Get your IMS transactions in the SOA mix!

Malaika Paquiot-Mose, IBM
Developer, IMS TM Resource Adapter

"*The emergence of SOA based on web services represents a **shift** in the dominant software paradigm, <u>comparable to the shift from terminal-based to client/server architectures</u>.*"
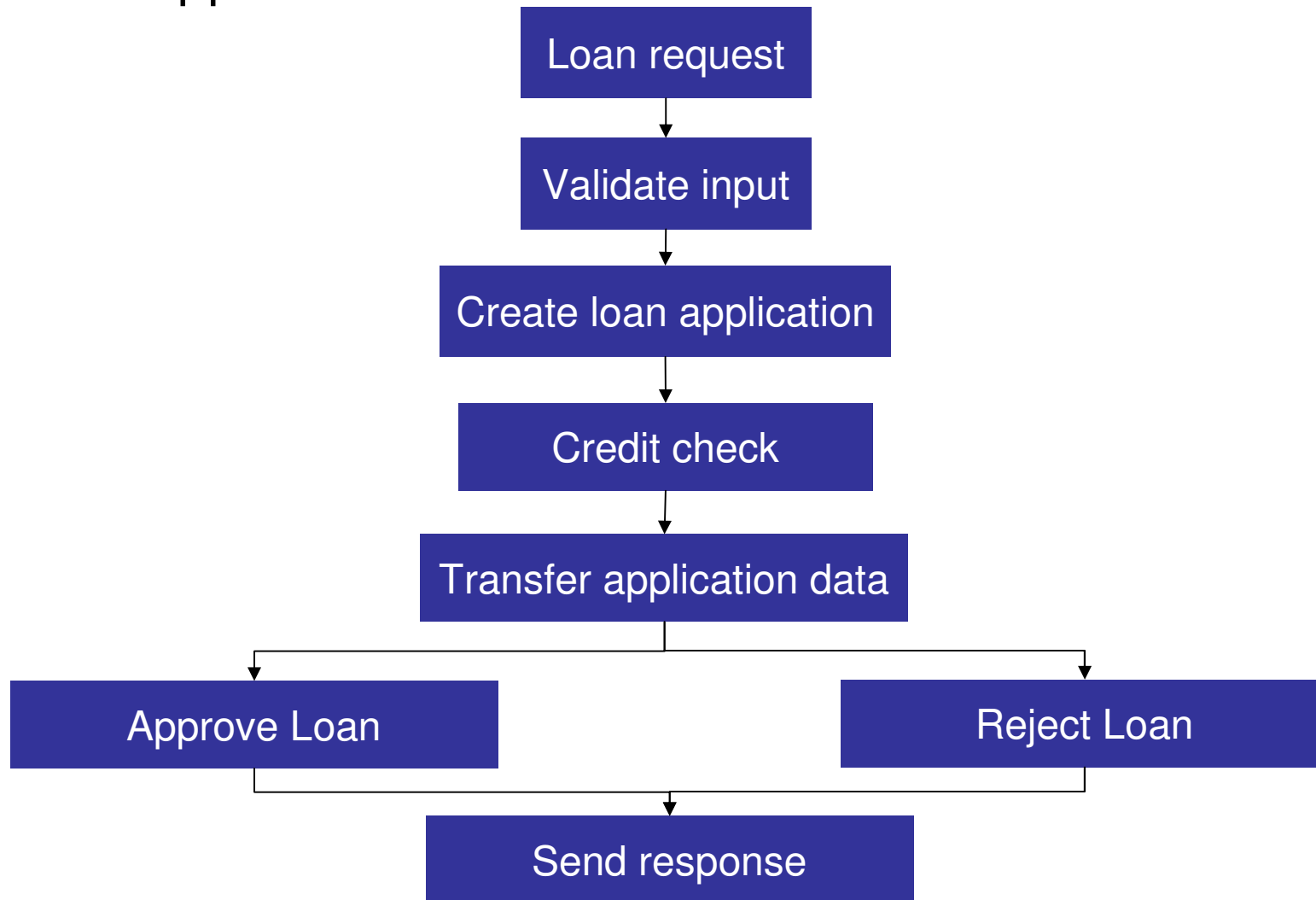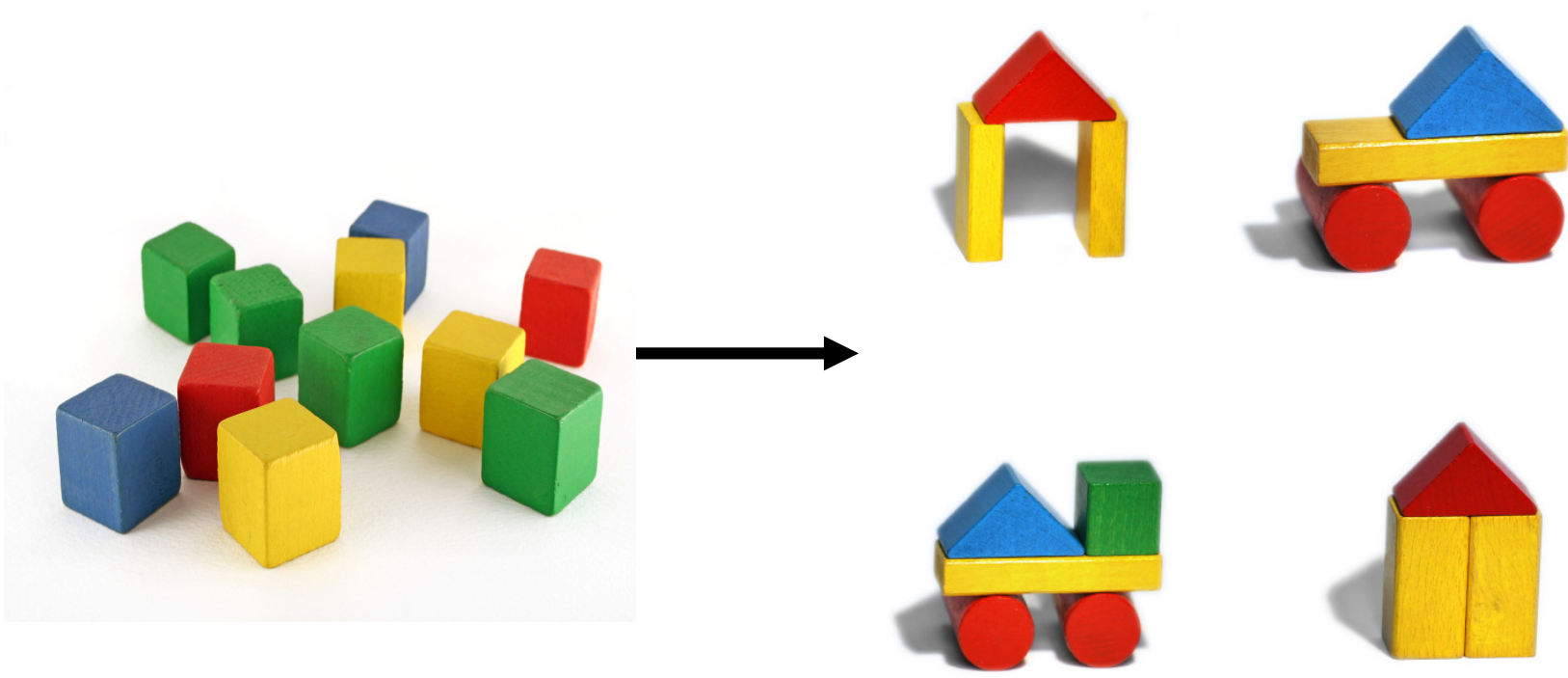
– The Gartner Group

