



WebSphere Software

# Modelling and Assembling SOA Components for a Mainframe

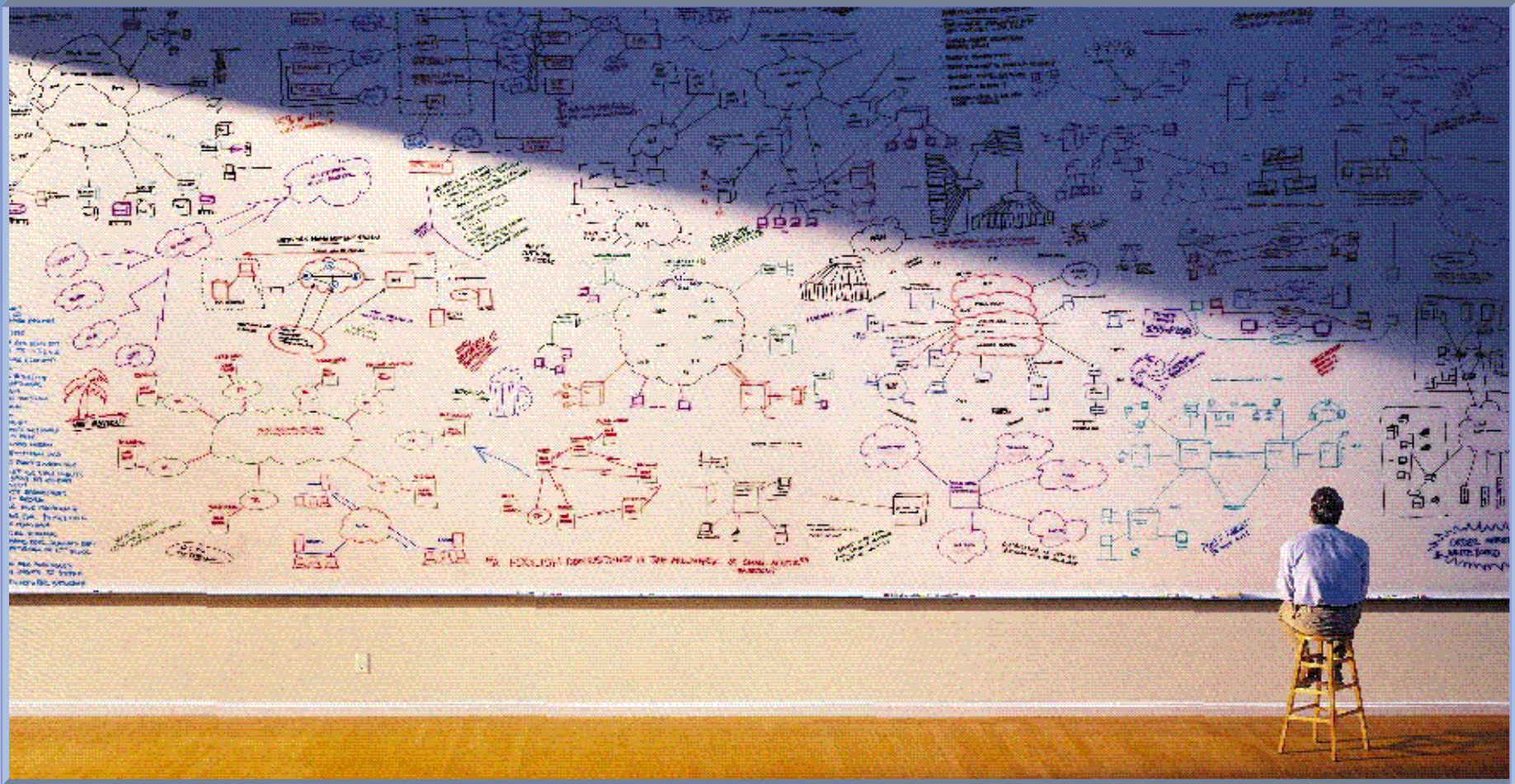
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**ON DEMAND BUSINESS™**

# Agenda

- Introduction to business processes and the SOA lifecycle
- Modelling business processes for SOA applications
- Constructing and Assembling composite applications
- Summary

# Most Businesses are a Long Way from the Goal



**The Goal: Flexible, Responsive, Optimized Business**

# Business Processes Help

- **Understand your business**
- **Standardize and comply**
- **Improve your business**
- **Communicate**
- **Deploy solutions**
- **Establish and make measurements**
- **Make change happen fast**

# Business Haven't Fully Leveraged "Process" Yet

- ✓ Businesses want to understand and change their operational processes quickly...  
...but their processes are: misunderstood, inconsistent, hard-wired, or inflexible
- ✓ Businesses want to deploy automated processes fast  
...but most do not have a way to do this
- ✓ Businesses want a real time view of operations and the ability to intervene...  
...but there is typically no way to achieve this without a massive effort, yielding inflexible solutions
- ✓ Businesses want to see results and value fast...  
...but they cannot invoke change without expensive, risky projects with long payback periods

***Companies Want Change At The Speed Of Business***

# What is Business Driven Development?

## Business Driven Development

An integrated approach to software development that aligns line-of-business, development and operations teams to improve business performance



