

A Fresh Look at the Mainframe

Unlock the Value of Your Mainframe Assets Using SOA

On Demand Insurance Business Problems

We want to increase revenue by selling insurance policies through external Brokers



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Leverage Existing Investments

25% of the world's capital investment is in I/T*. The only way to innovate in a cost-effective manner is to leverage these investments



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"Many of the I/T assets required to enable an on-demand business already exist and have been supporting the business for years or even decades. Enabling these I/T assets to participate in integrated business processes is key to improving responsiveness".

DH Brown Associates, Inc.
Application Transformation: Leveraging Existing I/T Assets to Build Competitive Advantage (September 2004)

* Does not include real estate or government assets

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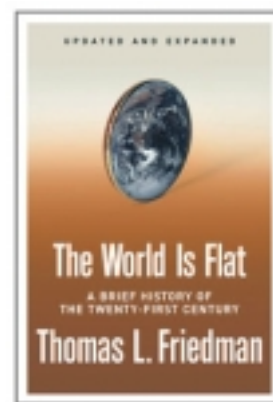
Thomas L Friedman: "The World is Flat"

What made it flat?

Work Flow Software

*Let's Do Lunch: Have Your
Application Talk to My
Application*

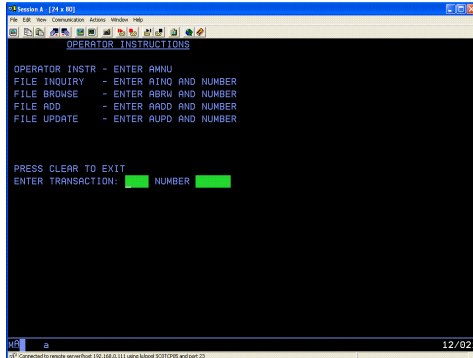
In **Chapter Two:**
The Ten Forces That Flattened the World
(p71)



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Existing Investment: ODI Policy Application



We have invested millions of dollars in this asset



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Existing application consists of CICS programs accessed via "green screen" terminals.

How do we make this available to external Broker applications?

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ODI Unlock Your Assets on the Mainframe

We want to make portions of this Policy application available to external Insurance Brokers



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You can unlock your existing assets using a Service Oriented Architecture



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The Basics: What is SOA?

... a service?

A **repeatable business task** – e.g.,
check customer credit;
open new account



... **service oriented architecture (SOA)?**

An IT **architectural style** that supports
integrating your
business as linked
services

"SOA impacts every aspect of IT and business."