Services are functions that when invoked **accomplish some specific task**.
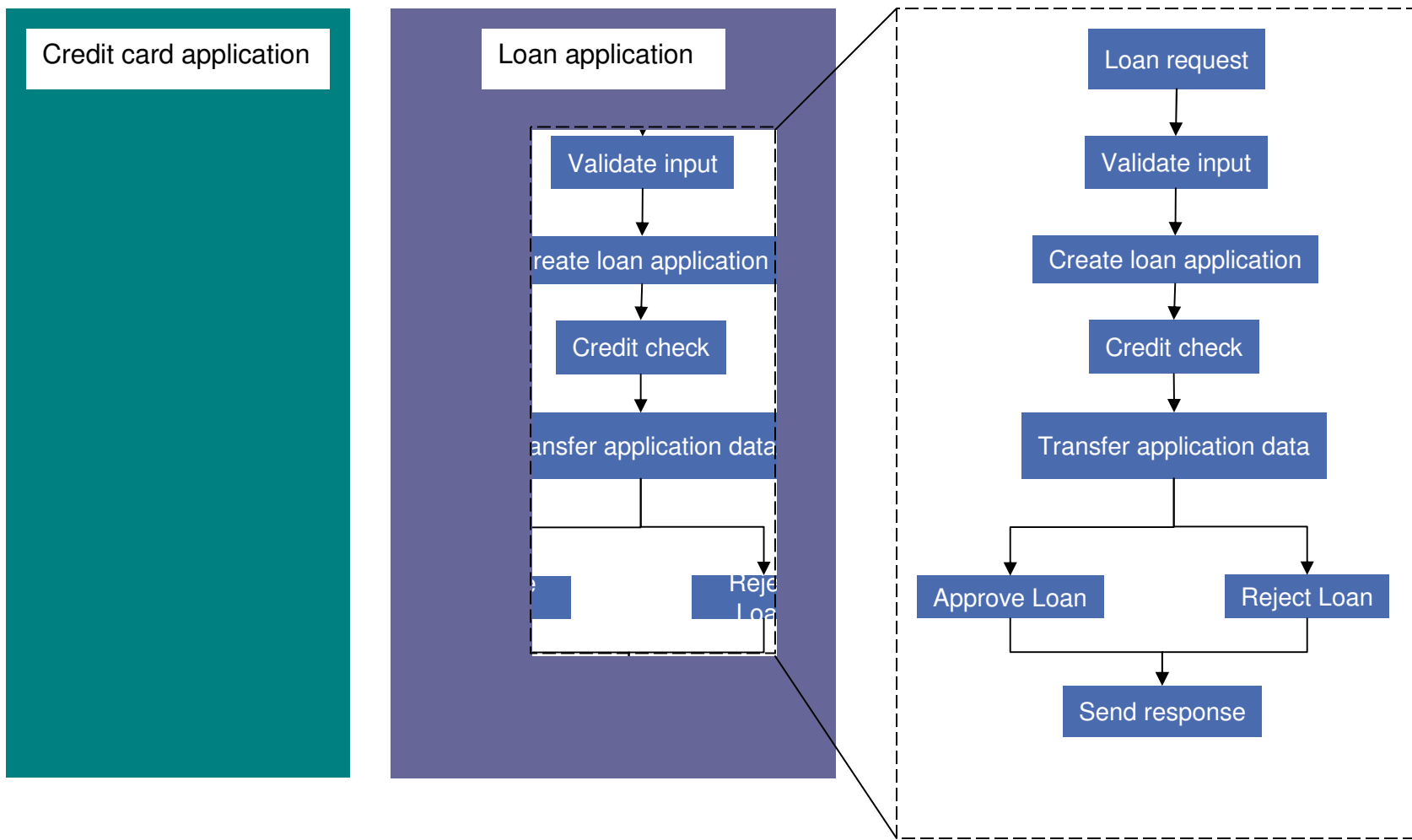
Loan Application Process

