



WebSphere Software

# Business Process Management for System z and zSeries

*SOA on your terms and our expertise*

**Ed Boulay**

Worldwide Sales WebSphere on System z

**ON DEMAND BUSINESS™**

# Abstract

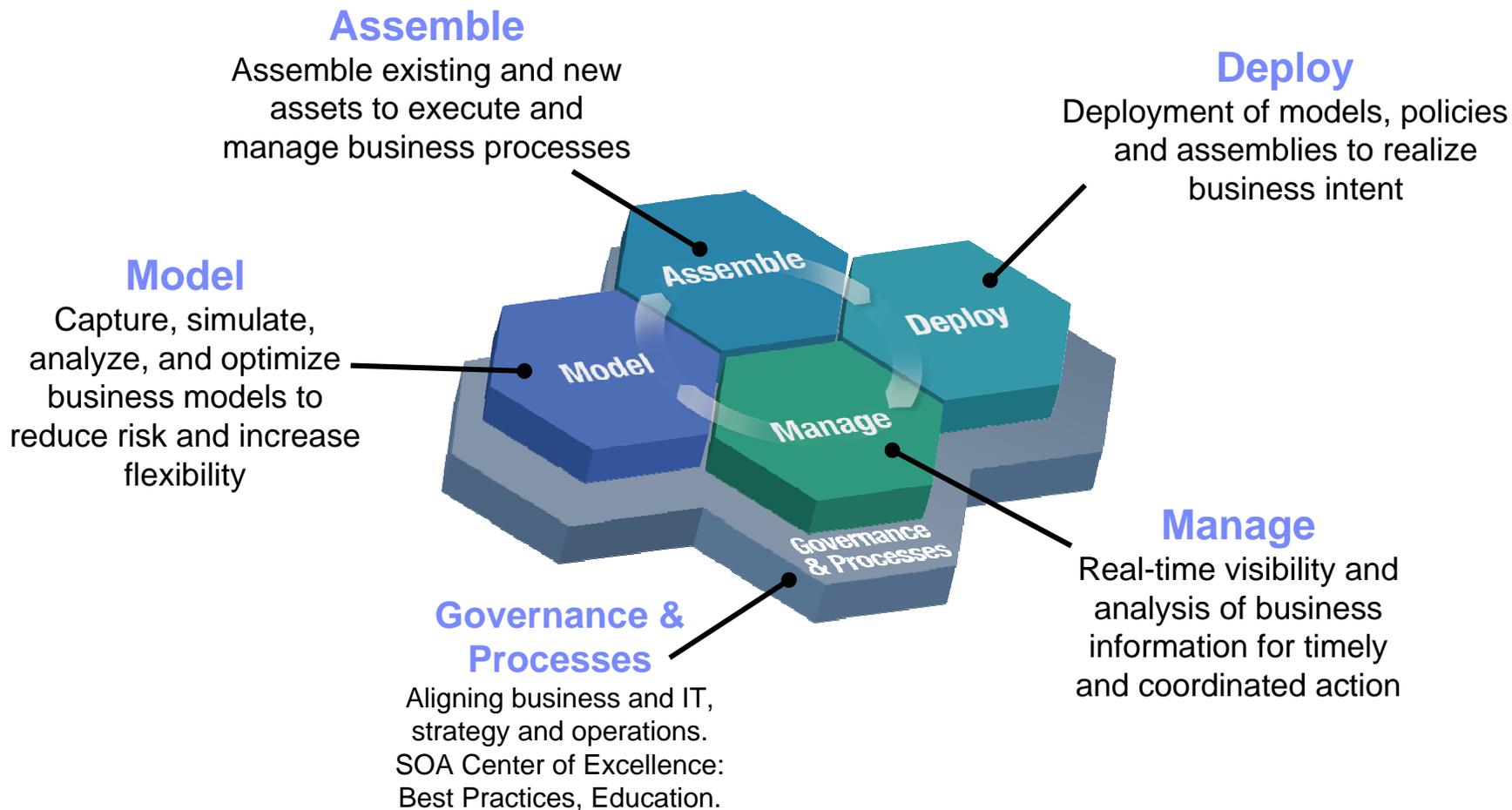
- Business Process Management based on SOA allows enterprises to efficiently transform and optimize their business processes. In this session,
- you will learn to how to create business flexibility and agility by leveraging existing legacy assets with minimal disruption.
- You will learn about the new and exciting WebSphere Portfolio to implement the complete lifecycle of a business process based on SOA.
- We will show you easy to use business scenarios to help you jump start your transformation to SOA.
- You can learn how to get more out of your existing z Series hardware that allows you to modernize your legacy assets by deploying them as standards based business processes in the high performance, fault-tolerant , flexible z Series hardware platform,

# Agenda

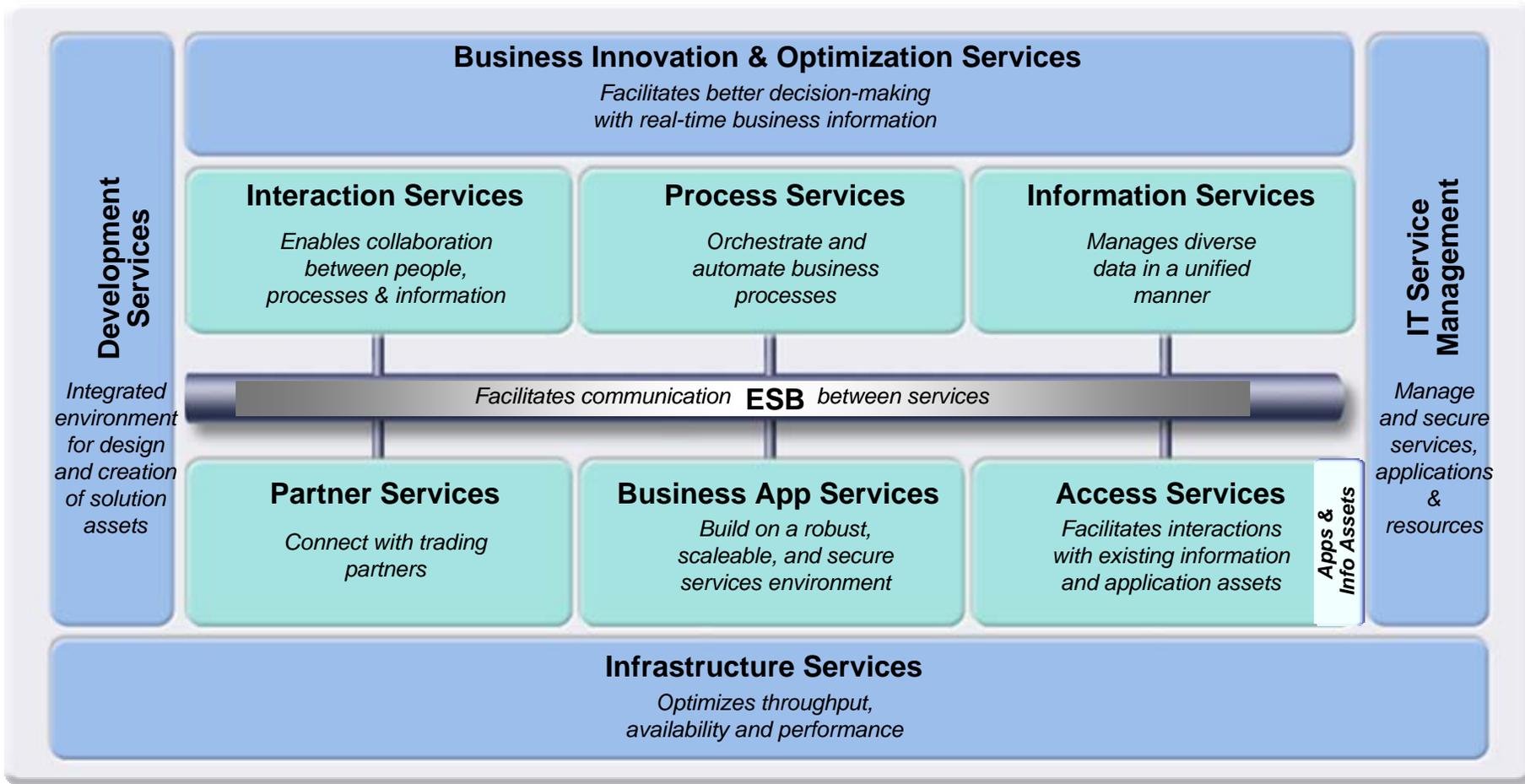
- IBM SOA Foundation
  - End-to-end process capabilities
  - BPM: Realizing the value of SOA
  - 9 Key IT Differentiators WebSphere Process Integration
- BPM for SOA on System z: New News
  - WebSphere Process Server (and ESB) for z/OS
  - Tools that support the entire SOA lifecycle
- Why on System z? And what's Unique?
- Summary
- Backup