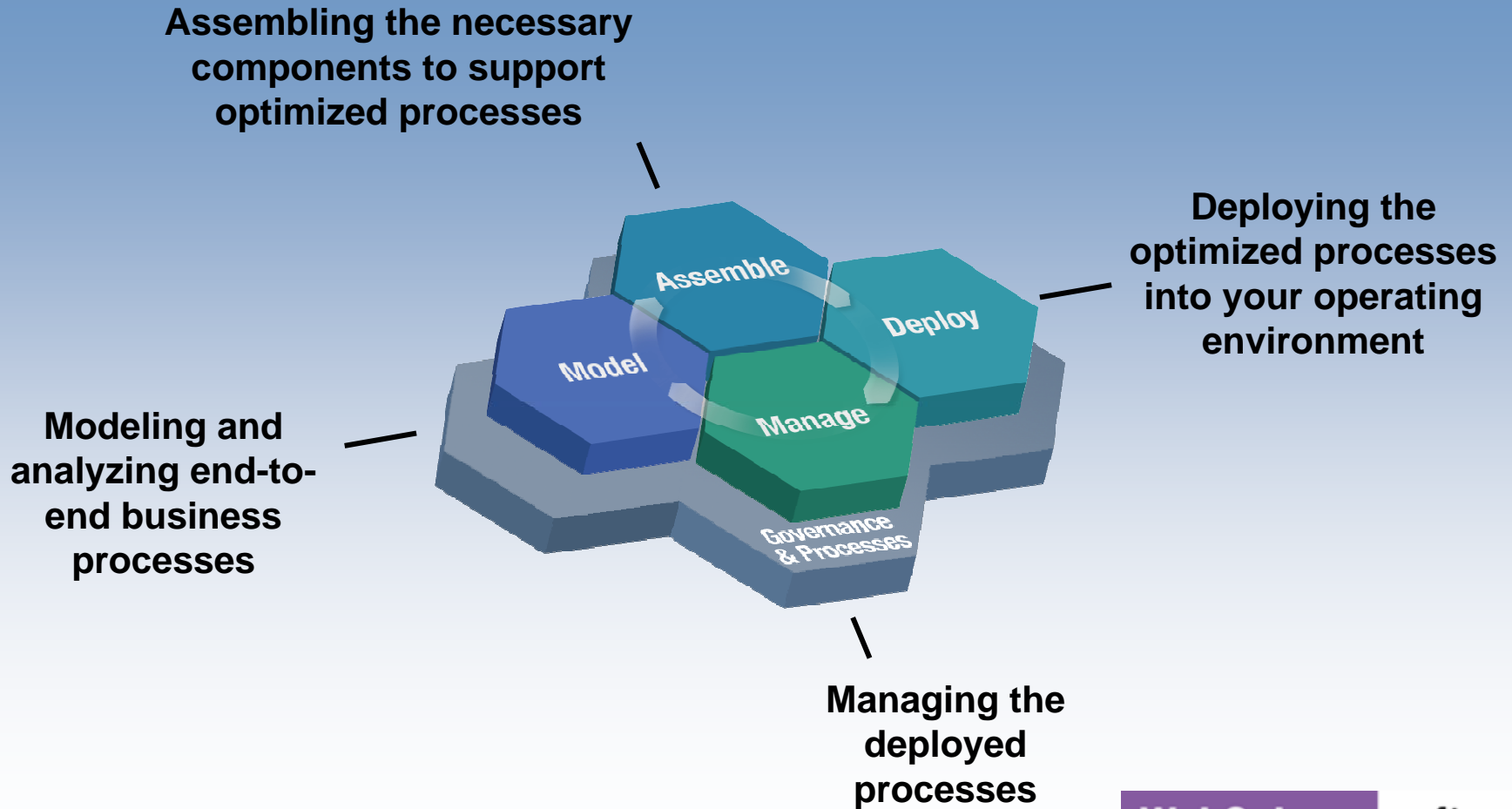
### *Development as a business process*

- Align Technology and Business priorities
- Improve efficiency and responsiveness
- Create innovative products

- Higher productivity - 50% + increase in developer productivity
- Improved quality - 80% fewer bugs
- Greater predictability

**Software development becomes a driver of competitive advantage**

# Phases of the SOA Lifecycle



WebSphere software

# Model – What Differentiates IBM?

- Achieve regulatory compliance with less time and expense through well documented, auditable processes
- Simulate process changes, and assess impacts on costs, resource utilization, and cycle times prior to deployment
- Reduce risk by simulating market changes against current process models
- Improve the company's scorecard by defining Key Performance Indicators
- More effectively deploy valuable skills to the areas where they're best utilized



### ***Financial customer:***

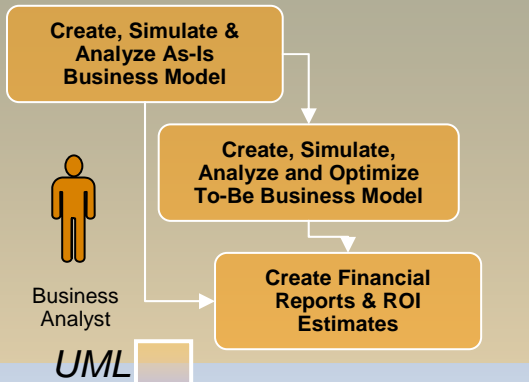
53% faster post closing mortgage processing time  
34% increase in efficiency,  
estimated annual savings \$4M

*WebSphere Business Modeler*



# Model the Business and Identify the Services

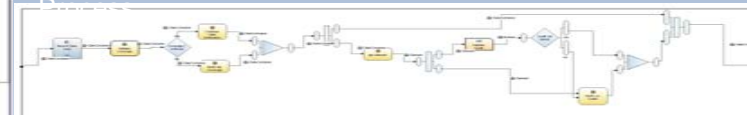
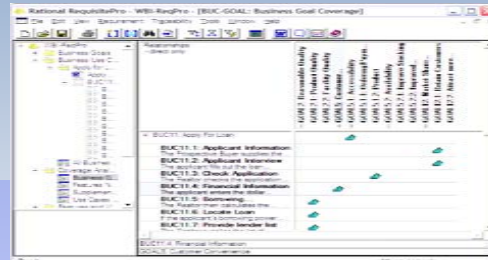
## WebSphere Business Modeler



Rational RequisitePro - WBI-ReqPro - [BUC: All Business Use Cases]

Requirements	Priority	Status	Assigned To	Unique ID	Location	Package	Auth
BUC11: Apply For Loan	Medium	Approved		30	Apply For Loa	Apply For Loan pat	
BUC11.1: Applicant Information	Medium	Approved		20	Apply For Loa	Apply For Loan pat	
BUC11.2: Applicant Interview	Medium	Approved		21	Apply For Loa	Apply For Loan pat	
BUC11.3: Check Application	Medium	Approved		22	Apply For Loa	Apply For Loan pat	
BUC11.4: Financial Information	Medium	Approved		23	Apply For Loa	Apply For Loan pat	
BUC11.5: Borrowing Calculation	Medium	Approved		24	Apply For Loa	Apply For Loan pat	
BUC11.6: Locate Loan	Medium	Approved		25	Apply For Loa	Apply For Loan pat	
BUC11.7: Provide lender list	Medium	Approved		26	Apply For Loa	Apply For Loan pat	
BUC11.8: Select Lender	Medium	Approved		27	Apply For Loa	Apply For Loan pat	
BUC11.9: Submit Loan	Medium	Approved		28	Apply For Loa	Apply For Loan pat	
BUC11.10: Document Loan	Medium	Approved		29	Apply For Loa	Apply For Loan pat	
<Click here to create a requirement>	Medium	Approved		empty	Database	None	pat