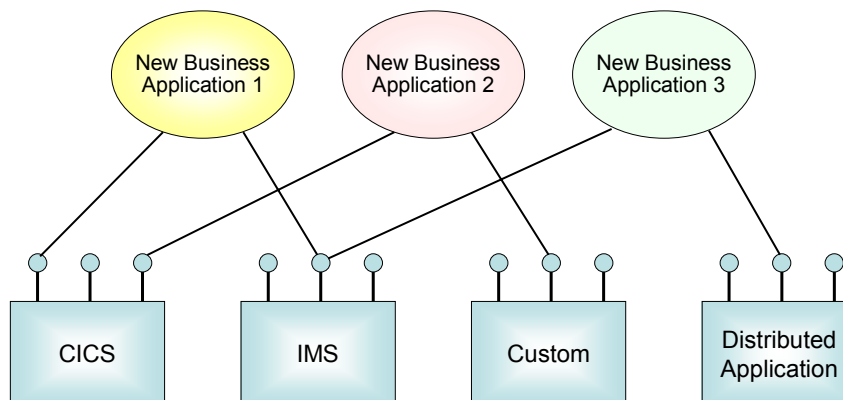
Gartner

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First Step to SOA

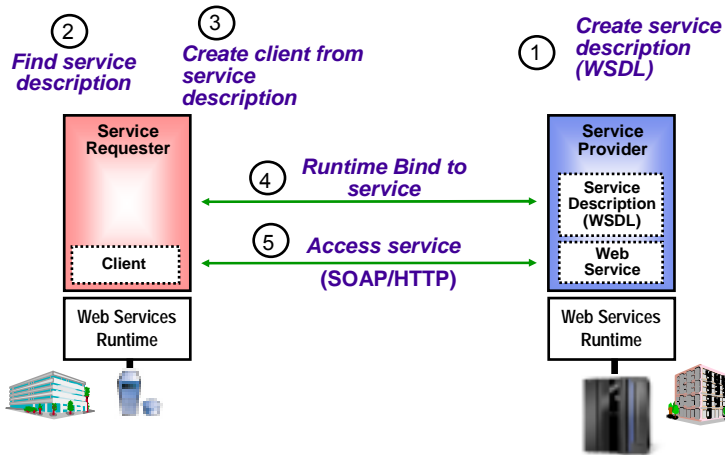
- Expose enterprise assets as services
- Create a rich environment for easy reuse



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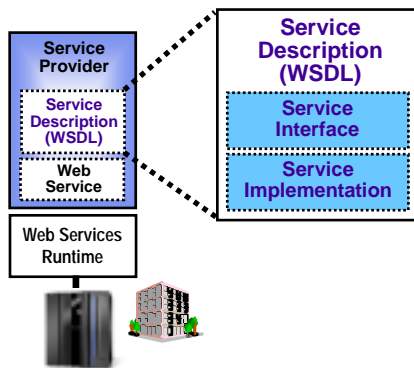
Introduction to SOA: Web Services



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Service Description Defined By WSDL

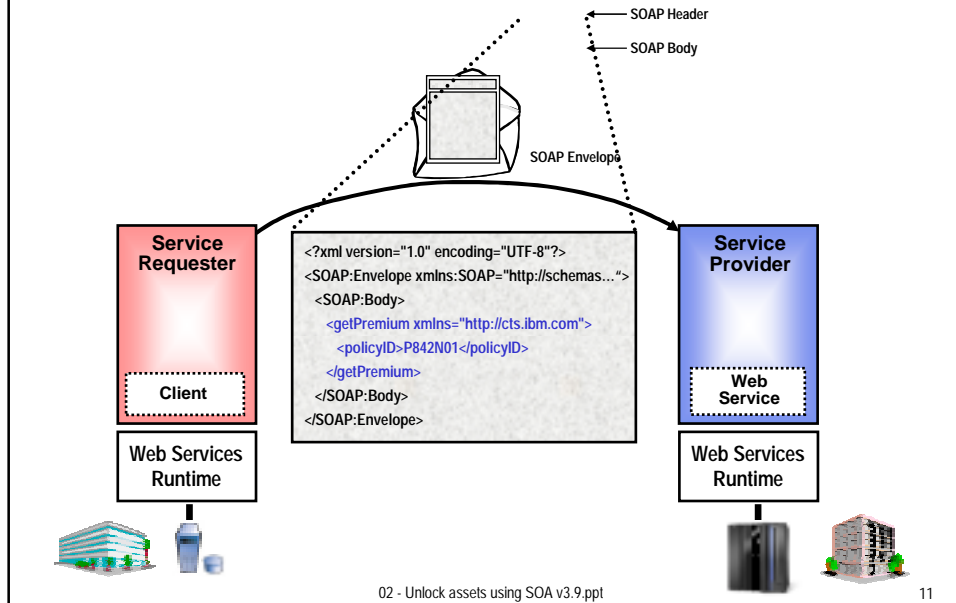


- Web Services Description Language (WSDL) written in XML
 - ▶ Abstract descriptions of operations
 - ▶ Input and output parameters and data types
 - ▶ Implementation language neutral
- Complete Description of a Network Service or Component
 - ▶ What it does
 - Service Interface
 - ▶ How it communicates
 - ▶ Where it resides
 - Service Implementation
- Development Time Tool
 - ▶ Provider uses it to document their service
 - ▶ Consumer uses it to generate client code to access service

