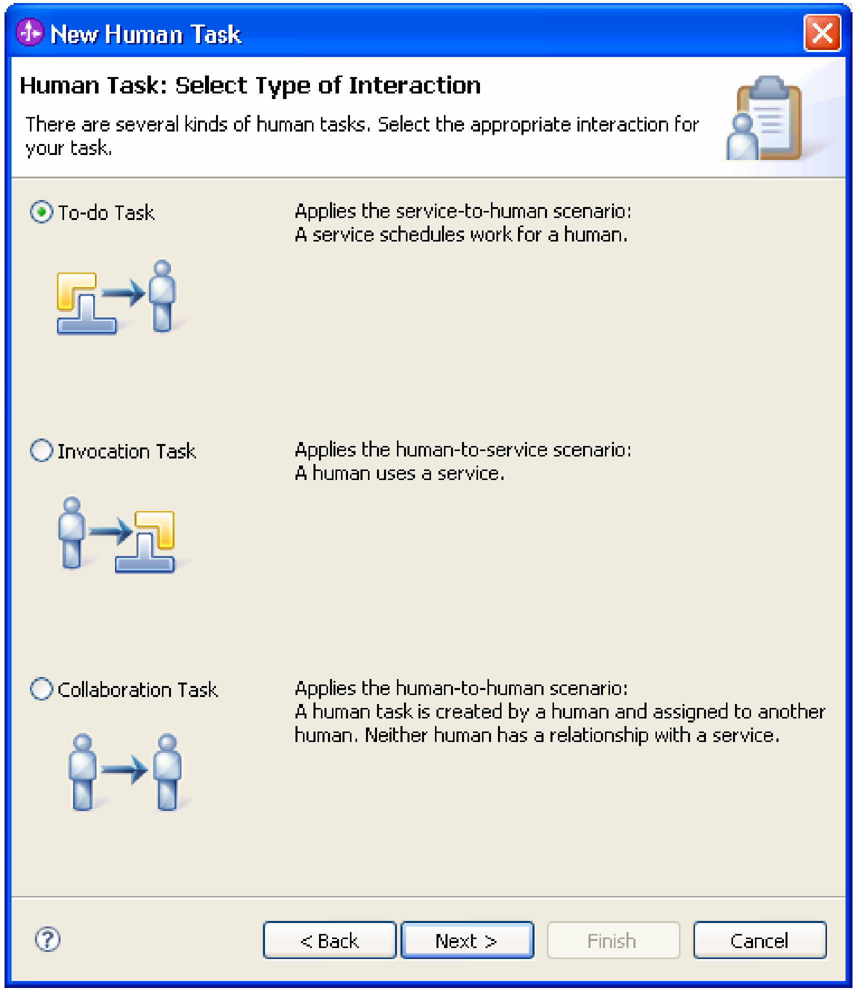
- Machine to Human
  - A Component creates a work item for Human interaction



- Human to Machine
  - Human interaction invokes a Component (i.e. Business State Machine)



- Human to Human
  - Human interaction invokes a Component which creates a work item for another Human



New Human Task

Human Task: Select Type of Interaction

There are several kinds of human tasks. Select the appropriate interaction for your task.

● To-do Task — Applies the service-to-human scenario: A service schedules work for a human.

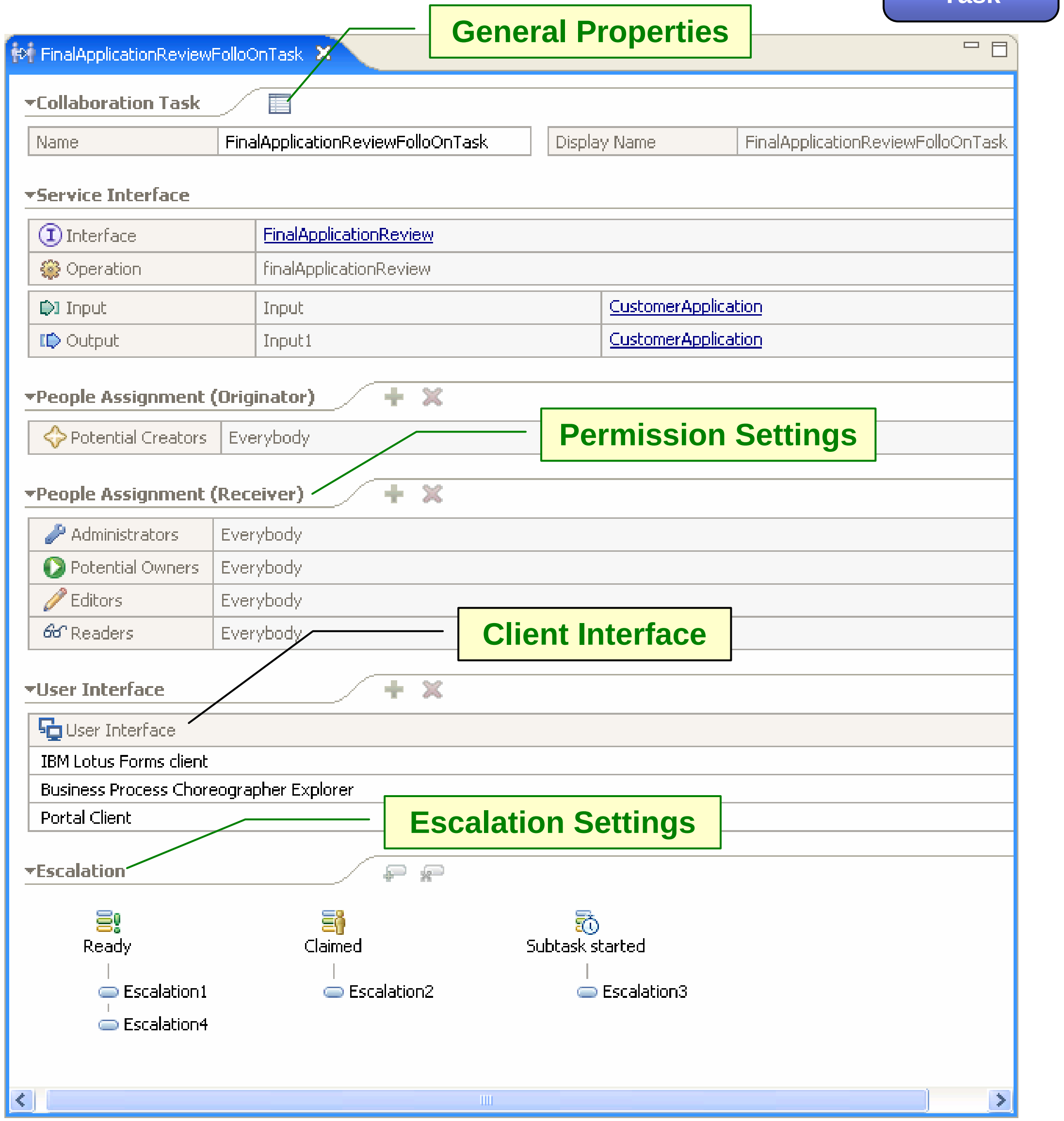
○ Invocation Task — Applies the human-to-service scenario: A human uses a service.