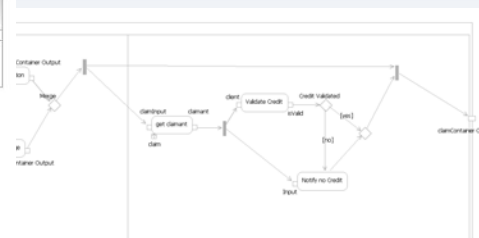
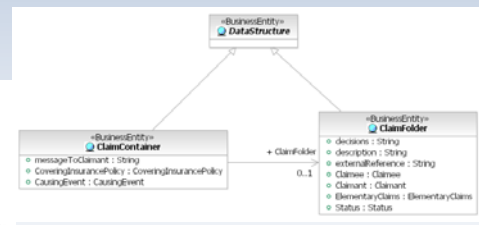
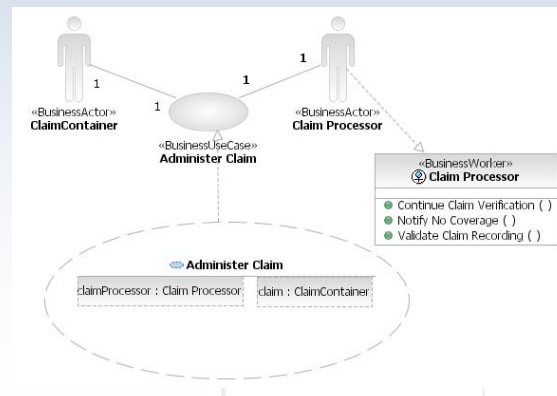
BUC11.4: Financial Information  
The applicant enters the dollar amount of the proposed loan and the total dollar value that will be used for a down payment.



Create & Manage System Requirements

Trace Requirements & Create System Use Case Realizations

Model Services



# WebSphere Business Modeler: Business Modeling and Business Simulation

- Business analyst designs, tests, and simulates business process
  - As is and to be modeling
  - Business service identification
- Business-level simulation including Process Duration, Costing, ROI, etc.
- Transform models to UML or BPEL

The image displays three screenshots from the WebSphere Business Modeler application:

- Top Screenshot:** A process flow diagram for 'Payment Handling'. It starts with a 'Customer Order' entering a decision diamond 'Payment Method?'. From there, it branches into 'Take Cash or Check' and 'Swipe Card & Sign'. Both paths lead to 'Customer Order' and then to a final 'Customer' output.
- Bottom-Left Screenshot:** A 'Simulation control panel' showing 'Simulation time: Mar 17, 2014 8:55:37 AM' and a progress bar.
- Bottom-Right Screenshot:** A bar chart titled 'Activity Costs' showing the cost of various activities in US Dollars. The activities and their costs are:
 

Activity	Cost (In U.S. Dollar)
Gather Inventory Information	0.83
Calculate Order Quantities	2.50
Enter Supply Order Data	5.83
Print Supply Order Request	1.66
Submit & Fax Supply Order Request	1.66
Add New Order To Inventory System	1.66
Update Supplier To "Receivable"	0.83
Place Supply Order Into Receivable	0.66
Print "Receivable" Order	0.14
Send Order Notice To Shipping	0.83
Receive Order	3.33
<b>Total =</b>	<b>20.00</b>

## Customer Benefit:

- Business-level tools for modeling and simulation
- Describe business-level services in context of business improvement

# Model – What Makes WebSphere Unique?

- 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
  - Tools to publish business process work across the business
- Hand Off To IT
  - Export business and data models for use in IT deployment
- Visio import
  - Import existing process pictures done in Visio as a starting point for true business modeling



*IBM WebSphere Business Modeler*

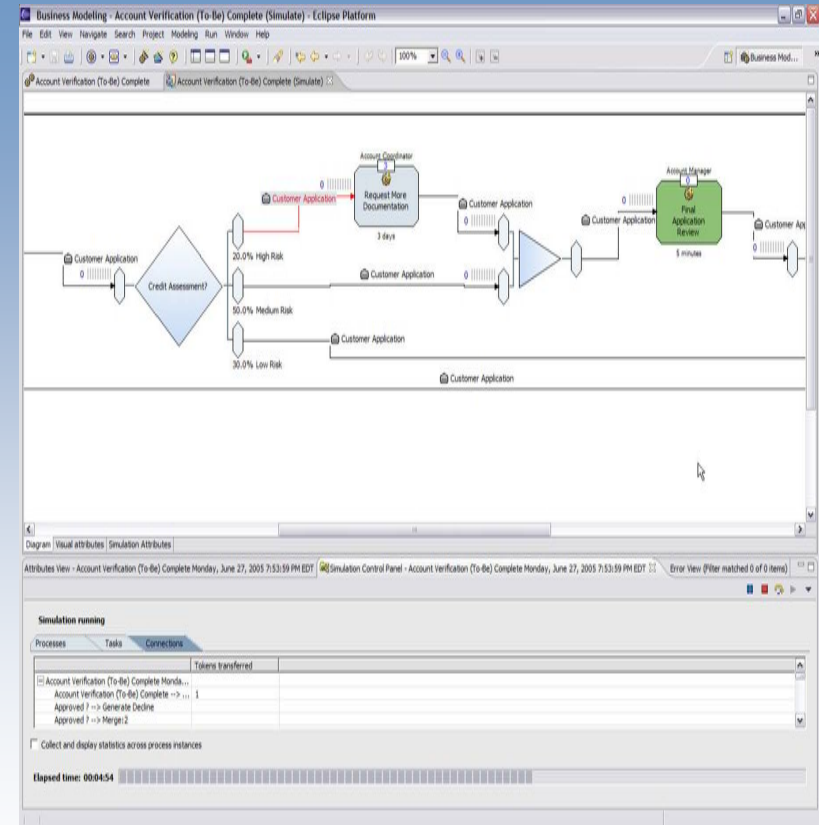
# Graphically Model Processes – Ease Of Use

- Simple to use, business tools for business users
  - Easy to learn and use
- Different modes for different users
  - Only work with the things which matter for the work in hand
- Precise modeling of the things which matter
  - Model the things which affect performance
    - Processes, tasks, costs, times, resources, information, organizational structure
  - Model the things which measure performance
    - Model and define the business metrics to be used in Manage