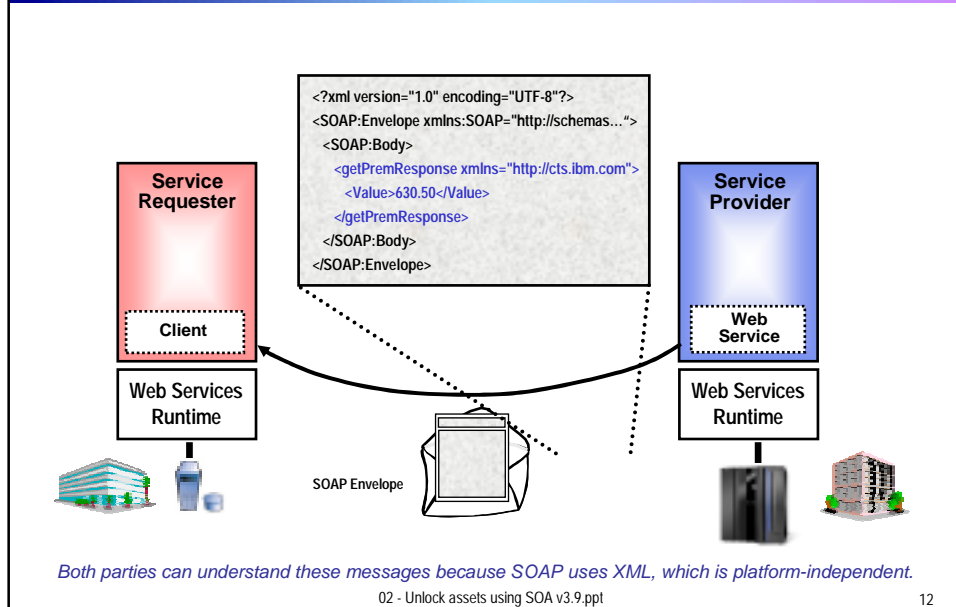
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How a Web Service Works at Run Time



How a Web Service Works at Run Time



Exposing CICS Applications as Web Services

CICS TS Version 3.1 has built-in capabilities to expose programs as web services



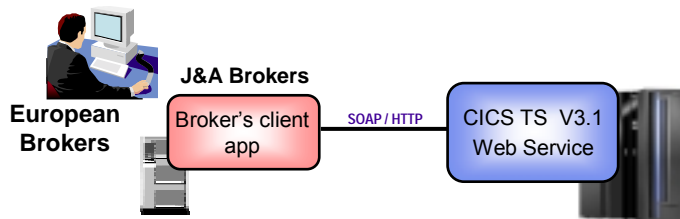
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So Web Services give me reusability and interoperability. But how do I get my CICS programs to talk Web Services?



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DEMO: Broker Calls CICS Program Using Web Services

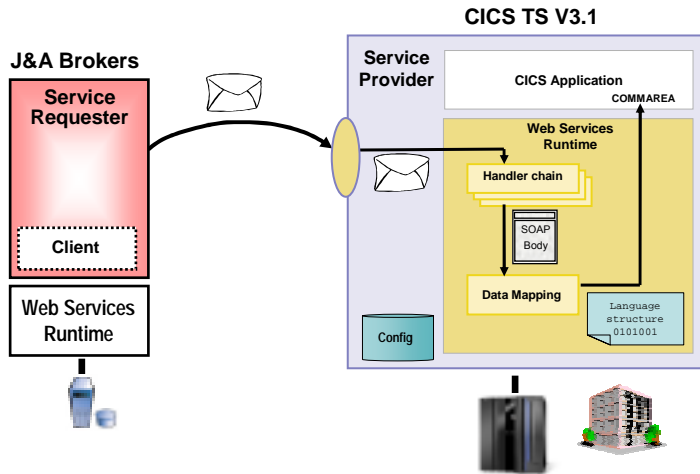


- Broker's client application talks to ODI's Policy application using web services

Web Services expose CICS and IMS investments for a new generation of re-use.