○ Collaboration Task — Applies the human-to-human scenario: A human task is created by a human and assigned to another human. Neither human has a relationship with a service.

Human Task Editor

Human Task

- General Properties
  - Staff Plug-in Provider, Calendar, etc..
- Permission Settings
  - Specify Verb and Parameters for Roles
- Client Settings
  - Web, Portal interface
- Escalations Settings
  - Defines escalation actions
    - Notification
      - e-Mail
      - Human Task
      - Event
    - Priority Aging



FinalApplicationReviewFolloOnTask

Collaboration Task

Name	FinalApplicationReviewFolloOnTask	Display Name	FinalApplicationReviewFolloOnTask

Service Interface

Interface	FinalApplicationReview	
Operation	finalApplicationReview	
Input	Input	CustomerApplication
Output	Input1	CustomerApplication

People Assignment (Originator)

Potential Creators	Everybody

People Assignment (Receiver)

Administrators	Everybody
Potential Owners	Everybody
Editors	Everybody
Readers	Everybody

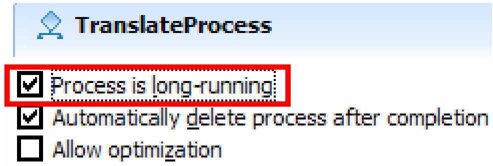
User Interface

User Interface
IBM Lotus Forms client
Business Process Choreographer Explorer
Portal Client

Escalation

Process Component

- Process is a directed graph of BPEL Activity Nodes that represents a single business activity
- There are two types of Processes



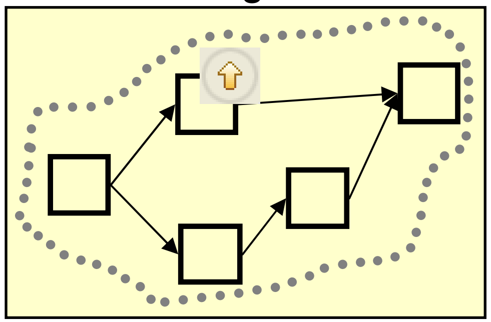
TranslateProcess

☑ Process is long-running
☑ Automatically delete process after completion
□ Allow optimization

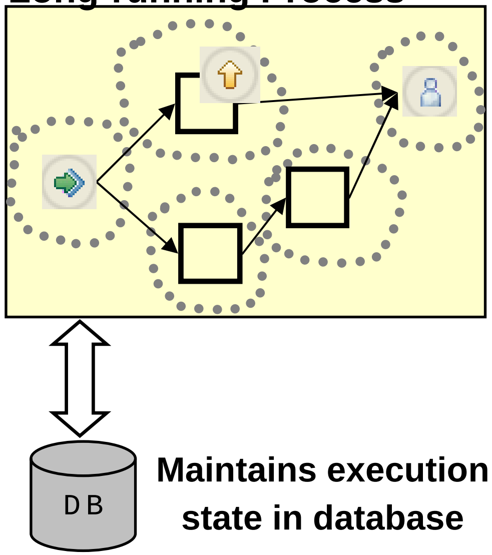
1. Short-running
   - Single transaction per Process
   - Basic Process Choreography
2. Long-running
   - Transaction scope at Activity level
   - Persistent DB
   - Asynchronous Activities allowed