# 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



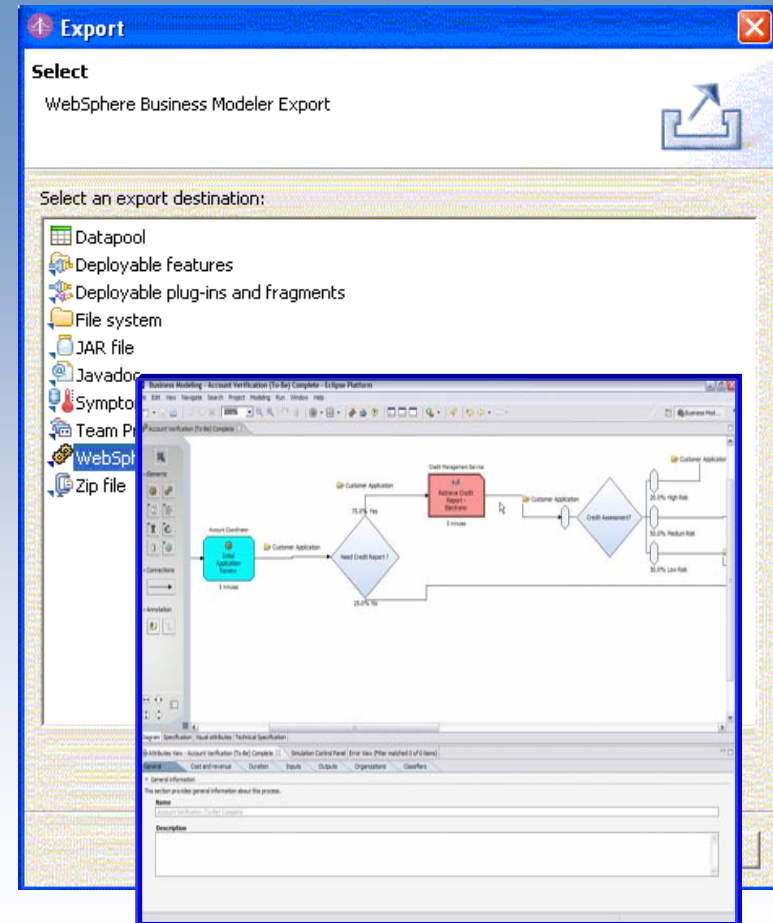
# Collaborate and Web Publish – Efficiency and Compliance

- Collaborative Modeling
  - Version controlled models for team modeling
- Collaborative Reviews
  - Browser based model review
  - Easy access for all stakeholders
- Web Publishing
  - Publish final model information
  - For user training and reference
  - For compliance documentation

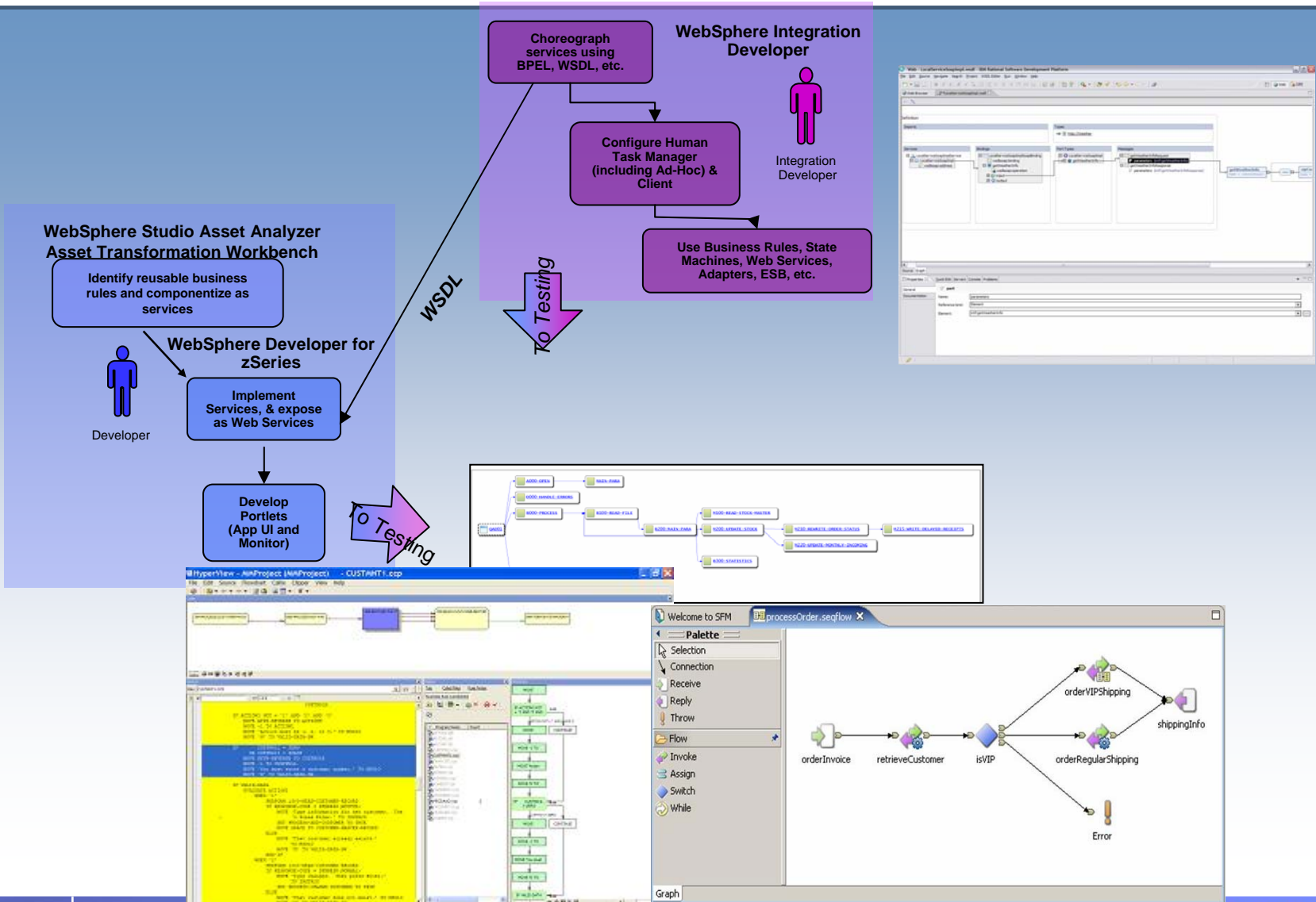


# Hand-Off To IT – Precise Business Requirements

- Direct export of models to IT
  - BPEL for execution
  - XSD for data definitions
  - WSDL for services interfacing
  - UML for Rational Software Architect
- Precise business requirements
  - For Assemble
  - For Deploy
  - For Manage