How Did the CICS Web Service Work?

1. Receive SOAP request
2. CICS Web Services runtime handles the message
3. Handler chain processes SOAP headers
4. Data Mapping transforms XML into bytes, calls server app



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CICS Web Services

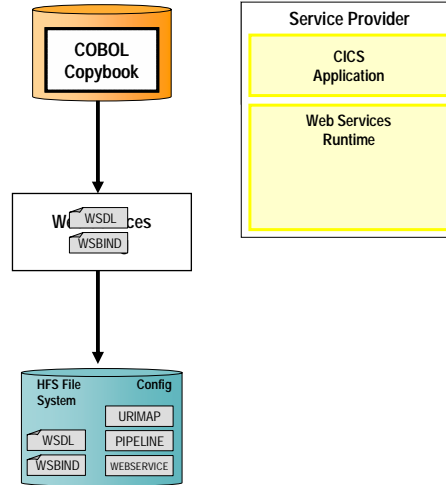
- Native Web Services capability offered by CICS
 - ▶ Extends CICS applications directly to a Service Oriented Architecture
 - ▶ A CICS application can now be a Web service provider and requester
- Highlights
 - ▶ Fully integrated into CICS
 - Resource Definition using CICS admin screen, problem determination, monitoring & statistics
 - New tooling support for easier application development
 - ▶ Simple configuration and system management
- Rich set of Web services standards supported
 - ▶ SOAP 1.1 and 1.2 to send and receive Web services messages
 - ▶ WS-I Basic Profile 1.0a for interoperability with between providers and requesters using SOAP
 - ▶ WS-Coordination extensible coordination framework, and specific coordination of transactions
 - ▶ WS-AtomicTransaction for transaction coordination
 - ▶ WS-Security for authentication and encryption of all or part of a message
- SOAP requests can flow over HTTP or WebSphere MQ transports
 - ▶ CICS applications acting as providers or requesters are agnostic to transport mechanism used

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Development Steps to Expose CICS Application as a Web Service Provider

1. Start with COBOL copybook
2. Generate WSDL from copybook
3. Copy files to host file system.
 1. Use standard CICS supplied PIPELINE definition
4. CICS automatically installs other related definitions
5. CICS application is now web service enabled

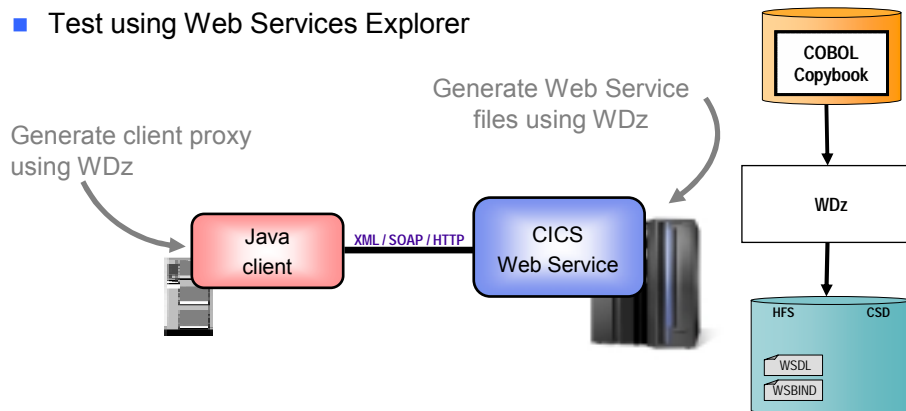


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DEMO: Use WebSphere Developer for zSeries (WDz) to Expose CICS Program as Web Service

- Generate WSDL and WSBIND files
- Deploy files to host file system
- Test using Web Services Explorer



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How About a Sequence of CICS Screens? CICS Service Flow Feature