- Compensation ⇧ support ➡ 👤

Short-running Process



Long-running Process

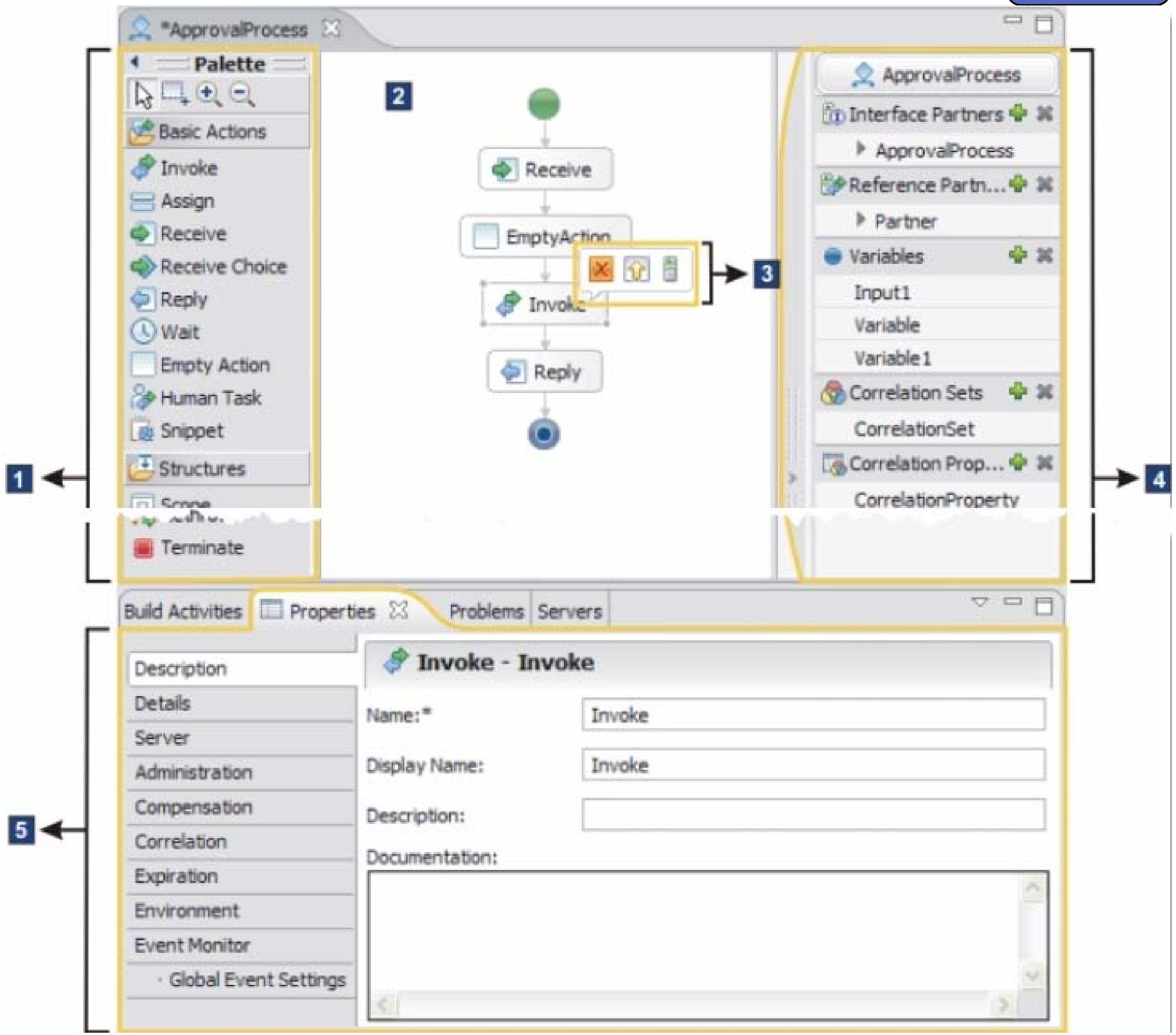


Maintains execution state in database

Process Editor

Business Process

1. **The palette**
   - Contains the BPEL activities organized by families
2. **The canvas**
   - Area of the editor to assemble the activities to compose your process
3. **The action bar**
   - Launched from an activity, contains icons that are relevant to that activity.
4. **The tray**
   - Displays the Interface and Reference Partners, Variables and Correlation Sets
5. **The properties area**
   - Displays properties that are relevant to the object that is currently selected on the canvas.



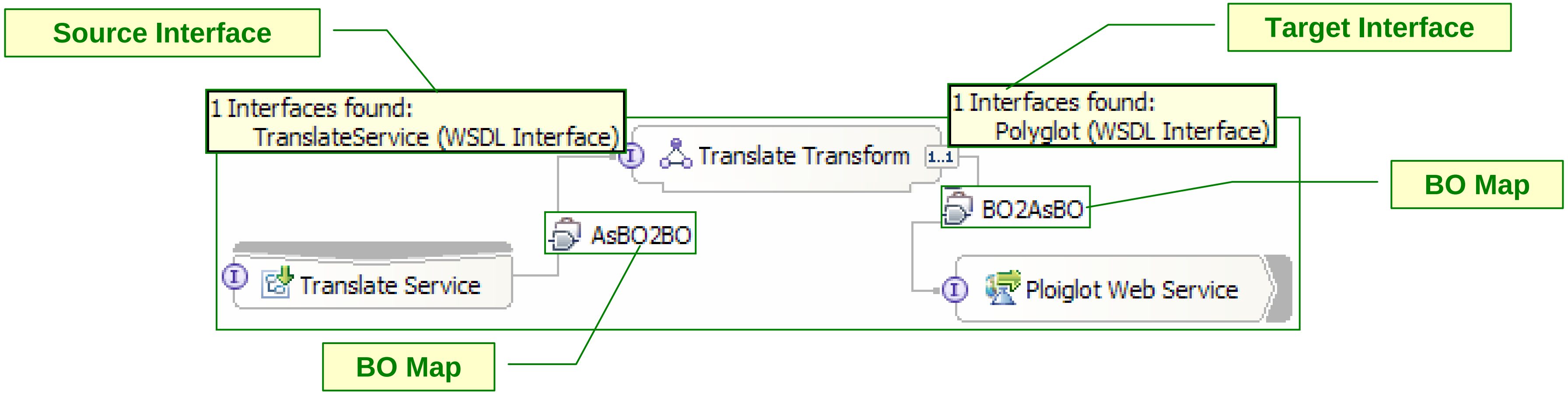
Name:* Invoke

Display Name: Invoke

Description:

Interface Map Component

Interface Map

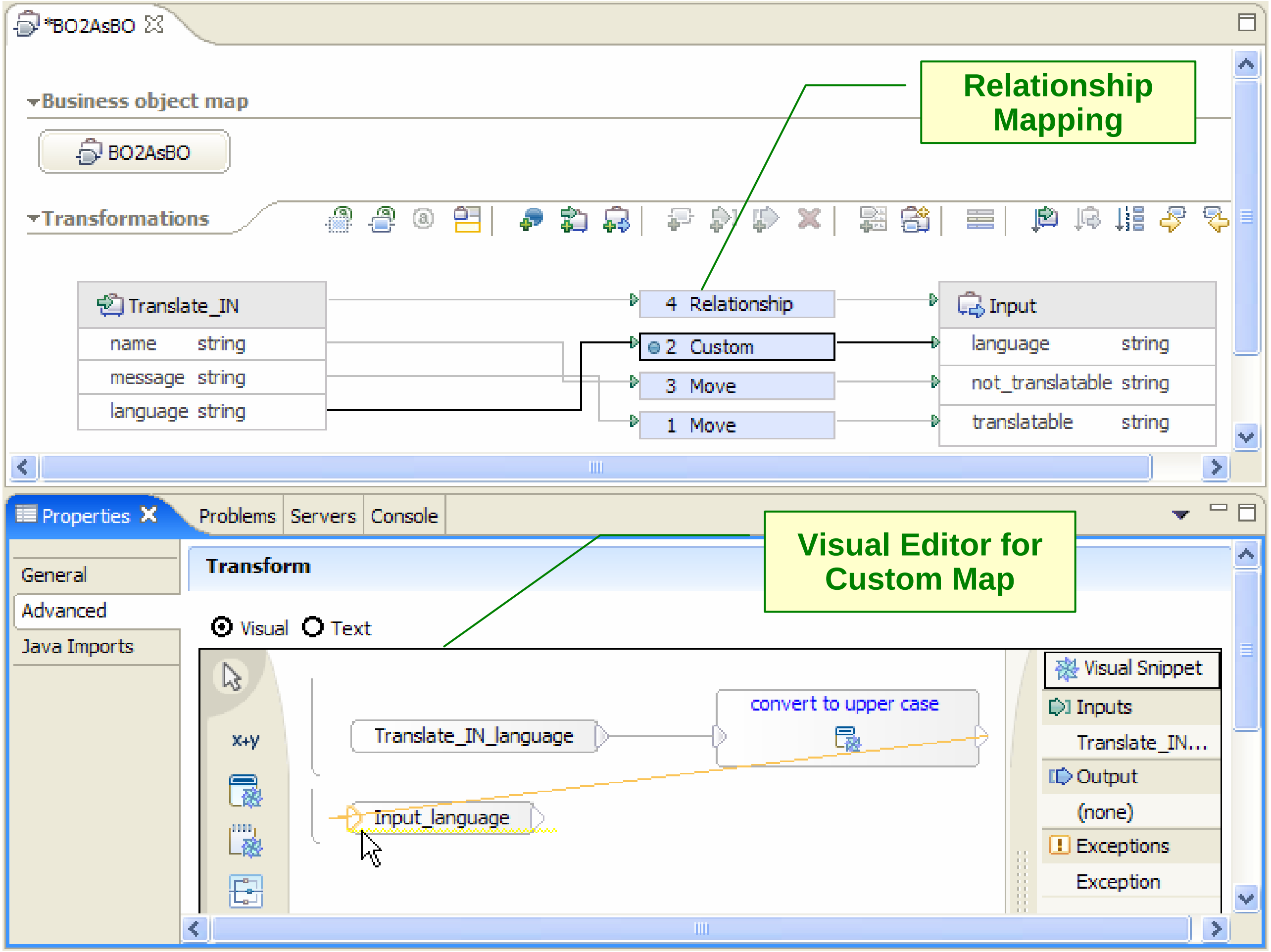


- Maps the source interface to a target interface
  - i.e. TranslateService <-> Polyglot
- Maps the Business Objects
  - Uses several mapping strategies
    - Business Object Maps
    - Relationships
    - Simple mappings (i.e. Move)

Data Mapping – Business Object Maps

Interface Map

- *Business Object Map Editor*
  - Creates Data Maps used in the Interface Map component
- Simple message parts mappings
  - Move, Extract,, Join, etc…
  - Custom (via Snippets)
- Complex mappings
  - Relationship Mapping