# Assemble and Test the Composite Application





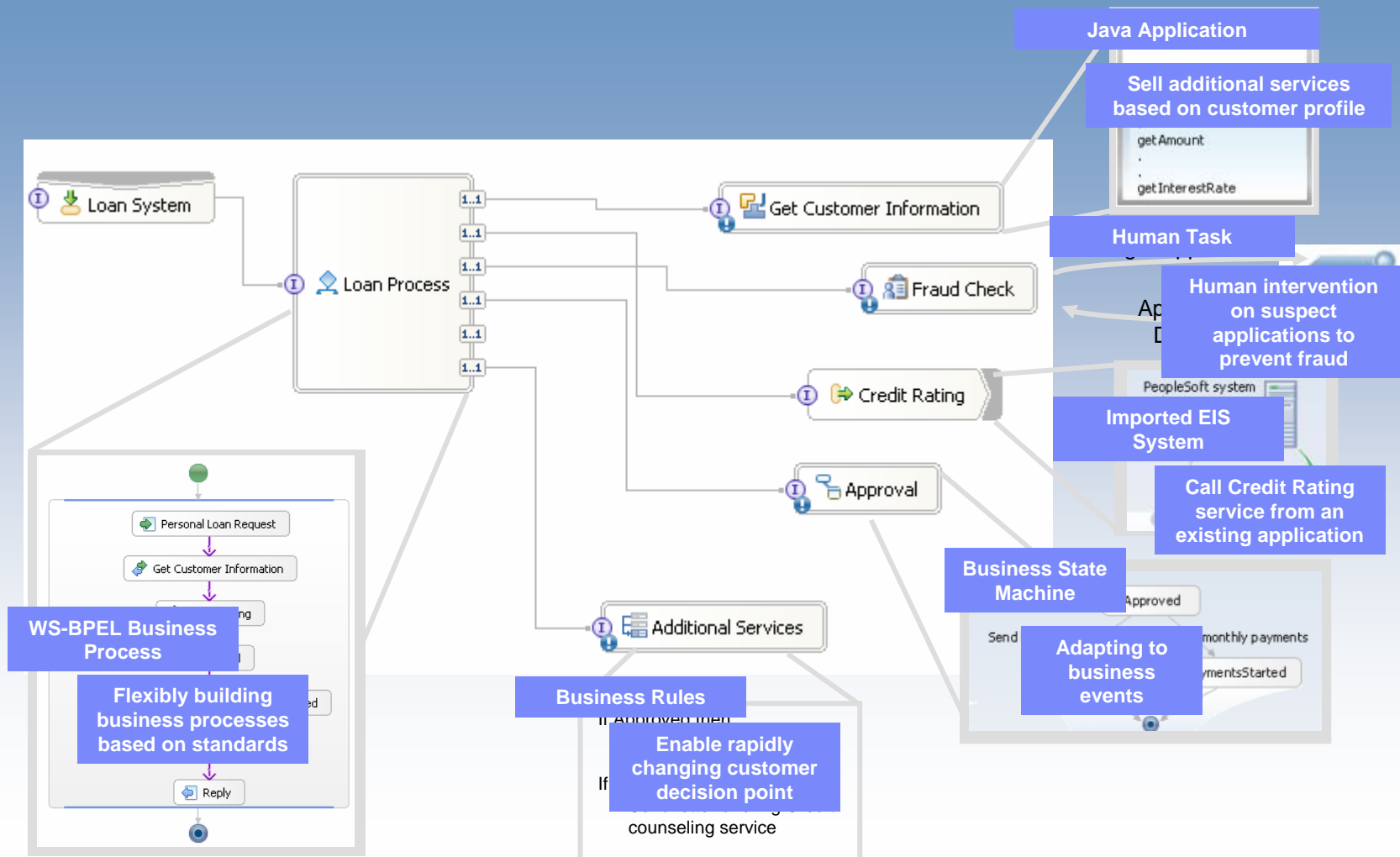
# Assemble – What Differentiates WebSphere?

- Simplified hand-offs between business and IT that let developers get started quickly
- Easy to use tools that minimize skill requirements
- Streamlined development with the reuse of existing resources
- Dynamic process assembly



*WebSphere Integration Developer*

# Assembling The Components



# Assemble - What Makes WebSphere Unique?

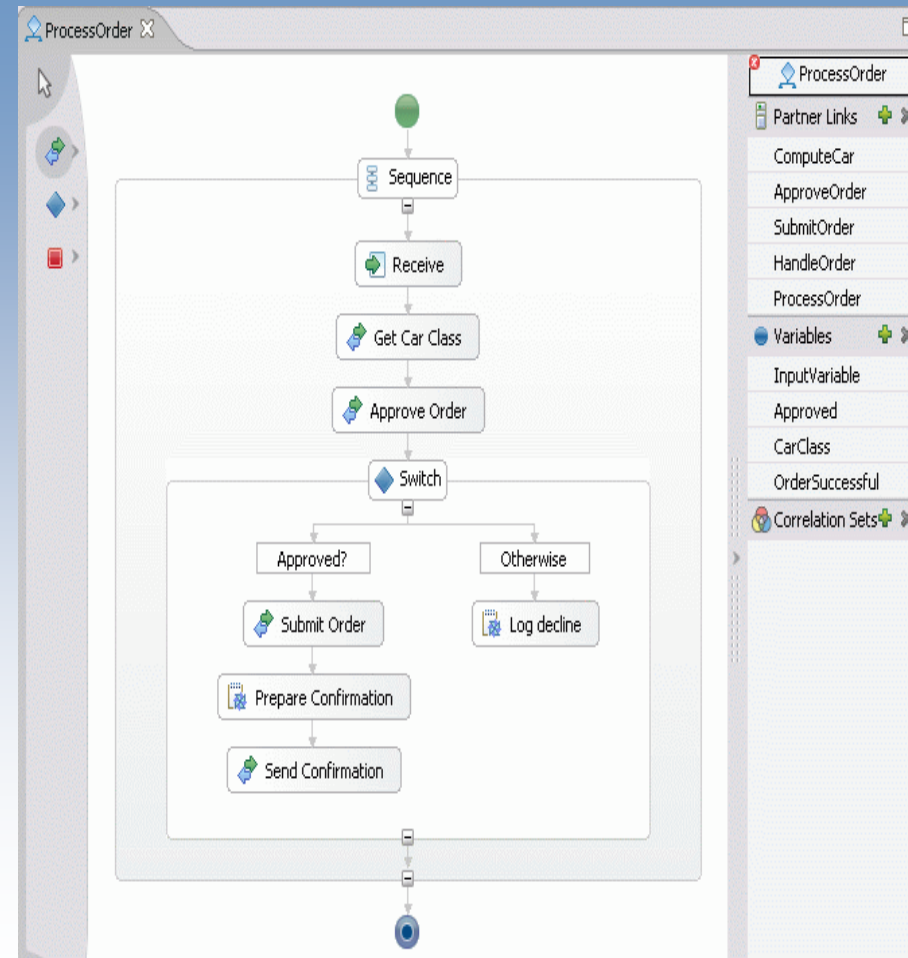
- BPEL Without Coding
  - Standards based process support
- Full Workflow Support
  - Built-in human task support
- State Machines
  - For complex transactions
- Dynamic processes and assembly
  - For flexibility and responsiveness
  - Business rules to determine the process flow
  - Selectors to determine which components are in the flow
- Assembly with WebSphere Integration Developer
  - Tooling and architecture for composite applications