- Allows you to sequence fine-grained CICS program interactions into a higher level, coarse-grained unit.
 - ▶ This can then be exposed as a web service
- Consists of:
 - ▶ CICS Service Flow Runtime in CICS TS 3.1
 - Runtime in CICS executes a sequence of terminal or commarea based interactions
 - ▶ Service Flow Modeler in WebSphere Developer for z
 - Visually design flow
 - Tool can record flow as user navigates through BMS screens
 - Use Web Services wizards and test facilities in WDz

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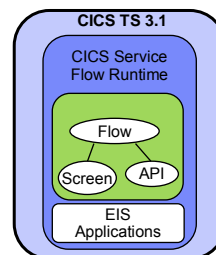
Service Flow Modeler

- Visual Designer in WDz
 - ▶ Wire CICS applications together into a reusable flow
 - ▶ Wire sequence of BMS screens into a reusable flow
- Expose flow as web service
 - ▶ Can be called from other larger business process flows
- CICS deployment
 - ▶ Deploy to Service Flow Runtime in CICS TS 3.1



Service Flow Modeler

Deploy →



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How About IMS Assets? Use the IMS SOAP Gateway

- Integrates IMS assets into SOA by providing a standard Web Services interface
 - ▶ Expose your IMS application as a web service with easy deployment and configuration
 - No programming needed
- Tooling support
 - ▶ IBM WebSphere Developer for zSeries (WDz) generates Web Service artifacts like WSDL and XML converters
 - From COBOL copybook of IMS application
- Transforms XML data without changing IMS application
 - ▶ IMS Connect XML Adapter transforms XML data
 - No need to modify the IMS application code

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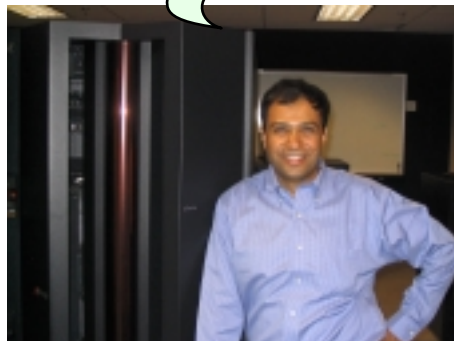
Business Problem Solved

We are getting hundreds of new customers through our external brokers



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Web Services allowed us to quickly unlock our core application assets for reuse



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On Demand Insurance Business Problems

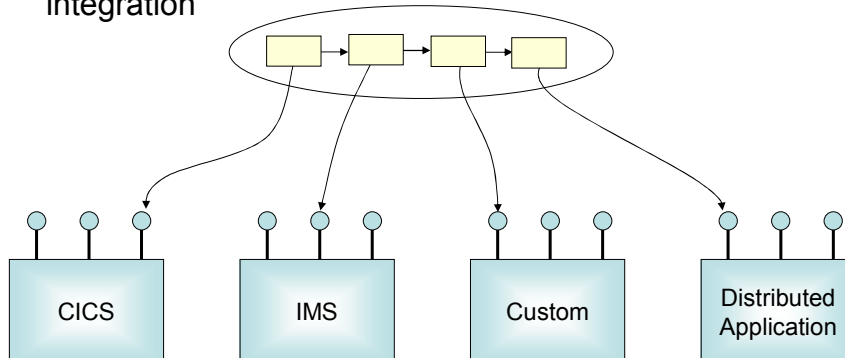
Now, we need to process
new policy applications
quickly and efficiently