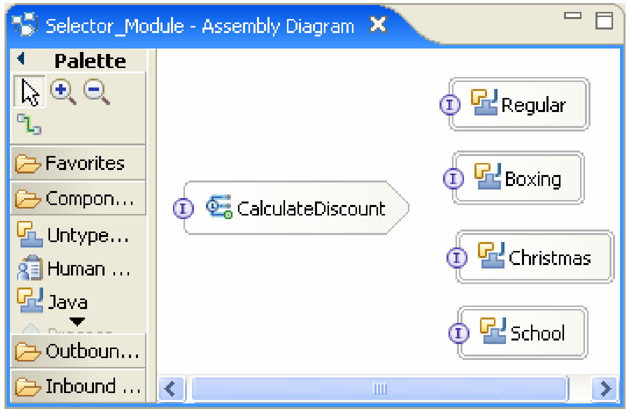


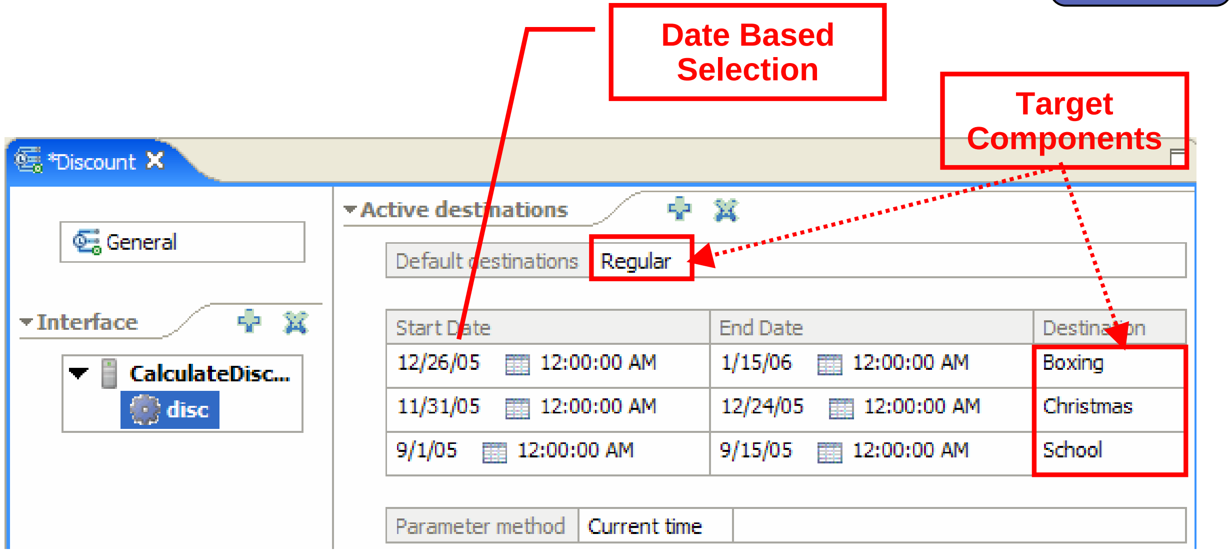
Relationship Mapping

Visual Editor for Custom Map

Selector Component

Selector





Default destinations: Regular

Start Date	End Date	Destination
12/26/05 12:00:00 AM	1/15/06 12:00:00 AM	Boxing
11/31/05 12:00:00 AM	12/24/05 12:00:00 AM	Christmas
9/1/05 12:00:00 AM	9/15/05 12:00:00 AM	School

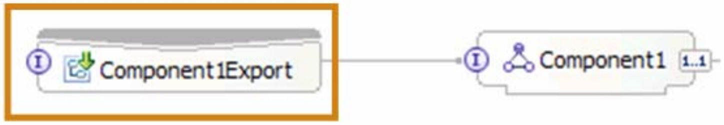
Parameter method: Current time

- Selector determines dynamically which implementation of a target destination to invoke
- Selection is based on a Selector Algorithm
  - Framework for custom selector algorithms
- The default Selection is date based

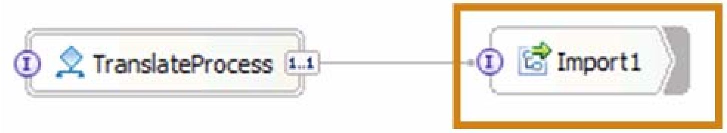
- *Selector Editor*
  - For each operation on the interface add a sequence of time slots
  - Each time slot is associate with a Destination which must be a SCA destination

Component Assembly

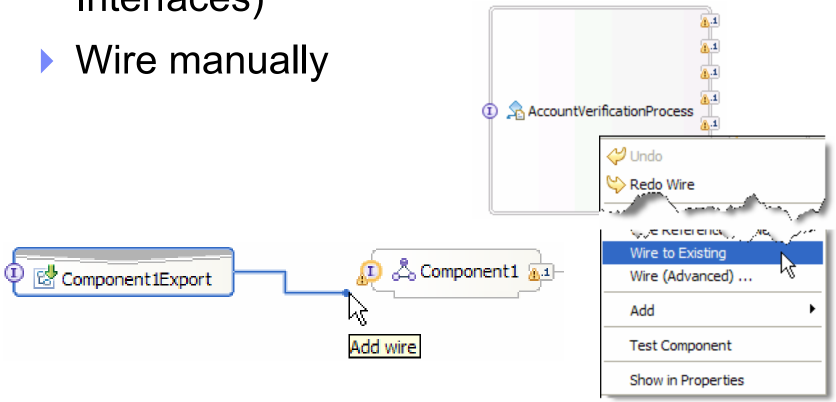
- Add Exports
  - For inbound J2C or Messaging
  - To expose Components outside of a Module