*IBM WebSphere Integration Developer*  
*IBM WebSphere Process Server*

# BPEL Without Coding – Standards Based Process Support

- **Import models from WebSphere Business Modeler**
- **Develop Executable Process**
  - WS-BPEL-based business processes
  - WS-BPEL with or without IBM Extensions
- **Intuitive drag-and-drop tools**
  - visually define the sequence and flow of business processes
- **A visual business process debugger**
  - step through and debug business processes
- **Integrated fault handling**
  - provide an easy and integrated means of performing in-flow exception handling
- **Compensation support**
  - provide a logical “undo” capability



# Workflow – Built-in Human Task Support

- **Many business processes involve human tasks**
  - Even automated tasks may require human intervention to manage exceptions
- **Human tasks require special treatment**
  - We provide specialized process constructs to support human tasks
  - Escalation Support to manage task execution time
  - Integration with existing staff repositories like LDAP
- **Human tasks need to be managed outside of the process**
  - Runtime workflow management
  - Full Integration with WebSphere Portal
  - Powerful staff assignment rules



# Dynamic Processes for Flexibility and Responsiveness

## Business Rules & Decision Tables dynamically determine process flow

- Expose process decision points as business parameters
  - e.g. Credit rating level based on net worth
- Allow non-disruptive, real-time business change
  - e.g. New lending policies allow changing the credit rating criteria without redeploying the loan application process
- Ensure consistency across the business
  - e.g. Every loan application process executes the same rule group

## Selectors dynamically determine which components are used

**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"/> .

**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}	var 1	double	None
	{1}	var 2	double	None
	{2}	var 3	string	None
If	all of the following are true <ul style="list-style-type: none"> <li>• info.assets &gt; var 1</li> <li>• info.liabilities &lt; var 2</li> </ul>			
Then	rating = var 3			

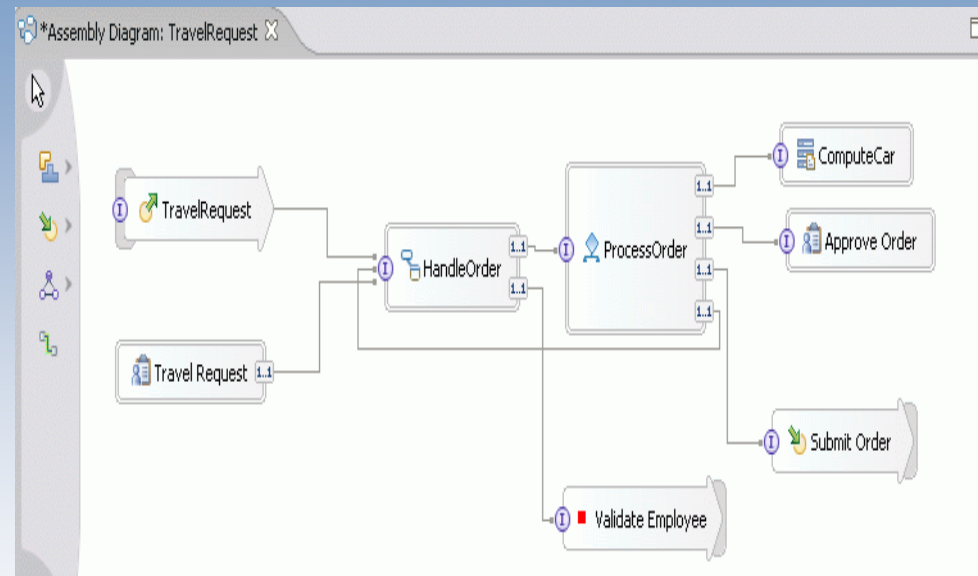
  

**Decision Table**

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

# Assembly With WebSphere Integration Developer

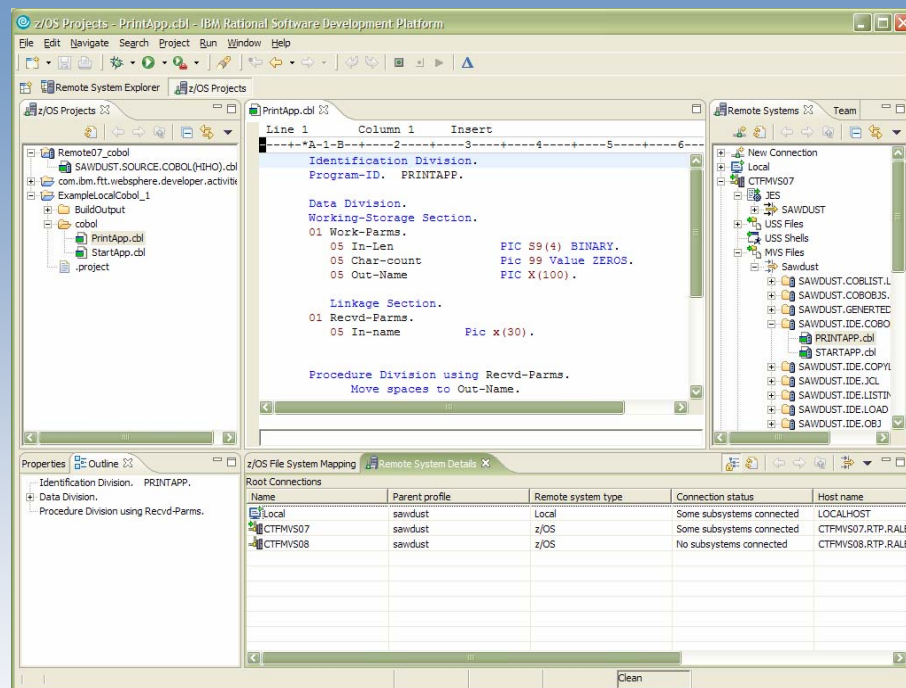
- **Complete toolbox for composite application building**
  - An Assembly Editor for overall solution assembly
  - All the tools you need for building solution components (Editors for BPEL, Business Rules....)
  - One, easy to learn and user interface based on Eclipse
- **Architected for reuse and flexibility**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



# WebSphere Developer for zSeries (WDz)

Eclipse-based integrated development environment for developing enterprise-level, multi-tier applications (composite applications)

- Builds core stack zOS applications
  - COBOL, PLI, HLASM
  - TSO/Batch, CICS, IMS, DB2
  - DB2 Stored Procedures – COBOL, PLI, Java, SQL
- Creates COBOL/CICS/JSF/Java/J2EE Multi-tier apps
  - Built on Rational Application Developer
    - Includes all of the J2EE web development tools
  - Generate JSF/EGL/J2EE web front ends
  - COBOL backends running on zSeries
- Enables CICS and IMS applications for Web services and SOA
  - Provides tooling to make it easy to integrate existing applications into an SOA
- Supports the full application lifecycle
  - Model, Architect, Develop, Test, Deploy, and Manage