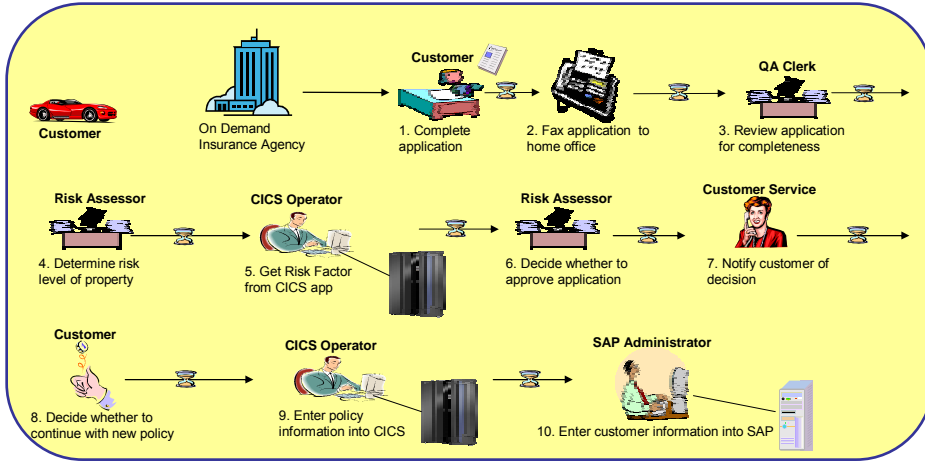
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Second Step to SOA

- Combine exposed services to innovate new cross-system business functions
- Use IBM Middleware on System z to quickly achieve business process integration, portal integration, and data integration



Current Homeowners Policy Application Process

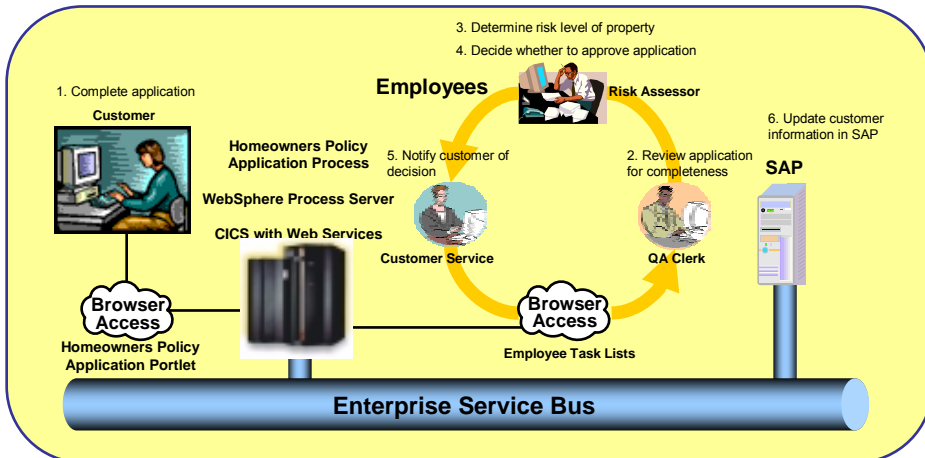


- Customer must visit an agent
- Paper-based process
- Delays between each step
- Limited accountability
- Limited monitoring of the process
- Manual data entry results in errors
- Expensive
- Unhappy customers