# BPM: Realizing the value of SOA

## *Phases of the SOA lifecycle for Business Process Management*

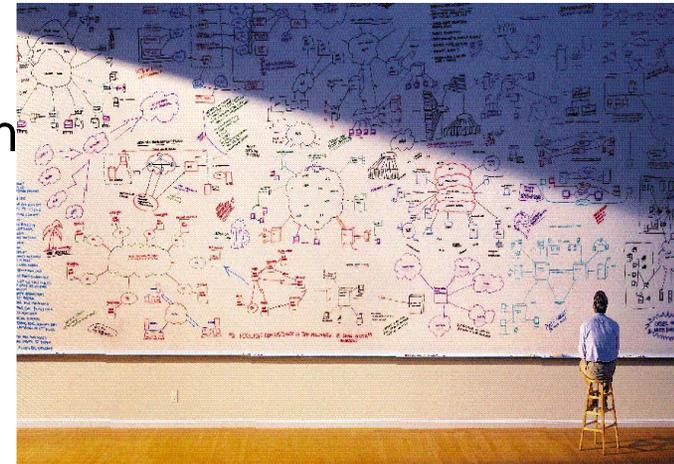


# SOA Reference Architecture



# Business Processes

- Coordinated chains of activities producing a business results
- Typically consist of:
  - Human activities (Human Workflow)
  - Business system activities (such as ERP, or CRM,...)
  - Combinations of human and system activities
- Define how the business runs at an operational level
- May be hidden or embedded:
  - In the organization and culture of a company
  - In the business systems of a company
- Are often poorly understood



# Business Process Management

- Business Process Management is a differentiating business **capability**
  - BPM allows business to design, understand, automate and manage their operational business processes
  
- BPM consists of compounding layers of value
  - **Business process modeling**
  - **Business process automation**
  - **Business process monitoring**
  
- It enables a **collaboration between LOB and IT**
  - Business tools for business operations design and analysis
  - Technology tools for business operations execution

# End-to-end process capabilities for your SOA

*New components to manage business processes*

## WebSphere Integration Developer

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



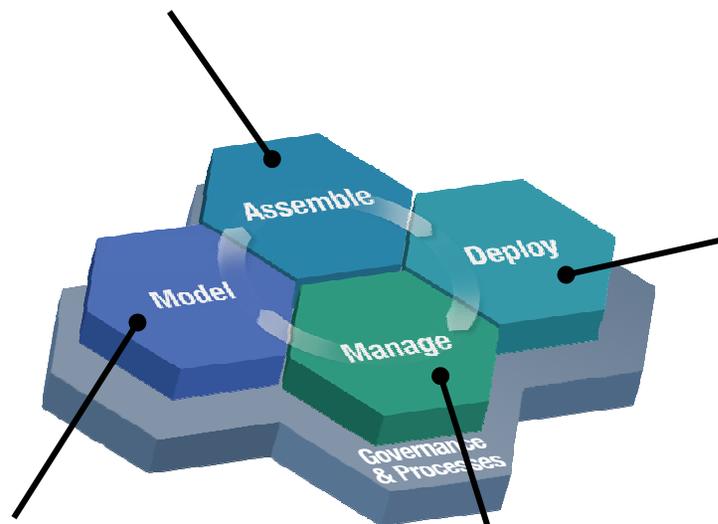
z/OS

## 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

# New Product! WebSphere Process Server for z/OS

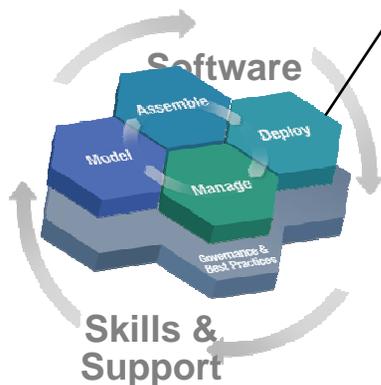
*Comprehensive Business Flexibility*

- A Single Process Server
  - Integrated runtime for all SOA based process automation
  - Runtime engine for all the components defined in Assemble (Assemblies, WS-BPEL, State Machines, Business Rules...)
  - Fully leverage the breadth and capability of IBM WebSphere Application Server
  - Reliable, scaleable, secure
- Integrated ESB for message transformation
  - Flexible Web services and JMS connectivity infrastructure
- Adapters provide the service on-ramp for existing applications
- Service Components and Business Objects
  - Build processes without knowledge of existing applications
  - Simplifying and accelerating, providing flexibility and reuse



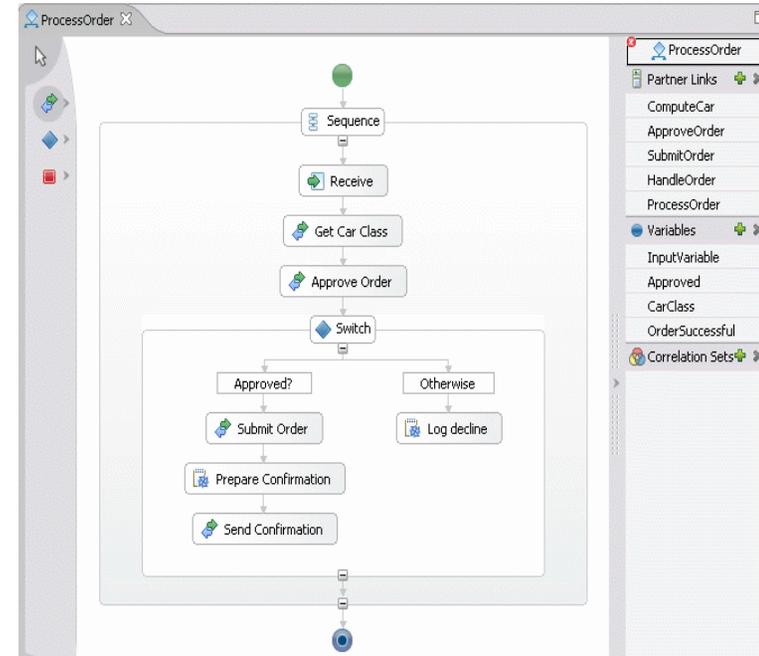
# Comprehensive Process Automation capabilities

- Process choreography and state machines
- Rules for flexible decision making
- Object mapping and ESB message transformation
- Cross-referencing between common business objects
- Event infrastructure for monitoring
- Staff support and human task management for workflow
- Selectors to dynamically invoke service components



# Process Composition described through WS-BPEL *while Implementation Details stay Hidden*

- Import models from WebSphere Business Modeler
- Develop executable processes
  - WS-BPEL-based business processes
  - WS-BPEL with or without IBM Extensions
- Intuitive drag-and-drop tools
  - Visually define sequences and flows
  - Service implementation details are resolved later
- A visual business process debugger
  - step through and debug business processes
- Integrated Fault and Event handling
  - provide an easy and integrated means of handling in-flow exceptions and external events
- Identified scope for transactions & error recovery through compensation - provide a logical “undo” capability

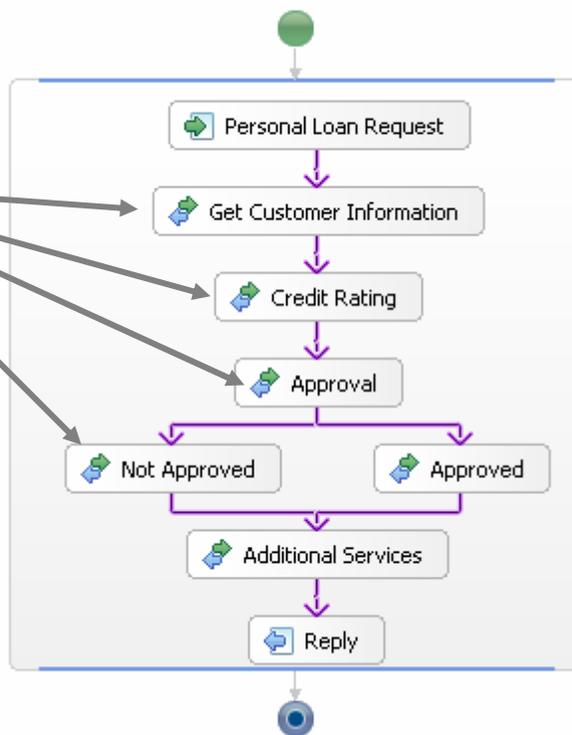


# The constructs of a Business Process

*Accessible capabilities to fine-tune business processes to address emerging situations dynamically on operational processes*