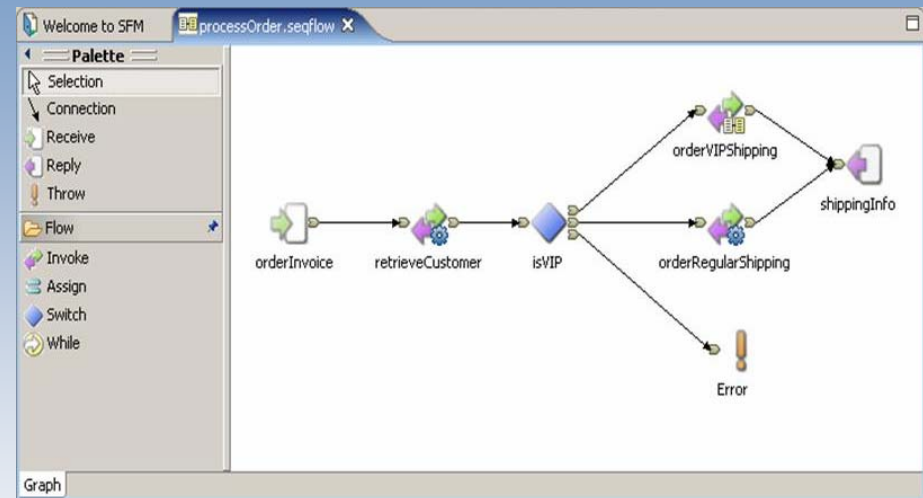
# WDz SOA Development Tools

- Enable Web Services and XML access to existing CICS and IMS Transactions
  - XML Services for the Enterprise (XSE)
  - Quickly maps existing COBOL interfaces to XML and Web Services.
  - No code changes for the COBOL application
  - Supports IMS, CICS BMS (terminal-based) & CICS commarea applications
- Model and deploy complex CICS processes to support SOA
  - Service Flow Modeler (SFM)
  - Aggregate CICS transactions into high-level business processes through visual (drag n drop) modeling
  - Highly optimized CICS COBOL runtime to increase overall throughput
  - Supports COBOL commarea-based applications and terminal-based applications

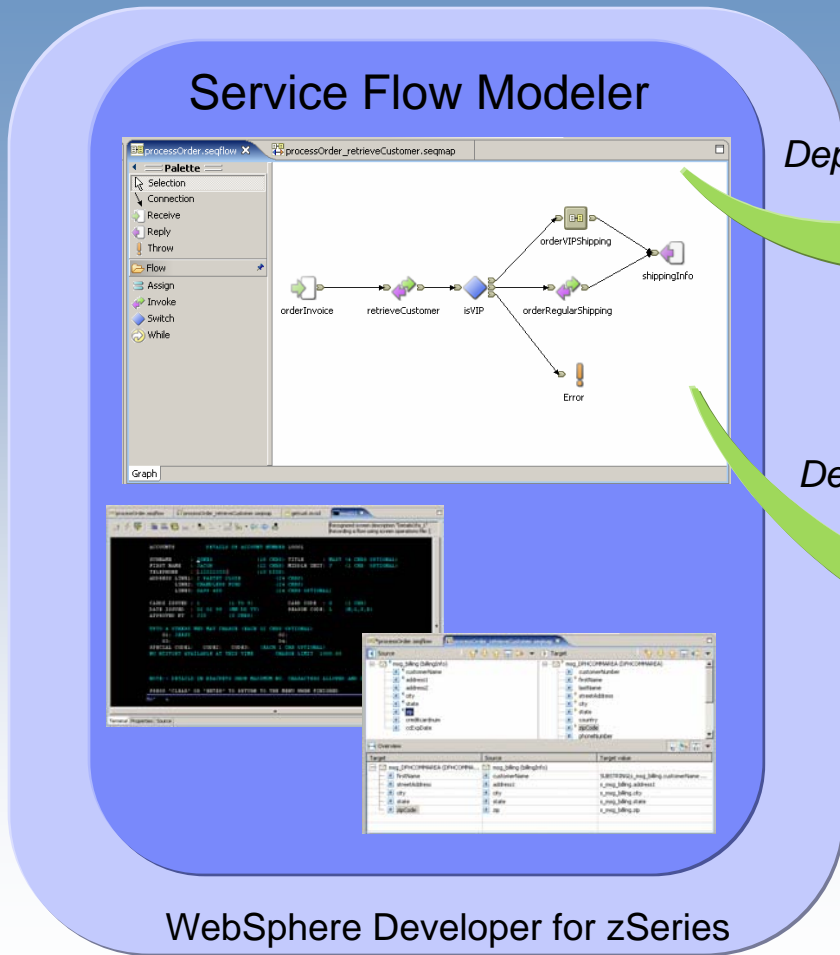
# What is Service Flow Modeler?

## *Service Flow Modeler in WebSphere Developer for zSeries*

- Builds Web services from existing CICS applications
  - Aggregates multiple CICS transactions into high-level business processes through visual modeling
  - Supports CICS BMS (terminal-based) applications & CICS commarea applications
  - Highly optimized CICS runtime supporting Web services and XML interfaces