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Desired Online Process

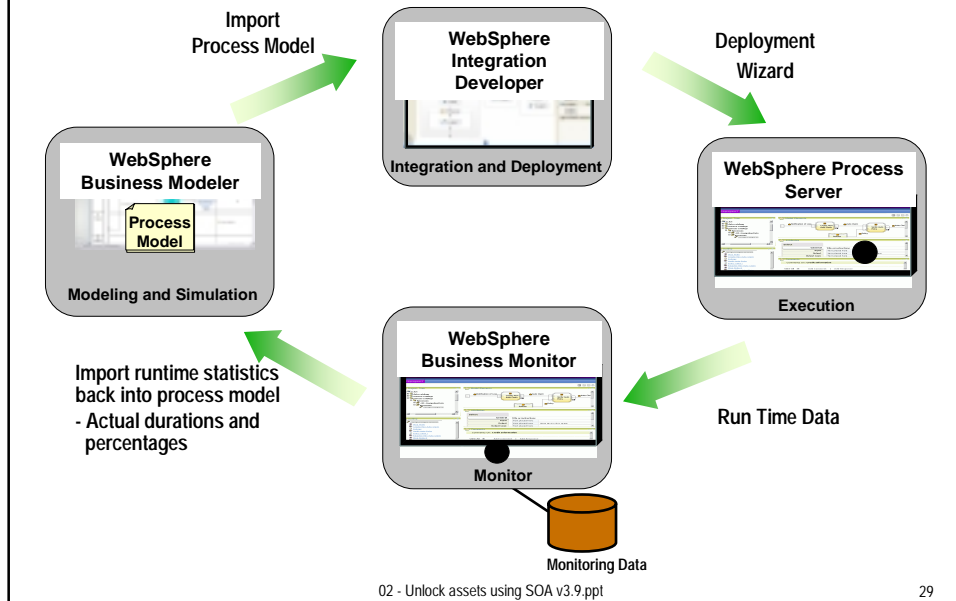


- Customer can apply over the Internet
- Automated process
- No delays between steps
- Always know status of each application
- Process monitoring provided by server
- SAP and CICS are automatically updated without re-entering data
- Reduce time and costs

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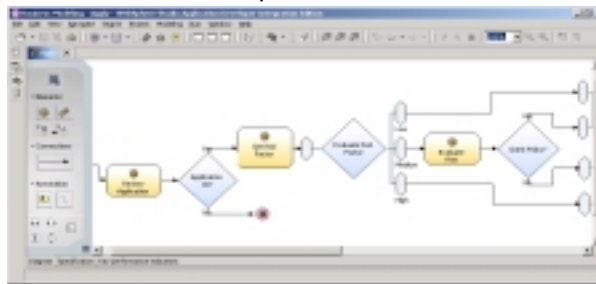
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Closed Loop For Continuous Improvement



Model the Desired Online Process *What Will Be the Steps in Our Business Process?*

Solution: WebSphere Business Modeler

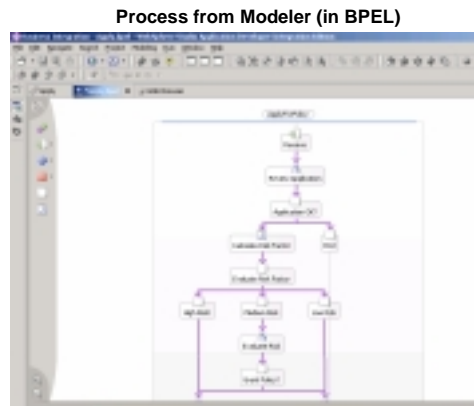


- Designed for a business modeler
- No programming required
- Graphically design the way processes will work
 - ▶ Drag & Drop to define process flow
- Include both human and automated steps
- Business requirements are clearly defined and documented

Can help define and predict the performance of our new business process before we actually build it.

Use WebSphere Integration Developer to Build the Process

- Graphically describe business process flow in Business Process Execution Language (BPEL)
- Drag and drop services into process flow (automatic binding)
- Automatic human workflow support
- Built-in Unit Test Environment
- Built-in Process Debugger
- Deploy to runtime server
- Flow may be invoked as web service, EJB, or message driven bean