Loan request
↓
Validate input
↓
Create loan application
↓
Credit check
↓
Transfer application data
↓
Approve Loan   Reject Loan
↓
Send response

Composite Applications

Siloed Applications

Credit card application

Loan application

Service Oriented Architecture

Credit card application

Loan application

Validate input

Create loan application

Credit check

Transfer application data

Reject Loan

Loan request

Validate input

Create loan application

Credit check

Transfer application data

Approve Loan

Reject Loan

Send response

Web services for SOA

- Standardized access

- Loose coupling

- Application reuse

Web services

A technology that allows applications to communicate with each other in a **platform-independent** and **programming language-independent** manner.
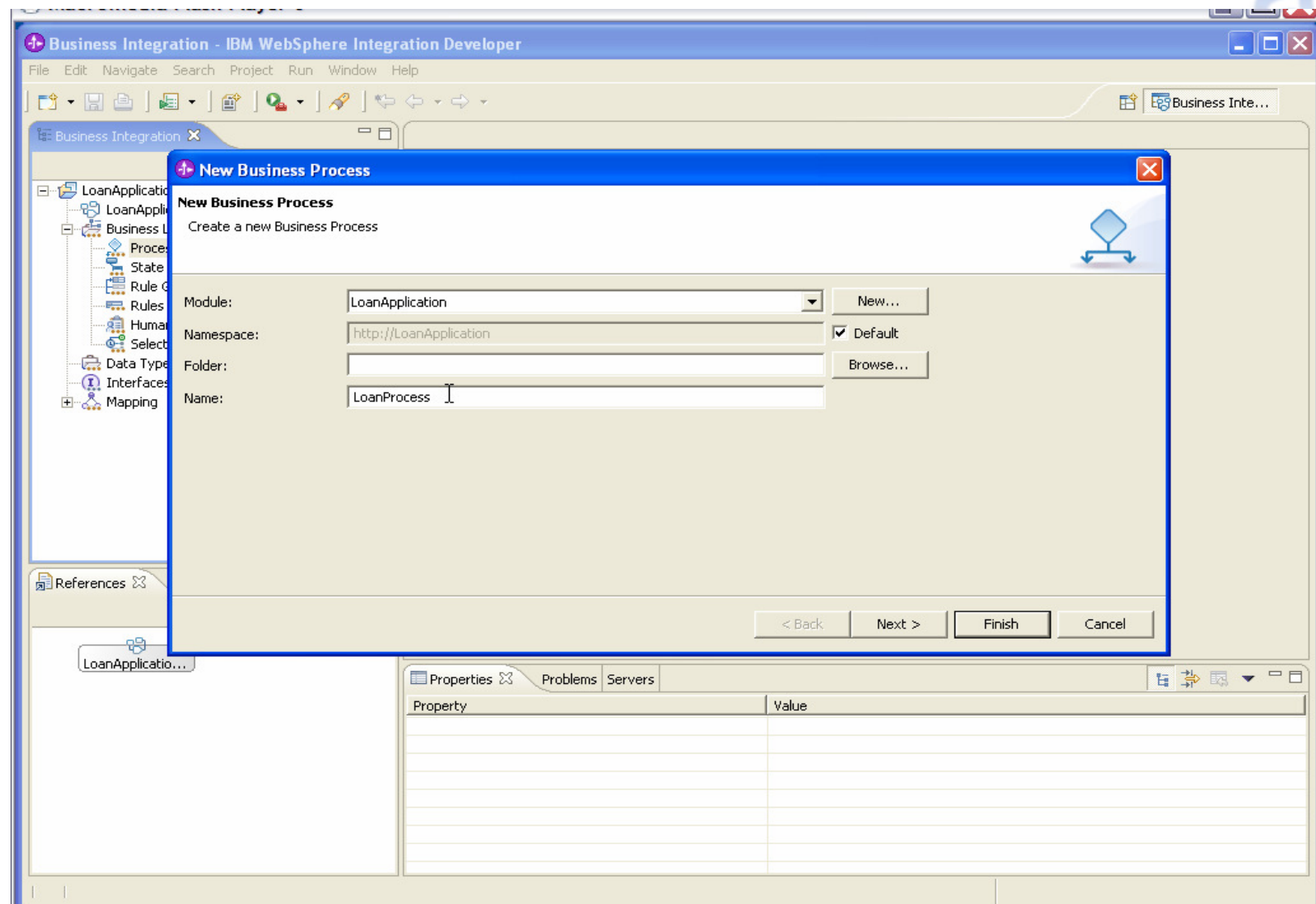
Cathy's challenge

Streamline the loan application process?

IBM®

WebSphere Integration Developer

- Eclipse-based Integrated Development Environment (IDE) for SOA-based applications

- Enables import COBOL for IMS applications for use in web services bindings without writing code

- Enables assembly of processes, mediations, adapters, or code components -- requiring minimal skills

- Enables construction of process and integration solutions using drag-and-drop technology without having a working knowledge of Java

- Enables rapid assembly of business solutions by wiring reusable service components

- Integrates testing, debugging, and deployment for solution development

Creating a loan business process

Default tasks

Other tasks

© 2008 IBM Corporation

Adding a task

© 2008 IBM Corporation

Loan business process

John's challenge

How do I go from an IMS
'green screen' to a web service?