## Constructing a dynamic process using WS-BPEL

Choreographed  
Services

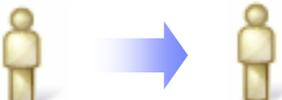


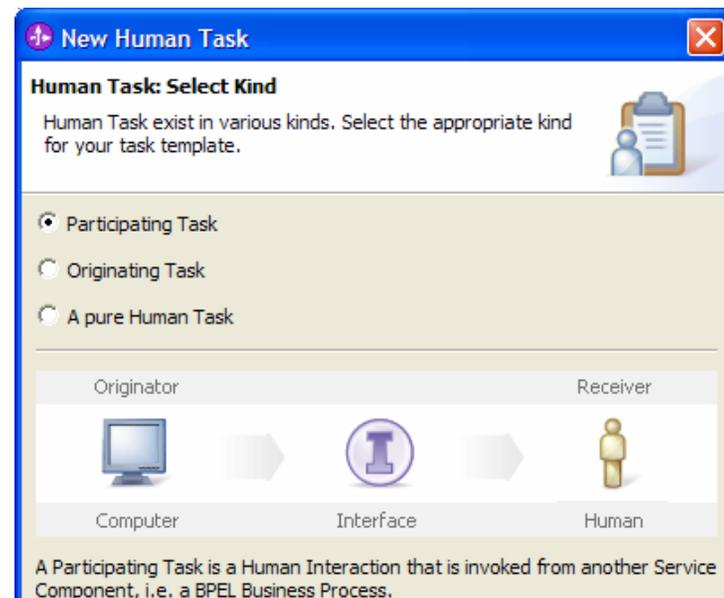
# Workflow – Built-in Human Task Support

*Human-based Web services for standard WS-BPEL processes*

- Many business processes involve people
  - Human-centric processes automate interactions between people, and supporting applications.
  - Integration-centric processes automate interactions between applications; humans handle exceptions.

- ✓ Stand-alone Human Task Manager Component
- ✓ Defined as a service
- ✓ Participates in standard WS-BPEL processes

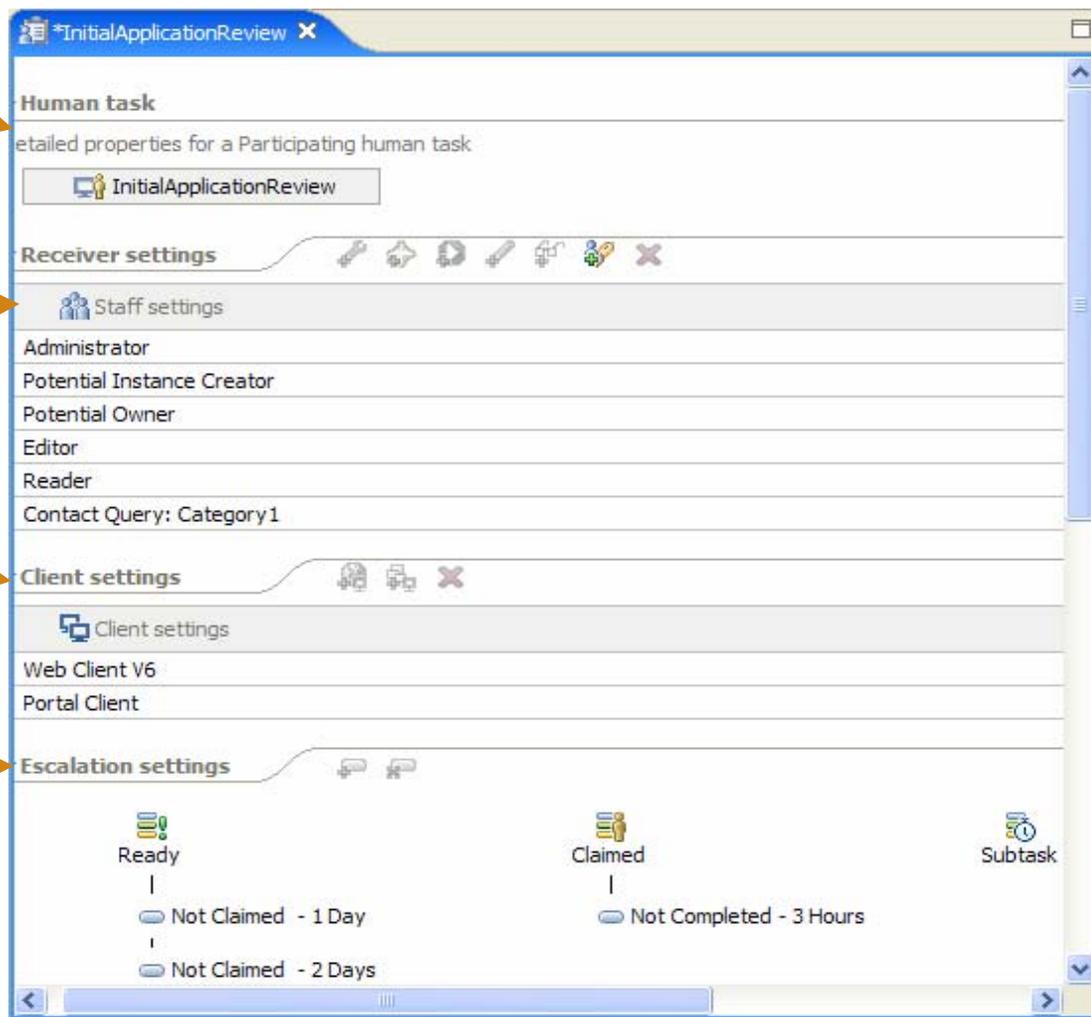
- Machine to Human 
  - Component creates a work item for Human interaction (e.g. WS-BPEL)
  
- Human to Machine 
  - Human interaction invokes a Component (e.g. WS-BPEL)
  
- Human to Human 
  - Human interaction invokes a Component which creates a work item for another Human



# Best in Class Human Workflow

*Supporting standard WS-BPEL processes, and other components*

- Plug-in providers
  - Integration with Staff Directories (e.g. LDAP)
  - Calendar, etc
- Powerful role-based staff assignment rules
  - Specify Verb and Parameters for Roles
- Web based User Access
  - Web, Portal client
  - JSP forms
- Escalations and Notifications
  - Control task execution time, e.g. for deadlines