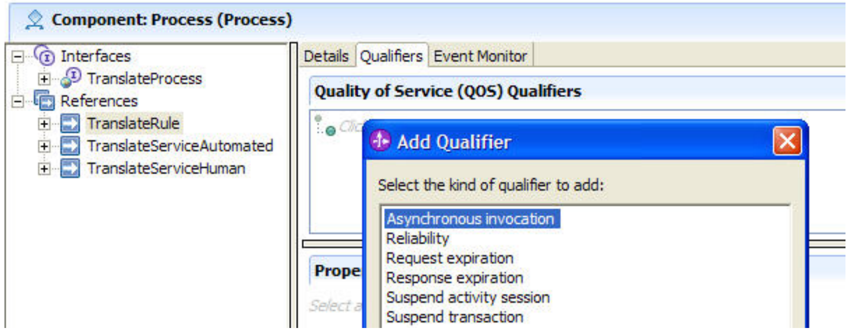
- Add Imports
  - Web Services
  - J2C Adapters
  - To access Components in external Modules



- Wire Components
  - Use Wire to Existing (automatically connects matching References to Interfaces)
  - Wire manually



- Configure QoS Qualifiers



Add Qualifier

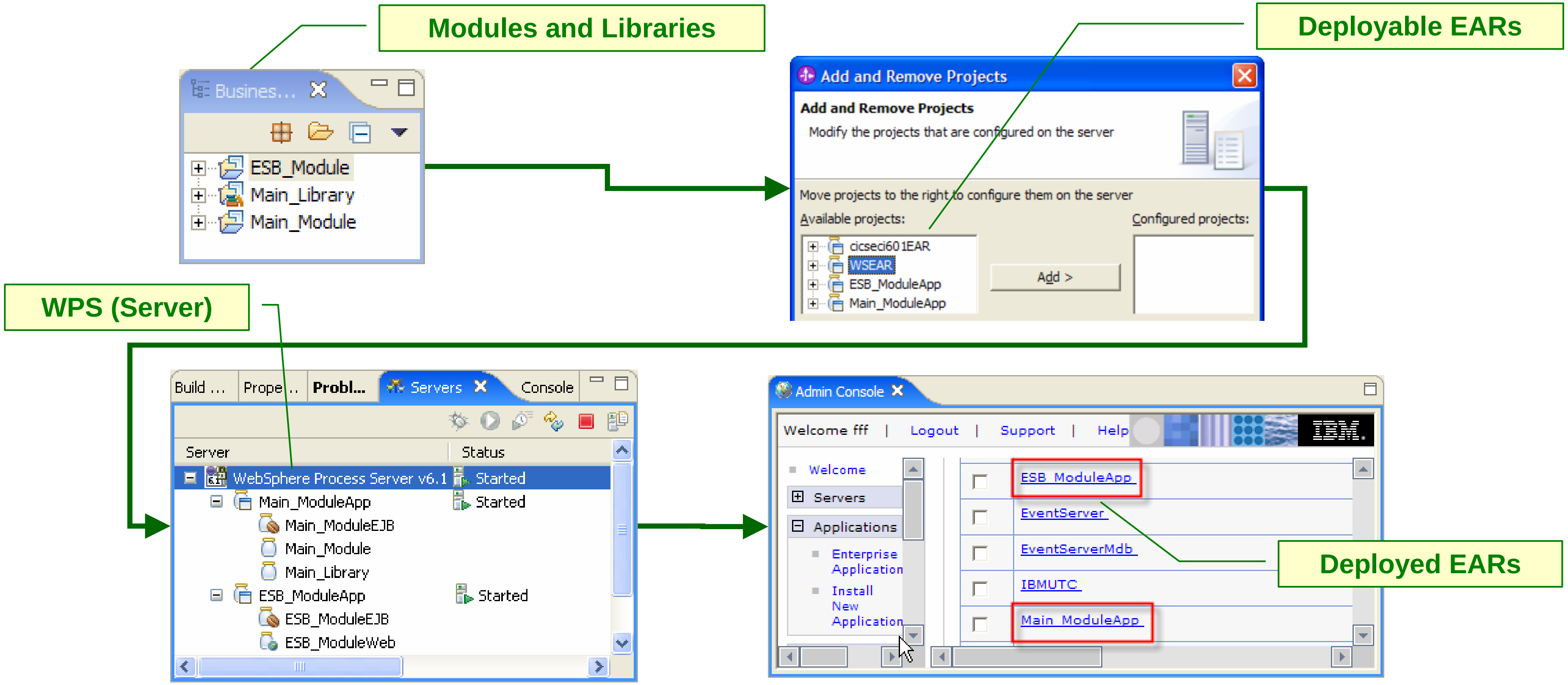
Select the kind of qualifier to add:

Asynchronous invocation
Reliability
Request expiration
Response expiration
Suspend activity session
Suspend transaction

Deployment

- Modules and the associated files are called “Projects”
  - In fact “Projects” are implemented as EARs

- Add all “Projects” associated with the Integration Solution to an instance of the WebSphere Process Server v6.0 server
  - This action will also start the server and publish all EARs



Modules and Libraries

Deployable EARs

WPS (Server)

Deployed EARs

Add and Remove Projects

Modify the projects that are configured on the server

Move projects to the right to configure them on the server

Available projects:

- cicseci601EAR
- WSEAR
- ESB_ModuleApp
- Main_ModuleApp

Configured projects:

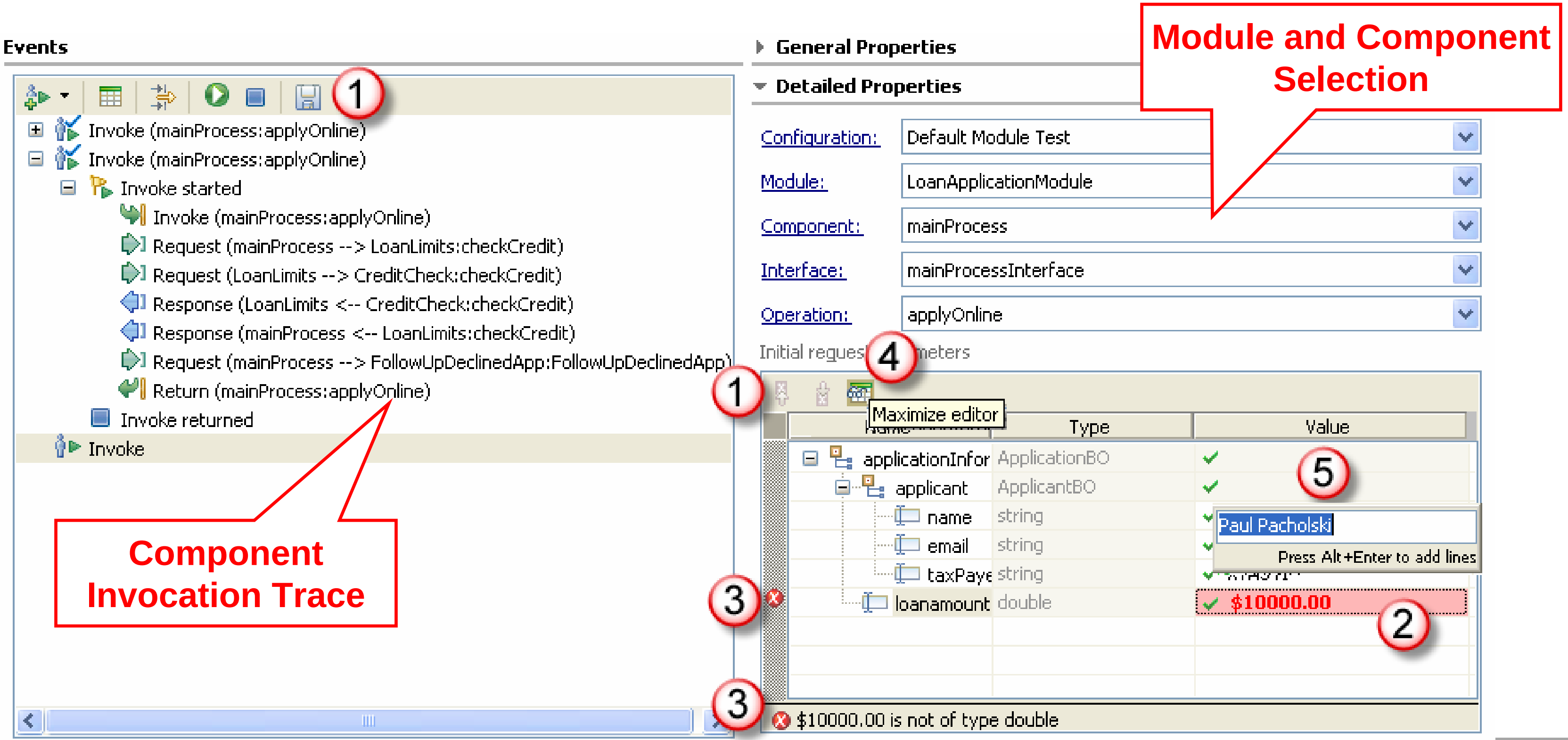
Server	Status
WebSphere Process Server v6.1	Started
Main_ModuleApp	Started
Main_ModuleEJB	
Main_Module	
Main_Library	
ESB_ModuleApp	Started
ESB_ModuleEJB	
ESB_ModuleWeb	

- □ ESB_ModuleApp
- □ EventServer
- □ EventServerMdb
- □ IBMUTC
- □ Main_ModuleApp

Test – Integration Test Client

Test a Component and examine the outputs

1. Enter input data and start the test
2. Data entry with parameter validation
3. Error markers
4. Maximize button for easier data entry
5. Multi-line data entry



Events

- ⊞ Invoke (mainProcess:applyOnline)
- ⊟ Invoke (mainProcess:applyOnline)
  - ⊟ Invoke started
    - Invoke (mainProcess:applyOnline)
    - Request (mainProcess --> LoanLimits:checkCredit)
    - Request (LoanLimits --> CreditCheck:checkCredit)
    - Response (LoanLimits <-- CreditCheck:checkCredit)
    - Response (mainProcess <-- LoanLimits:checkCredit)
    - Request (mainProcess --> FollowUpDeclinedApp:FollowUpDeclinedApp)
    - Return (mainProcess:applyOnline)
  - Invoke returned
- Invoke