IMS TM Resource Adapter

- Easy-to-use
- Robust quality of service
- Standards-based

Rational Application Developer

- Eclipse-based IDE for building Java Platform Standard Edition (Java SE) and Java Platform Enterprise Edition (Java EE) applications.

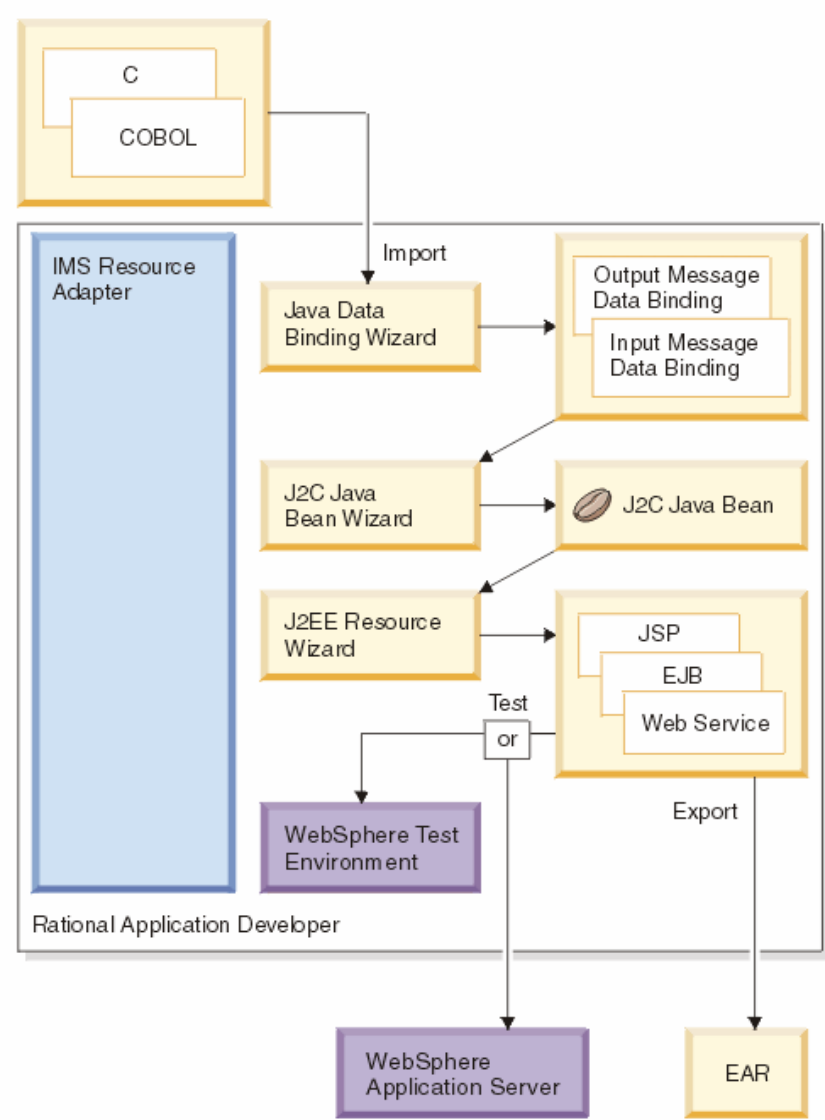- Enables visual design, construction, testing, and deployment of web services, portals, and Java 2 Enterprise Edition (J2EE) applications.

- Shortens the Java learning curve through visual design, with auto-synchronized code modeling.

- Uses robust capabilities to create SOA applications, including the ability to automatically create necessary SOA components such as WSDL and WSIL files.

- Applies visual portal development techniques to speed development.

Rapid Application Development

© 2008 IBM Corporation

Rapid Application Deployment

John's steps

New

Select a wizard

Wizards:

- Data
- EJB
- J2C
  - CICS/IMS Java Data Binding
  - J2C Java Bean
  - Web Page, Web Service, or EJB from J2C Java Bean
- J2EE
- Java
- Modeling
- Server
- Simple
- Web
- Web Services
- Examples

☐ Show All Wizards.