# Workflow Clients - Web-based User Access

WebSphere Portal My Portal Administration ? Log out

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Work List

**Global Queue** Task Name Filter: All  Advanced  Total Items: 5 of 2722

Task Name	Task Priority	Process Due Date	Task Identifier	Amt Value	Process Started	Action																																		
Approve		10/12/05 3:55:00 PM		USD:835.65	10/3/05 8:31:51 PM	<input type="checkbox"/> <input type="button" value="Search"/> <input type="button" value="Refresh"/> <input type="button" value="Assign"/> <input type="button" value="Add"/>																																		
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<table border="0"> <tr> <td><b>Task Name</b> Approve</td> <td><b>Process Name</b> TestProcess</td> <td><b>Int Value</b> -2,079,244,542</td> <td><b>Long Value</b> 3,331,054,628,136,645,925</td> <td><b>DbI Value</b> 0.052</td> <td colspan="2"></td> </tr> <tr> <td><b>Amt Value</b> USD:977.98</td> <td><b>Enum Value</b> Enum4</td> <td><b>Date Value</b> 10/3/05 8:31:56 PM</td> <td><b>Bool</b> Yes</td> <td><b>String Value</b> Hello World933325496</td> <td colspan="2"></td> </tr> <tr> <td><b>Res Str</b> String 1</td> <td><b>PassW</b> *****</td> <td><b>Escalated By</b> wpsadmin</td> <td><b>Escalated Reasons</b> jhuu</td> <td><b>Escalated?</b> Yes</td> <td colspan="2"></td> </tr> <tr> <td><b>Late?</b> No</td> <td><b>Process Changed</b> 10/3/05 8:31:54 PM</td> <td><b>Process Started</b> 10/3/05 8:31:54 PM</td> <td><b>Process State</b> Running</td> <td><b>Task Changed</b> 10/11/05 2:43:06 AM</td> <td colspan="2"></td> </tr> <tr> <td><b>Task State</b> Ready</td> <td colspan="5"></td> </tr> </table>							<b>Task Name</b> Approve	<b>Process Name</b> TestProcess	<b>Int Value</b> -2,079,244,542	<b>Long Value</b> 3,331,054,628,136,645,925	<b>DbI Value</b> 0.052			<b>Amt Value</b> USD:977.98	<b>Enum Value</b> Enum4	<b>Date Value</b> 10/3/05 8:31:56 PM	<b>Bool</b> Yes	<b>String Value</b> Hello World933325496			<b>Res Str</b> String 1	<b>PassW</b> *****	<b>Escalated By</b> wpsadmin	<b>Escalated Reasons</b> jhuu	<b>Escalated?</b> Yes			<b>Late?</b> No	<b>Process Changed</b> 10/3/05 8:31:54 PM	<b>Process Started</b> 10/3/05 8:31:54 PM	<b>Process State</b> Running	<b>Task Changed</b> 10/11/05 2:43:06 AM			<b>Task State</b> Ready					
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**Personal Queue** Total Items: 1

Task Name	Process Name	Process Started	Task Identifier	Action
Approve	TestProcess	10/3/05 8:31:54 PM		<input type="checkbox"/> <input type="button" value="Search"/> <input type="button" value="Refresh"/> <input type="button" value="Assign"/> <input type="button" value="Add"/> <input type="button" value="Check"/> <input type="button" value="Hand"/>

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**Escalated Tasks** Total Items: 5 of 17

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Validate	TestProcess	wpsadmin		<input type="checkbox"/> <input type="button" value="Search"/> <input type="button" value="Refresh"/> <input type="button" value="Assign"/> <input type="button" value="Add"/>																				
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Approve	TestProcess	wpsadmin	Test1	<input type="checkbox"/> <input type="button" value="Search"/> <input type="button" value="Refresh"/> <input type="button" value="Assign"/> <input type="button" value="Add"/>																				

# Business Rules

## Flexible Decision Making and Dynamic Changes at Runtime

- Encapsulate flexible decision logic
  - Apply consistently across multiple business processes
    - e.g. Every loan application process executes the same rule group
  - Enable dynamic changes at runtime
    - Non-disruptive, without affecting other services
    - Change business processes “on the fly”
    - e.g. New lending policies allow changing the credit rating criteria without redeploying the loan application process
    - Expose decision parameters for business change
  - Manage rule by domain expert
    - Web based user interface
    - National language support

Rules

Name	Rule2
Template	Template 1
Presentation	If the assets are greater than [2000000] and the liabilities are less than [500000] then the rating is [A]

Name	Rule1
Template	Template 1
Presentation	If the assets are greater than [2000000] and the liabilities are less than [1000000] then the rating is [B]

Templates

Name	Template 1																
Presentation	If the assets are greater than [Q] and the liabilities are less than [L], then the rating is [R].																
Parameters	<table border="1"> <thead> <tr><th>Index</th><th>Name</th><th>Type</th><th>Constraint</th></tr> </thead> <tbody> <tr><td>(0)</td><td>var1</td><td>double</td><td>None</td></tr> <tr><td>(1)</td><td>var2</td><td>double</td><td>None</td></tr> <tr><td>(2)</td><td>var3</td><td>string</td><td>None</td></tr> </tbody> </table>	Index	Name	Type	Constraint	(0)	var1	double	None	(1)	var2	double	None	(2)	var3	string	None
Index	Name	Type	Constraint														
(0)	var1	double	None														
(1)	var2	double	None														
(2)	var3	string	None														
If	all of the following are true <ul style="list-style-type: none"> <li>• info.assets &gt; var1</li> <li>• info.liabilities &lt; var2</li> </ul>																
Then	rating = var3																

Decision Table

info.assets	> 500000		<= 500000	
info.liabilities	< 10000	>= 10000	< 10000	>= 10000
rating	"A"	"B"	"C"	"D"

# Business Rules - Flexible Decision Making

*Specify decision logic and business parameters for change*

## ■ Rule Set

- Consists of a set of if/then conditions
- Multiple conditions can evaluate to true

▼ Rules

Name	Rule2
Template	Template 1
Presentation	If the assets are greater than <input type="text" value="2000000"/> and the liabilities are less than <input type="text" value="500000"/> , then the rating is <input type="text" value="A"/> .
Name	Rule1
Template	Template 1
Presentation	If the assets are greater than <input type="text" value="2000000"/> and the liabilities are less than <input type="text" value="1000000"/> , then the rating is <input type="text" value="B"/> .

## ■ Decision Table

- Provides a decision tree format
- One and only one path can evaluate to true

▼ Templates

Name	Template 1			
Presentation	If the assets are greater than <input type="text" value="{0}"/> and the liabilities are less than <input type="text" value="{1}"/> , then the rating is <input type="text" value="{2}"/> .			
Parameters	Index	Name	Type	Constraint
	{0}	var1	double	None
	{1}	var2	double	None
If	all of the following are true			
	<ul style="list-style-type: none"> <li>● info.assets &gt; var1</li> <li>● info.liabilities &lt; var2</li> </ul>			
Then	rating = var3			

## ■ Rule Group

- Logical grouping of rule sets and decision tables
- Provides single service component interface

▼ Decision Table

info.assets	> 500000	<= 500000		
info.liabilities	< 10000	>= 10000	< 10000	>= 10000
rating	"A"	"B"	"C"	"D"

# Business Rules – Dynamic Changes at Runtime

*Web-based User Interface for domain experts to manage the rules*

The screenshot shows a web-based user interface for managing business rules. It includes a breadcrumb trail, a title bar, and several sections: General Information, Rules, and a table of active rules. Callouts highlight key features: creating rules from templates, reordering rules, deleting rules, and updating rule values.

**Callouts:**

- New rules can be created from existing templates
- Rules can be reordered
- Rules can be deleted
- New values can be supplied for existing rules

**General Information:**

- Last Published: 21-Jun-2005 16:09 (Local Time)
- Description: [Empty text box]

**Rules:**

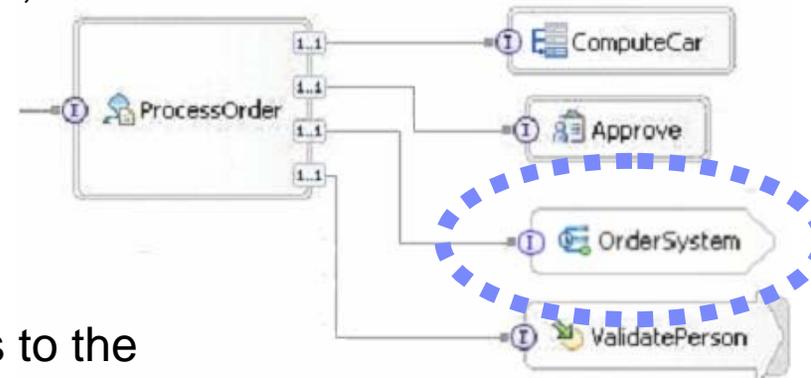
New Rule from Template

Name	Rule	Action
Rule1	Set Initial values - This should be the first rule	↓
Rule2	For Country <input type="text" value="USA"/> an account greater than <input type="text" value="50000"/> requires a credit score greater or equal to <input type="text" value="600"/> .	↓ ↑ Delete
Rule3	For Country <input type="text" value="CANADA"/> an account greater than <input type="text" value="40000"/> requires a credit score greater or equal to <input type="text" value="650"/> .	↓ ↑ Delete
Rule4	One of the Final rules - all template rules should come before this	↓ ↑
Rule5	One of the final rules - all template rules should come before this.	↑

# Selectors - Dynamic Service Invocation

*Dynamically select which service to invoke*

- Target service: Any service component
  - Processes, rules, human tasks, applications, etc
- Selection criteria, e.g. scheduling rules
  - Call a human task during business hours, and a business rule during off-shift hours
  - Other selection rules
- Web-based interface for dynamic updates to the selection criteria and target services which may not even have existed at deploy time!