Component Invocation Trace

General Properties

Detailed Properties

Module and Component Selection

Configuration: Default Module Test

Module: LoanApplicationModule

Component: mainProcess

Interface: mainProcessInterface

Operation: applyOnline

Initial reques… …meters

Maximize editor

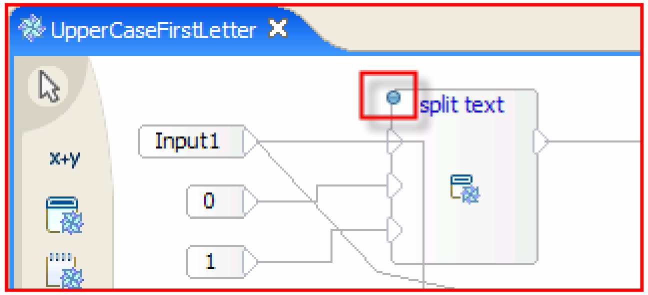
Name	Type	Value
⊟ applicationInfor	ApplicationBO	✓
⊟ applicant	ApplicantBO	✓
name	string	✓ Paul Pacholski
email	string	✓
taxPaye	string	✓
loanamount	double	✓ $10000.00

Press Alt+Enter to add lines

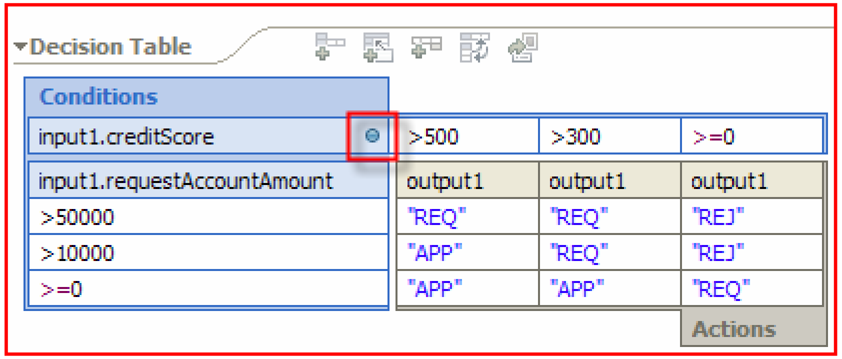
$10000.00 is not of type double

Debug – Integration Debuggers

Visual Java Snippet

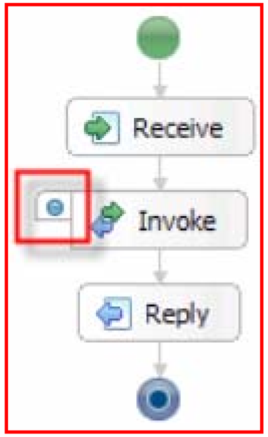


Business Rule

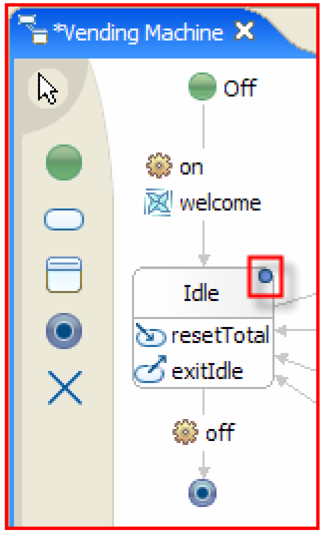


Conditions			
input1.creditScore	>500	>300	>=0
input1.requestAccountAmount	output1	output1	output1
>50000	"REQ"	"REQ"	"REJ"
>10000	"APP"	"REQ"	"REJ"
>=0	"APP"	"APP"	"REQ"
			Actions

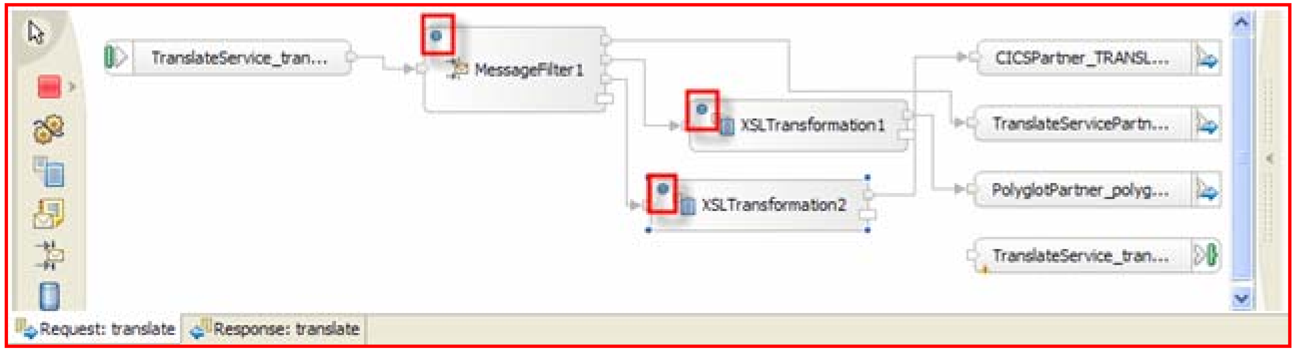
Process



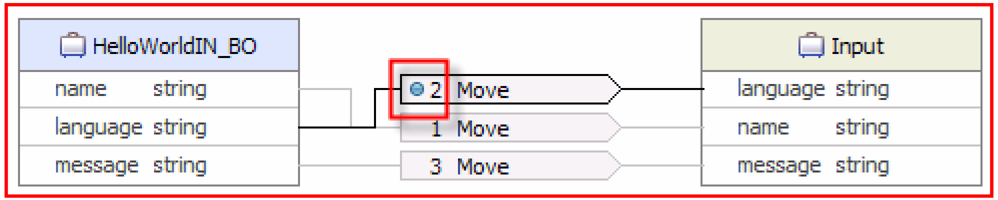
State Machine



Mediation Flow



Business Object Map



Questions

Thank You