< Back   Next >
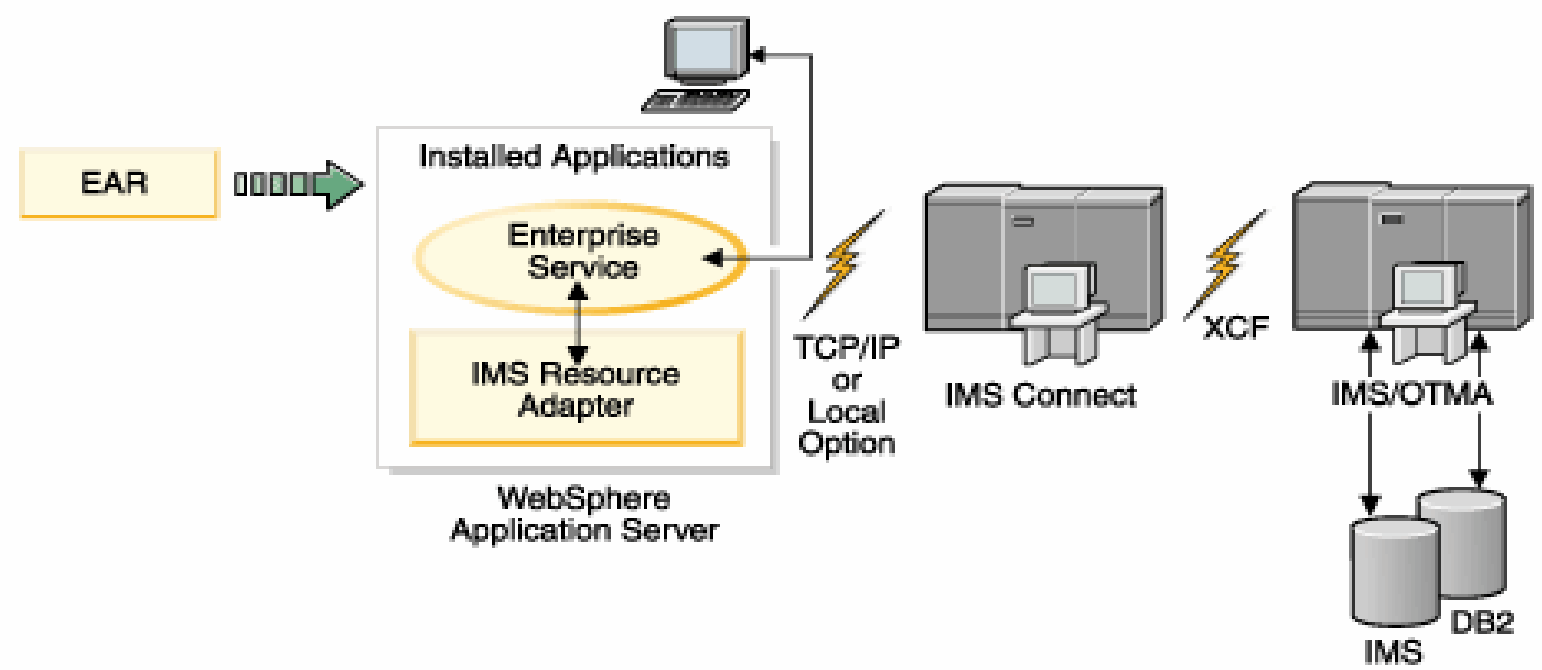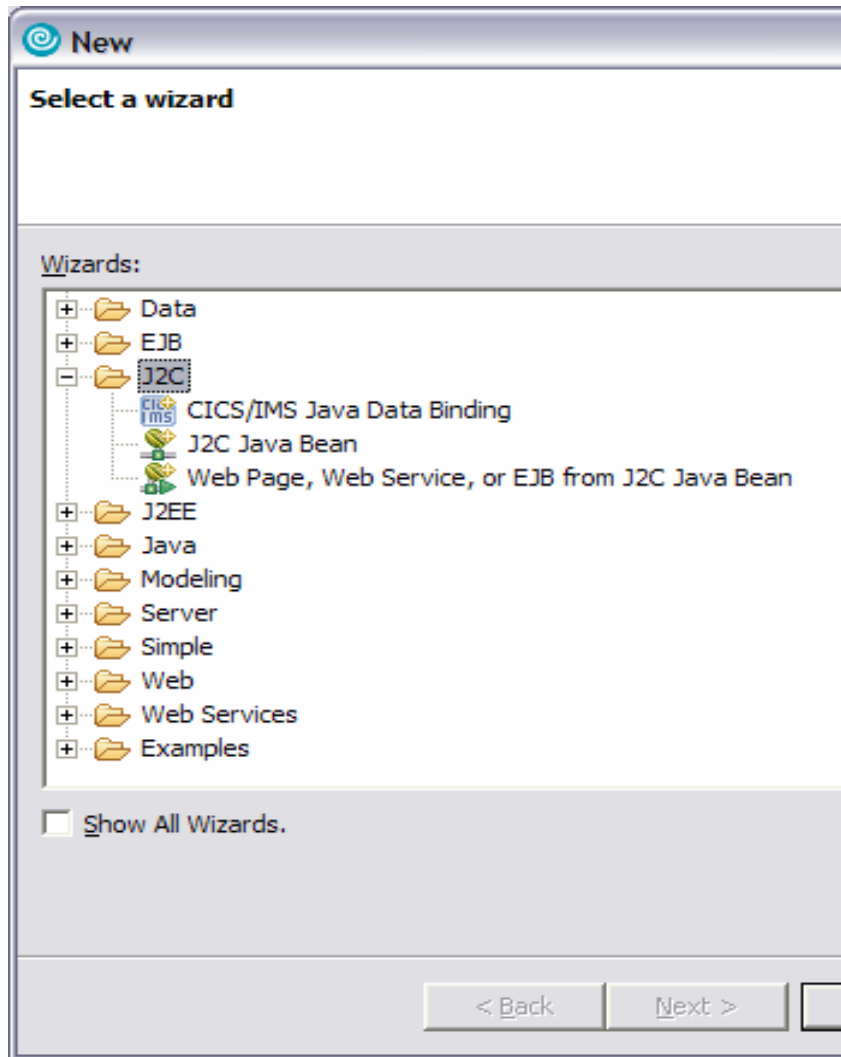
1. Map message