SelectValidation

General

Interface

- ValidateEmployee
  - validateEmployee

Active destinations

Default destinations: ValidateRule

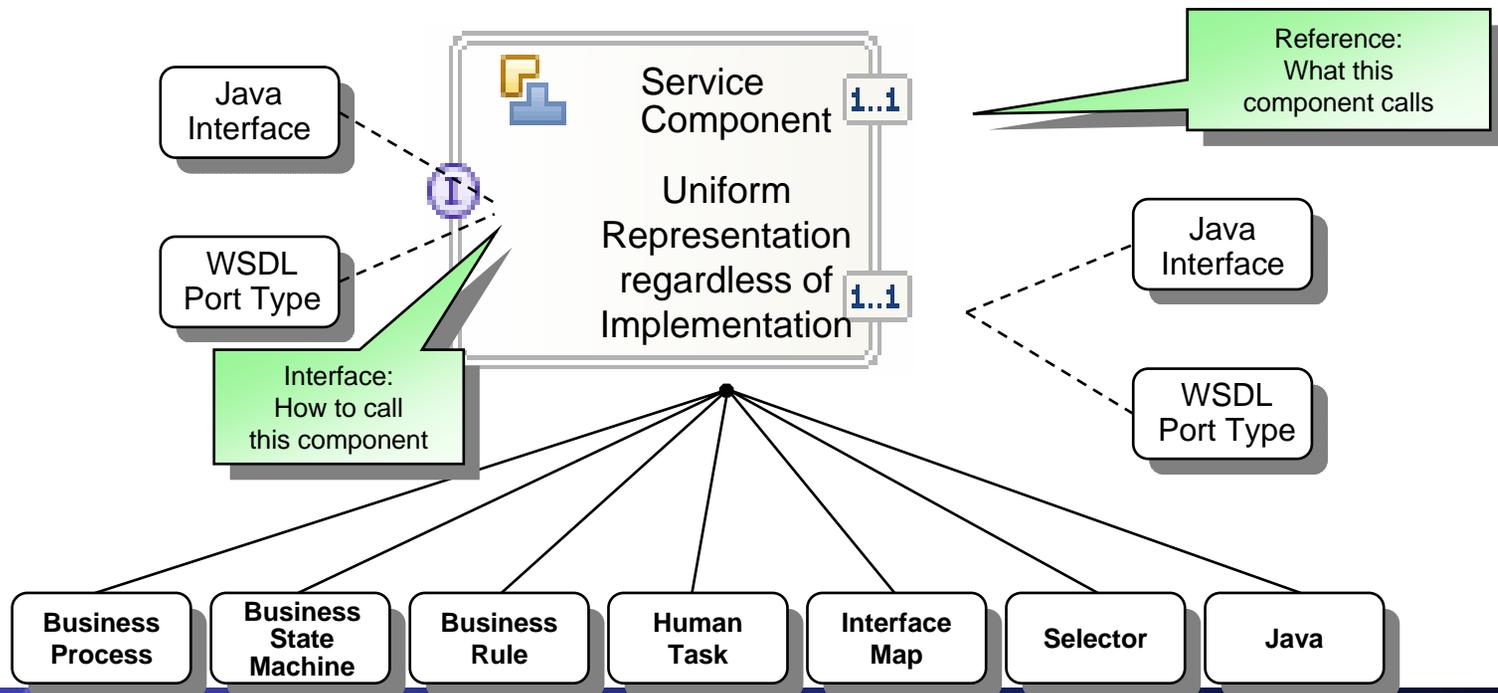
Start Date	End Date	Destination
7/1/05 12:00:00 AM	7/31/05 12:00:00 AM	ImportValidateExternal
8/1/05 12:00:00 AM	8/31/06 12:00:00 AM	ValidateManual

Parameter method: Current time

# Service Components

## Normalizing Invocation complexity

- All solution artifacts defined through Service Component Architecture (SCA) and appear as reusable Service Components
- Service Components are wired together to form deployable solutions
- Business Objects are the data flowing between Service Components



# A Word About SCA

## *Service Component Architecture*

- IBM, along with BEA, Oracle, SAP, IONA, Siebel and Sybase announced the new specifications for SCA on Nov. 30, 2005

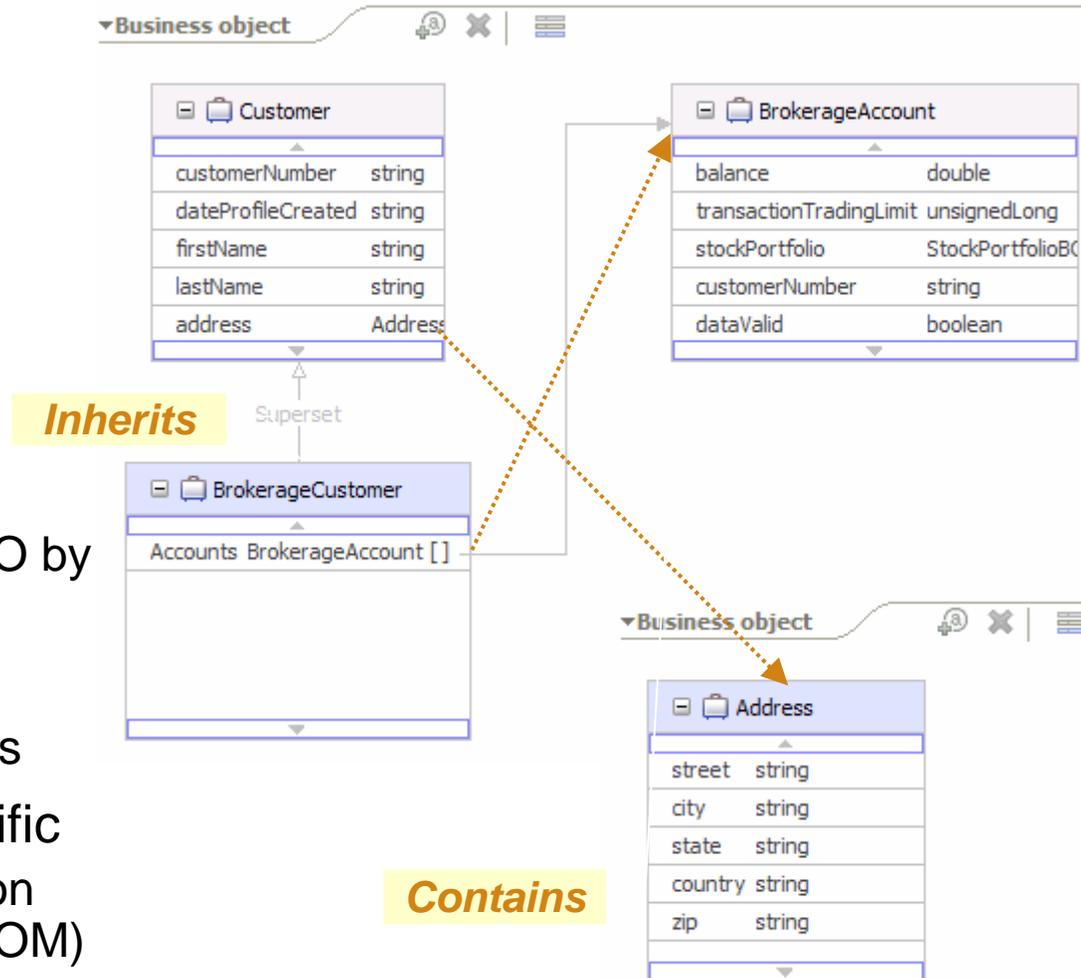
“ ‘SCA - A Deployment Descriptor On Steroids’ – Has Been Specifically Designed for SOA”. Web Services Journal, Nov 30, 2005

"The day of monolithic enterprise apps that aren't service-oriented is now over -- this effort puts the final nail in that coffin" – Ron Schmelzer, Analyst, ZapThink

- Although SCA was just announced, it is not new to IBM. WebSphere Process Server and WebSphere Integration Developer, which were announced in September 2005, were built on SCA and SDO.