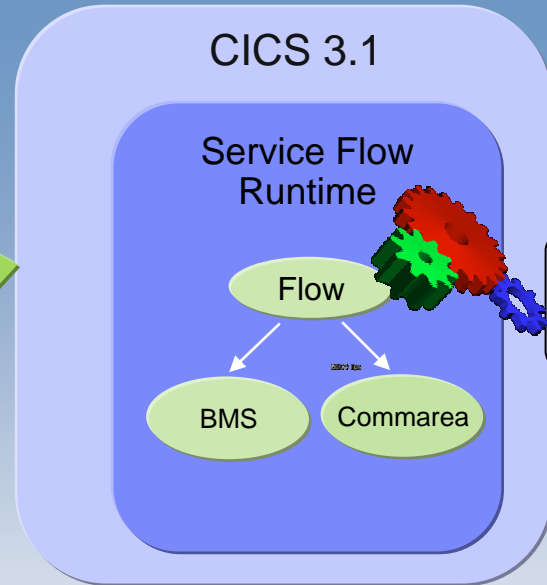


# WDz's Service Flow Modeler Deployment Options

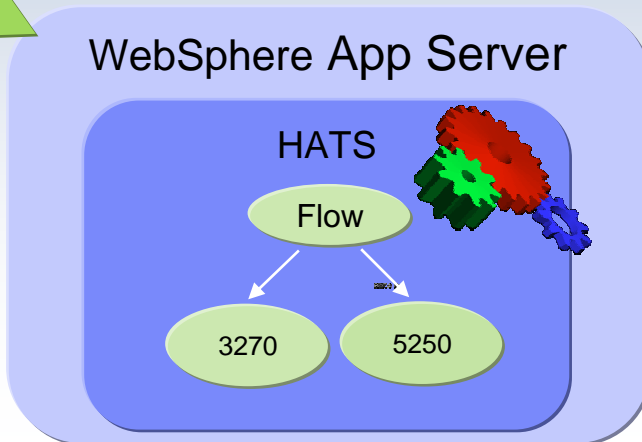


Deploy

Deploy



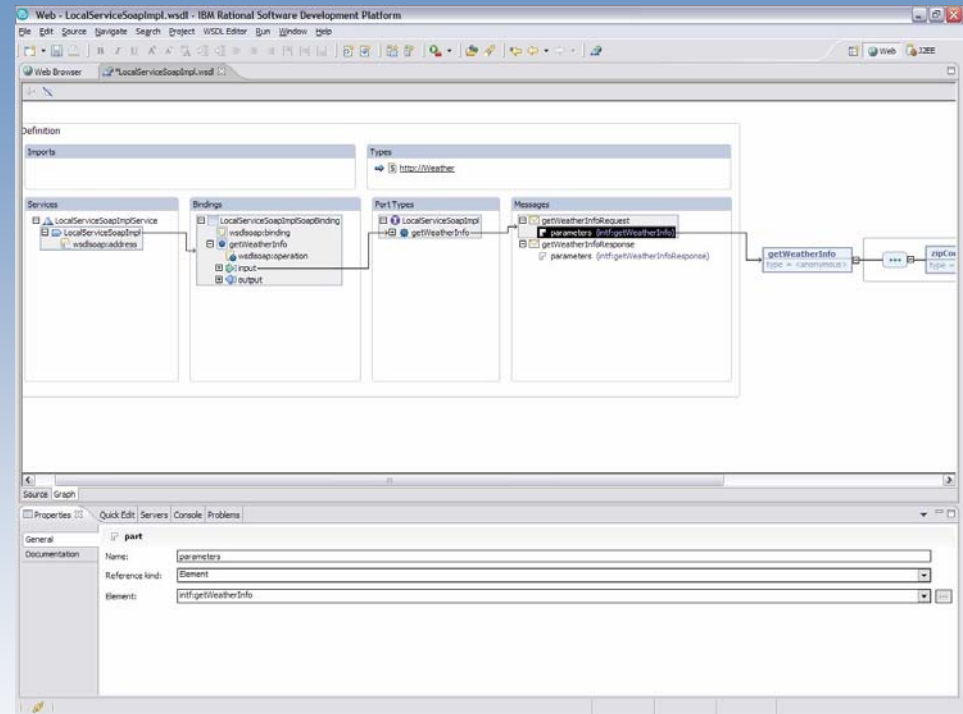
Service Interface



Service Interface

# WebSphere Developer for zSeries: Discover, Create and Consume Web Services

- Comprehensive Web services tools to discover, create, build, test, deploy and publish Web services
- Build new Web services from scratch or enable existing applications for WS-I compliance
- Discover and consume existing Web services
- Customer Benefit:
  - Little to no coding required to enable existing assets
  - Low learning curve
  - High productivity



WSDL Editor

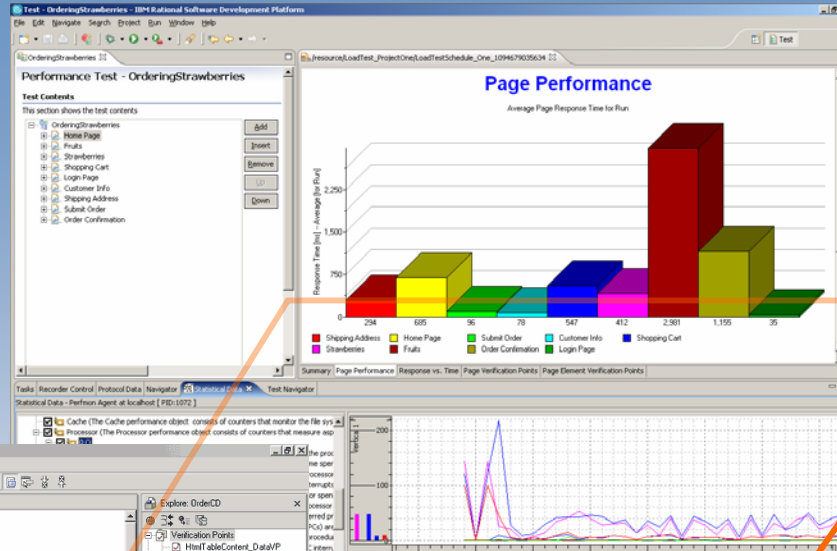
# Test the Individual Services & Composite Application

Rational Functional & Performance Tester

Test



Tester



Tester performs automated and manual functional testing based on use cases derived from business requirements

```

Script Name      : OrderCD
Generated       : May 21, 200x 10:40:37 AM
Modified        : May 21, 200x 10:40:37 AM
Description     : Robot3 Script
Original Host   : WinNT Version 5.0  Build 2195 (Service Pack 2)
@since         : 200x/05/21
@author        : Joe Tester

public void testMain(Object[] args)
{
    startApp("ClassicsWeb");

    // Browser: MS Internet Explorer
    Link_Explorestorefront().click();

    // Browser: MS Internet Explorer: Classics Home Page
    Image_bigbutton_catalog().click();

    // Browser: MS Internet Explorer: Classics Catalog Page
    Image_putinshoppingcart().click();

    // Browser: MS Internet Explorer: Classics Catalog Page
    Image_putinshoppingcart2().click();

    // Browser: MS Internet Explorer: Classics Catalog Page
    Image_but_cashier().click();

    // Browser: MS Internet Explorer: Classics Login Page
    Text_customerID().click();
    CCustomerIDEntry().inputKeys("jdoe00");
    Hit_password().click();
    CCustomerIDEntry().inputKeys("*****");
    CheckBox_chkRememberON().click();
    Button_Loginsubmit().click();

    // Browser: MS Internet Explorer
    HitTableContent_DataVP().press();

    // Browser: MS Internet Explorer
    Document_CashierInk Moore().click();

    Button_PlaceOrdersubmit().click();
    }
    
```

# The Value of Business Driven Development?



**Improve business alignment of applications and their compliance to market and regulatory requirements**



**Reduce costs through increased productivity and reuse**



**Increase differentiation of products and improve customer service**

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