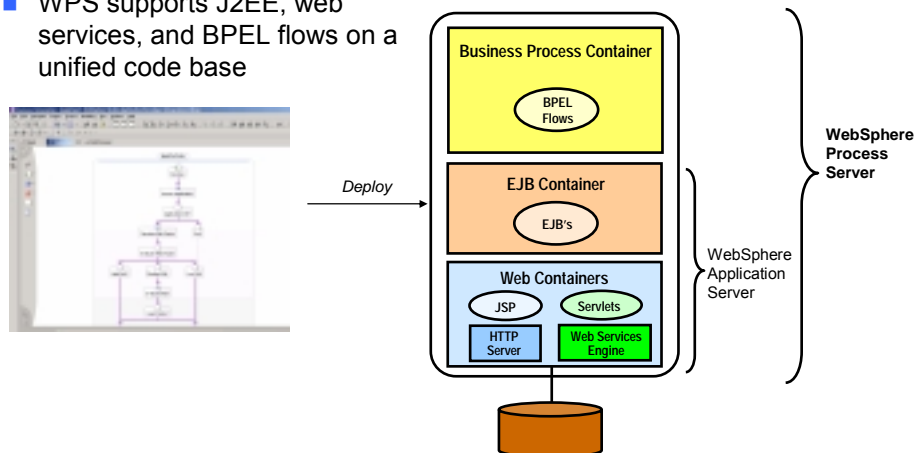


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The Completed Process Runs on WebSphere Process Server (WPS)

- The completed BPEL process can be deployed easily to WPS
- WPS supports J2EE, web services, and BPEL flows on a unified code base



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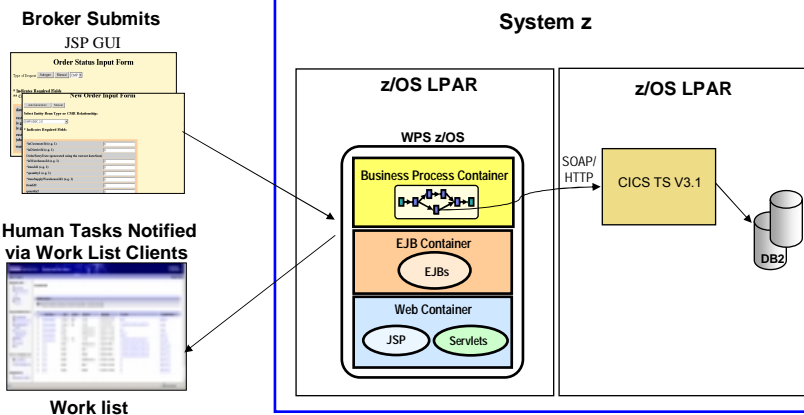
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WebSphere Process Server - Highlights

- A single Process Integration platform
 - ▶ Reduces complexity and administration cost
- WebSphere Application Server Foundation
 - ▶ Clustering, failover, high availability and robust platform
 - ▶ Single administration environment
 - ▶ Common Event Infrastructure – Process Management
- Service Oriented Architecture platform
 - ▶ A uniform invocation programming model
 - ▶ A uniform data representation model (Business Objects)
 - ▶ Powerful tools to build and reuse standard components
- Powerful Staff Components for Human Workflow
 - ▶ Participating / Originating / Ad-Hoc Tasks
 - ▶ Multi-level escalation
 - ▶ Client components out-of-the box
- Business Processes
 - ▶ WS-BPEL standard
- Business State Machines, Business Rules & Transformations
 - ▶ Advanced services to build integration solutions

WebSphere Process Server Version 6 Runs Natively on System z

How ODI Deployed the New Process – Run Process Server on System z



ODI's new business process inherits qualities of the platform: Reliability, Availability, Scalability, Security...

System z is the Best Platform for Your Online Business Operations

- The capabilities of System z provide the best Quality of Service for implementing SOA solutions
 - ▶ High Availability/Disaster Recovery
 - ▶ Security/Encryption
 - ▶ Scale/Clustering
 - ▶ Performance advantages of co-location
 - ▶ Virtualization and Workload Management
 - ▶ Lower cost administration
 - ▶ Core system transaction capabilities for SOA
 - ▶ TCO, Governance ...

We will cover these built-in attributes of System z through the day...

IBM Provides Extensive Support for SOA Solutions on System z

- Tools to create and use services quickly
- Service combining frameworks to integrate services into applications
 - ▶ Deliver services to user desktops
 - WebSphere Portal Server
 - ▶ Assemble services into business processes
 - WebSphere Process Server
 - ▶ Combine multiple data services into a single data service
 - WebSphere Information Integrator
- Management tools for your SOA environment

Summary

Unlock the value of your System z assets using a Service Oriented Architecture. System z is an ideal platform for implementing new SOA solutions.



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