# Data Complexity isolated through Business Objects

- All data are described as Business Objects (BO)
  - Defined via XSD
  - Deployed as Service Data Objects (SDO)
  - Automatically generated via Adapters
- Inheritance
  - True Objects ~ specialize BO by inheriting from existing BO
- Nesting
  - A BO may contain other BOs
- Generic or Application Specific
  - Abstraction enables Common Business Object Model (CBOM)

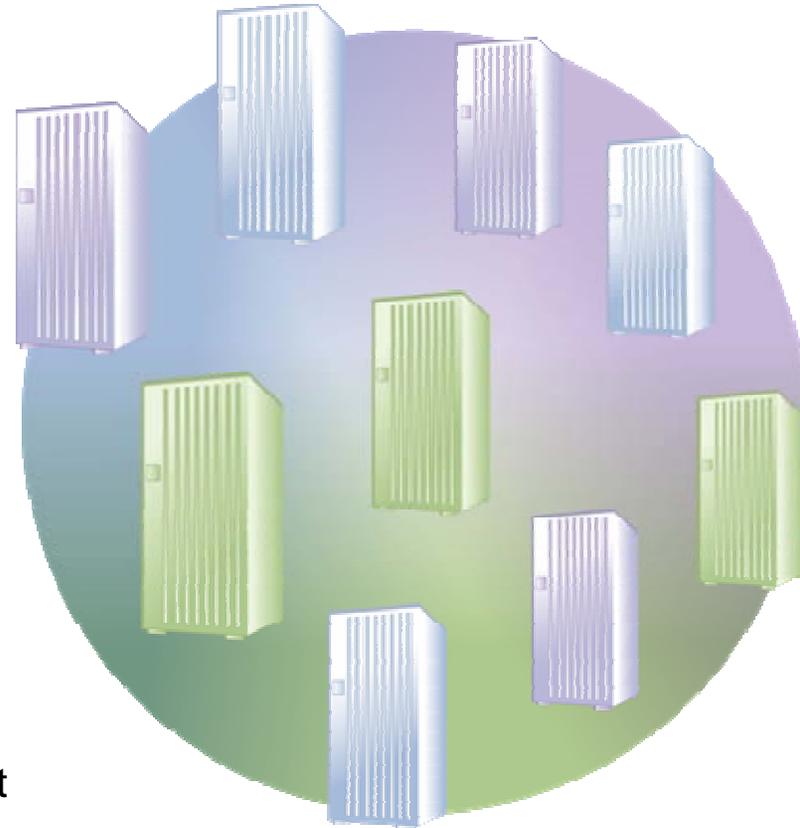


# Scalable, Reliable, and Secure

*Leveraging infrastructure services from WAS*

## ***An extension to the world-leading WebSphere Application Server***

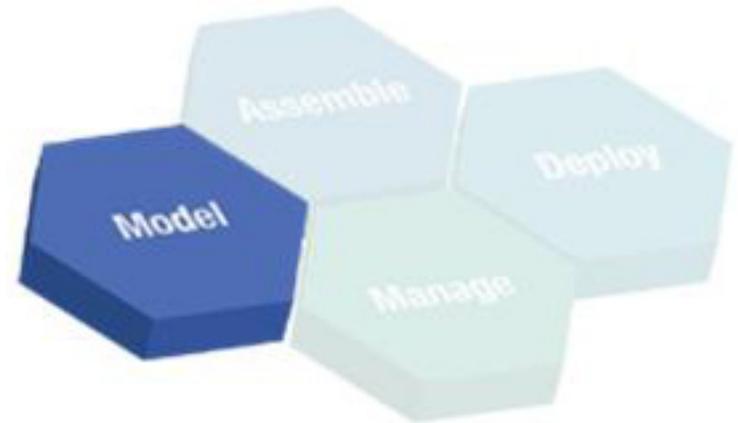
- High Qualities of Service
  - Clustering, failover, high availability and robust platform
  - Single administration environment
  - Common Event Infrastructure for Process Monitoring
- Service Oriented Architecture
  - A uniform data representation model (Business Objects)
  - A uniform service representation model (Service Components)
- Single Runtime Platform
  - Reduces complexity and administration cost



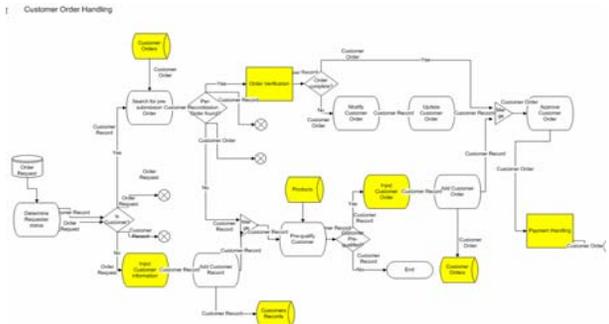
# Companion Tool! WebSphere Business Modeler

## *Business Analyst – Key Capabilities*

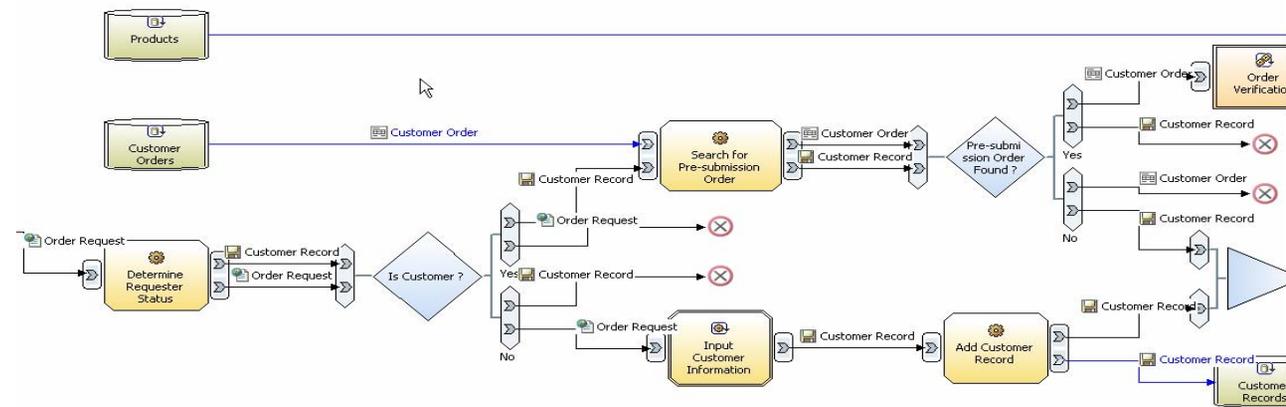
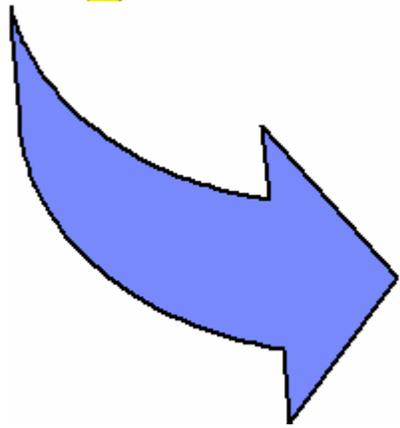
- Graphically Model Processes
  - Simple but comprehensive modeling
  - A business tool for business users
  - Model everything you need to design and "sand-box" your business process – Costs, Times, Resources
- Simulate And Analyze
  - Simulated execution of the business process with detailed statistical analysis tools
- Collaborate and Web Publish
  - Tools to allow multiple people to work as a team on business process work
- Visio import
  - Import existing process pictures done in Visio as a starting point for true business modeling
- Hand Off To IT
  - Export business and data models for use in IT deployment



# Import Visio Diagrams to take advantage of Process Model Simulation

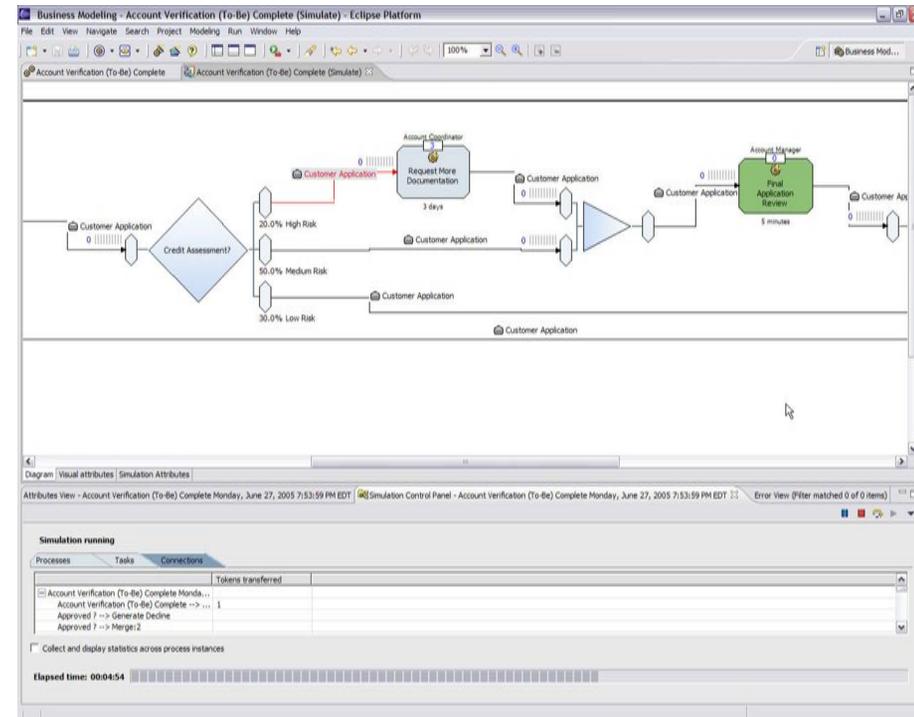


- Allows you to leverage existing Visio models
- Map objects to the WBI Modeling Tools
- Import at 100%
- Allows you to extend the model with metadata, simulation, reports



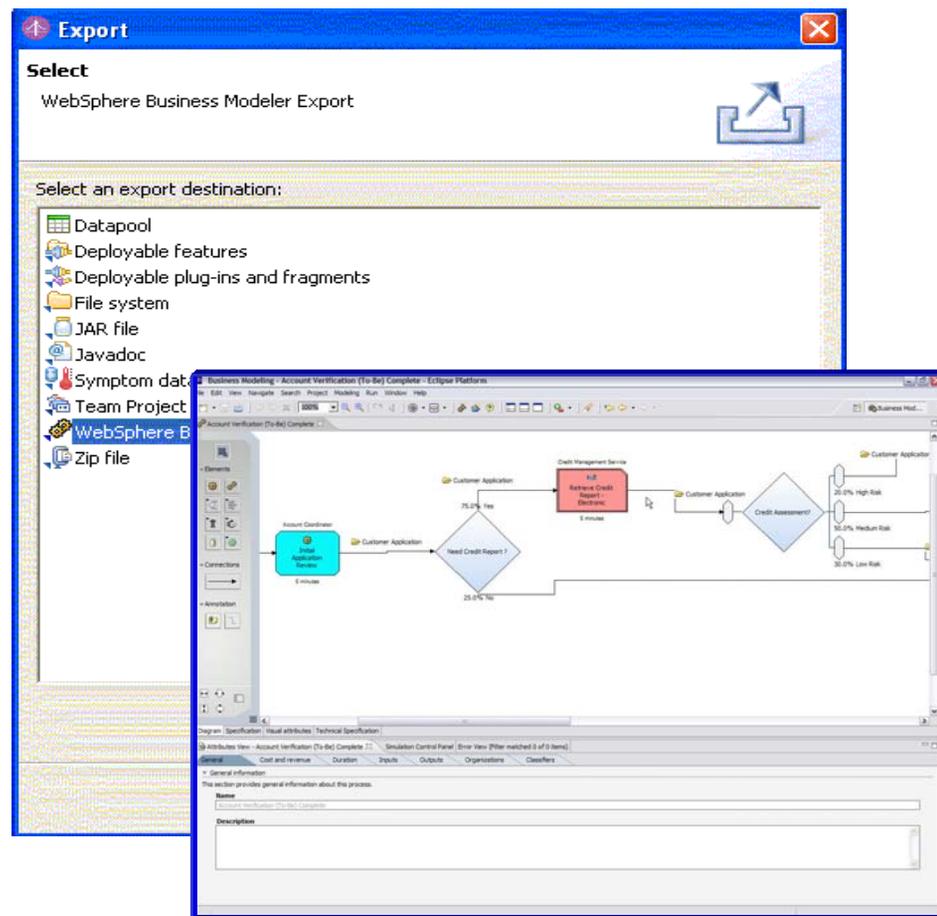
# Simulation for Sophisticated “What If” Analysis and Optimization *before* Development

- 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 data around cost, time, and resource savings
- Optimize by looking at bottlenecks and workload imbalances before moving any changes into production



# After Simulation Hand-Off the Results to IT – Precise Business Requirements

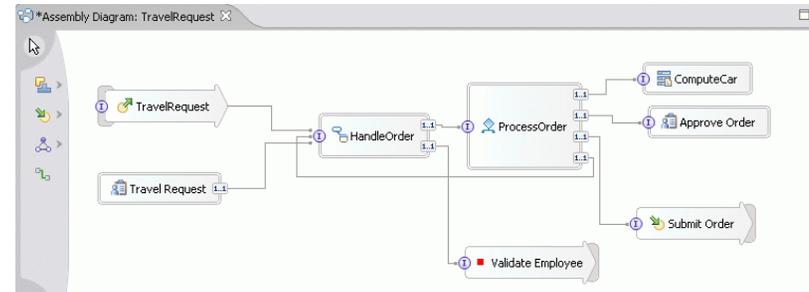
- Direct export of models to begin IT development
  - WS-BPEL for process execution
  - XSD for data definitions
  - WSDL for service interface definitions
  - UML for designing new services
- Precise business requirements are captured
  - Key Performance Indicators and other metrics defined in model



# Companion Tool! WebSphere Integration Developer

## *Graphical Tools for Assembling Composite Applications*

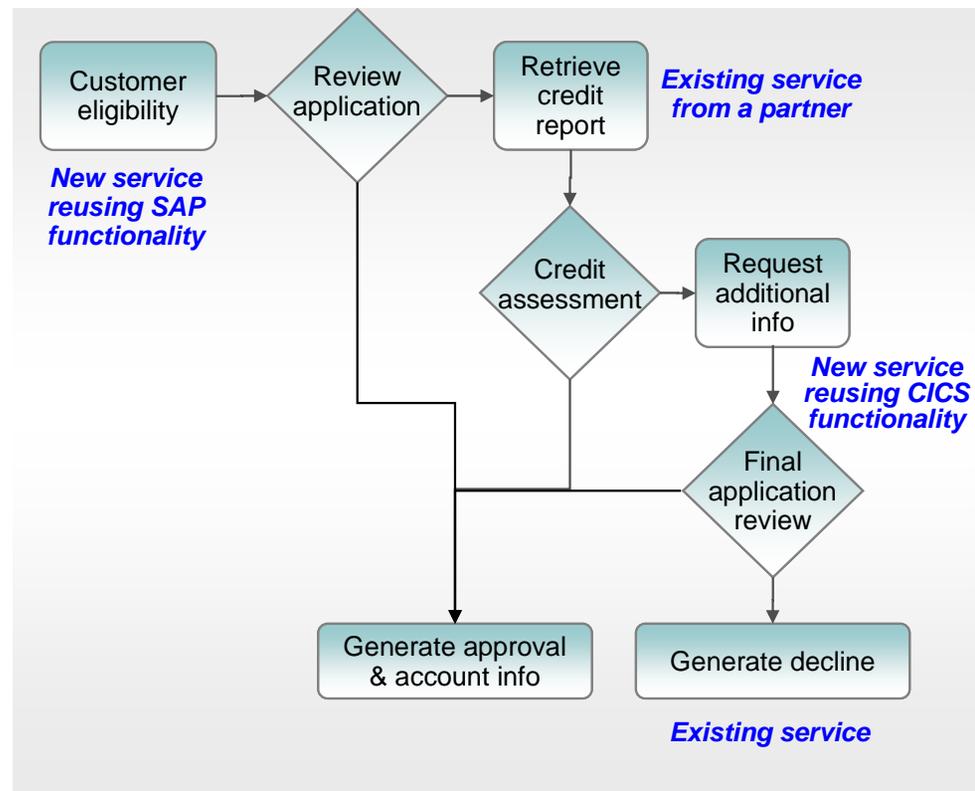
- Complete toolbox for composite application building
  - An Assembly Editor for overall solution assembly
  - All the tools you need for building solution components (Editors for BPEL, Business Rules....)
  - One, easy to learn and user interface based on Eclipse
- Architected for reuse and flexibility
  - Simplified component interfaces
  - Plug-and-play solution components



# Companion Tool! WebSphere Integration Developer

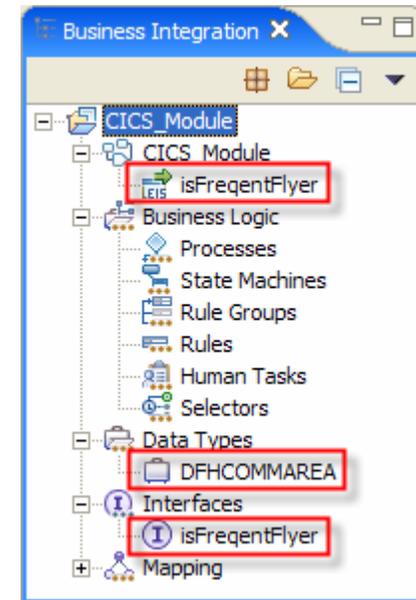
## Graphical Tools for Assembling Composite Applications

- Streamlining process design hand-off between business and IT
- Import and work with business process models directly from the business analyst (WebSphere Modeler)
- Single architecture that supports multiple roles
- Simplifying and speeding development
- Easy to use tools where everything can be done through the GUI
- Can be the starting point for developing business processes through IT
- Single way to define all types of processes (human, automated, rules, etc.)
- Maximizing re-use
- Ability to leverage existing services and develop for future reuse
- Leverages existing skills through technology built on Eclipse
- Migration tools allow you to use what you have today through WebSphere applications



# CICS integration with WebSphere Process Server

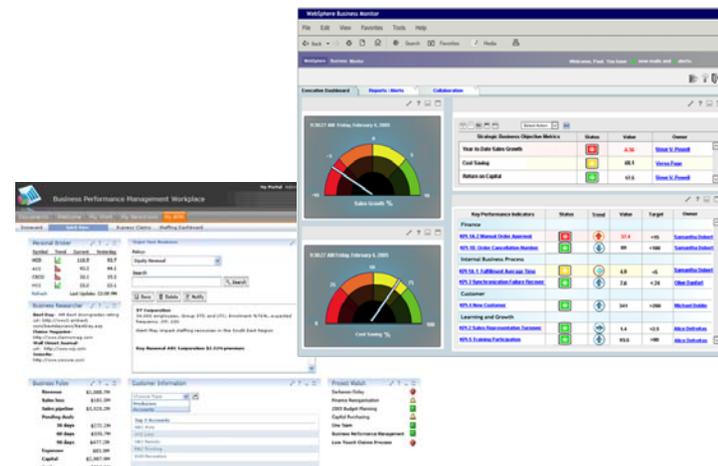
- WebSphere Integration Developer – Direct Integration
  - Enterprise Service Discovery wizard
  - Accepts a Cobol or C file defining the CICS COMAREA
  - Generates a CICS Transaction Gateway adapter. Creates
    - (i) a Business Object that represents the CICS com area;
    - (ii) an interface to invoke the CICS transaction and;
    - (iii) SCA import to call the EXEC CICS Interface (ECI)
- CICS Web services and WebSphere Integration Developer - Teamwork
  - CICS application developer modifies CICS transactions to expose coarse-grained business services for integration using WID, WPS.
  - Integration Developer (using WID) creates composite application using web services exposed by CICS TS v3.1 Service Flow Feature, WebSphere Developer for zSeries v6.0.1
  - SOAP/http – Business services exposed by CICS, WDz
- JMS / MQ based integration with CICS transactions
  - Use with MQ bridge, adapters
  - WBI Adapters for CICS, IMS, Natural (OEM from NEON Systems)
- HATS, Host-on-Demand for access to 3270 screen interfaces



# New Companion Tool! WebSphere Business Monitor

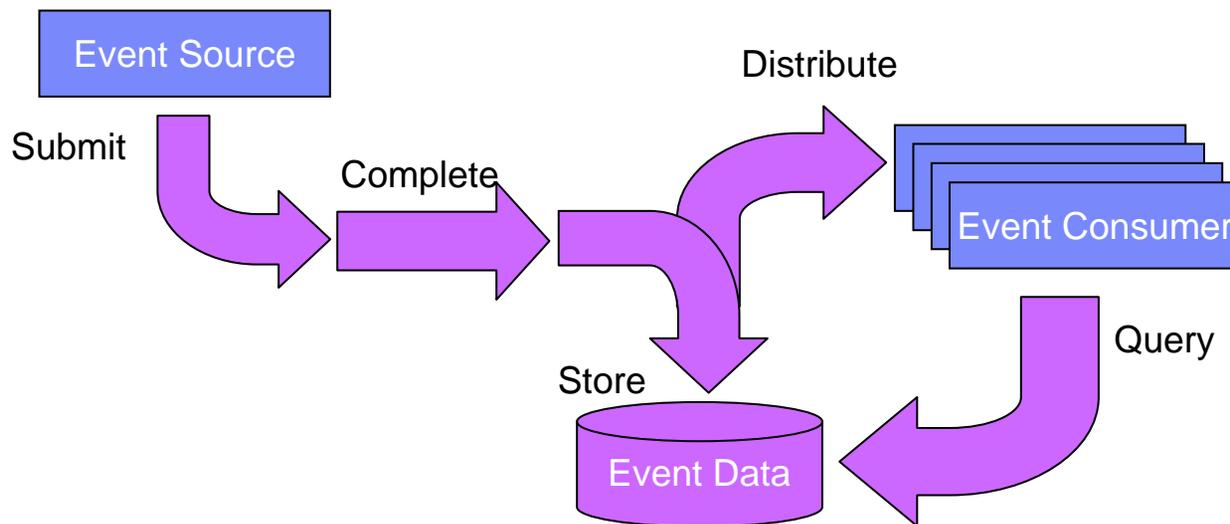
*Realtime Business Control*

- Business Dashboards
  - Scorecards of Key Performance Indicators
  - Track cost, time and resources
  - Identify bottlenecks, balance workloads, reduce latencies
- Process Intervention
  - Business event triggers and notifications
  - Dynamic response to alerts
- Continuous Process improvement
  - Real data in WebSphere Business Modeler to understand your business performance
  - Real data in WebSphere Business Modeler to design the next release of your business process



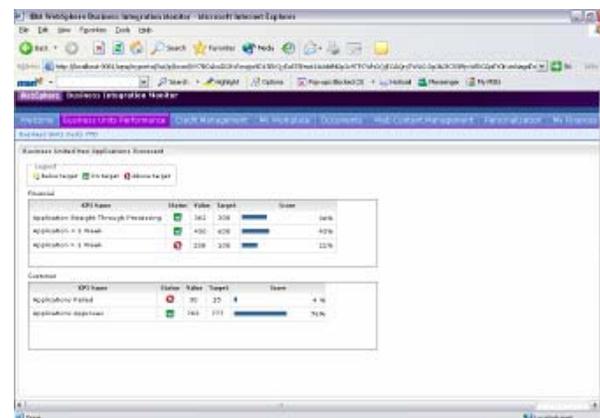
# Standard way to Describe, Distribute and Correlate Management Events

- Provides for consistent representation of management events
  - Based on Common Base Event (CBE) which is a proposed standard
    - Describes how events are created, structured, stored, routed and retrieved
- Strategic technology in use across IBM Software Group
  - Tivoli, WebSphere, DB2, etc...
- Exposes API to allow anyone to write or consume CBEs



# Real Business Performance Visibility that Leverages Open Standards

- View processes in real time
  - See how your business is performing before issues arise
  - Monitor the pieces of your business that matter in terms you understand
  - View business measures and key performance indicators specific to your business processes
- Make proactive changes on the fly
  - Respond quicker
  - Intervene and change the course of your process based on events and trends as they emerge
- Business Innovation and Optimization
  - Improve your business through insight
  - Correlate events in the context of the overall business process



# Convergence on the powerhouse

- The mainframe has all the qualities you need for the heart of an SOA
  - It can drive the advanced ESB that integrates the enterprise ...
  - It is ideally suited for full **transactional control**
  - It is the single point of control for enterprise-wide **IT governance**
- The mainframe houses the core applications that provide all your competitive advantage
  - **Develop** them as mainframe Web services, and continue the QoS you depend on
- Extend the value of core applications and databases
  - **Automate** processes to realize the benefits of SOA
  - While retaining the Qualities of System z

धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบคุณ

Thai

Спасибо

Russian

Gracias

Spanish

Thank You

English

شكراً

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