2. Build the bean

3. Wrap app

Copybook represents data structures

'Green screen'

```
************************************************
*       IMS INSTALLATION VERIFICATION PROCEDURE      *
************************************************


                    TRANSACTION TYPE : NON-CONV (OSAM DB)
                    DATE             : 04/02/04

PROCESS  CODE  (*1) :   DISPLAY

                                    (*1) PROCESS CODE
LAST  NAME         :   LAST1              ADD
                                          DELETE
FIRST  NAME        :   FIRST1             UPDATE
                                          DISPLAY
EXTENSION  NUMBER  :   8-111-1111         TADD

INTERNAL  ZIP CODE :   D01/R01


ENTRY WAS DISPLAYED                 SEGMENT# :  0001


                                          IMSTERM1
MA   b                    ⇑                10/034
```
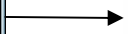
COBOL copybook

```
LINKAGE SECTION.

01   INPUT-MSG.
     02   IN-LL          PICTURE S9(3) COMP.
     02   IN-ZZ          PICTURE S9(3) COMP.
     02   IN-TRCD        PICTURE X(10).
     02   IN-CMD         PICTURE X(8).
     02   IN-NAME1       PICTURE X(10).
     02   IN-NAME2       PICTURE X(10).
     02   IN-EXTN        PICTURE X(10).
     02   IN-ZIP         PICTURE X(7).

01   OUTPUT-MSG.
     02   OUT-LL         PICTURE S9(3) COMP VALUE +
     02   OUT-ZZ         PICTURE S9(3) COMP VALUE +
     02   OUT-MSG        PICTURE X(40) VALUE SPACES
     02   OUT-CMD        PICTURE X(8) VALUE SPACES.
     02   OUT-NAME1      PICTURE X(10) VALUE SPACES
     02   OUT-NAME2      PICTURE X(10) VALUE SPACES
     02   OUT-EXTN       PICTURE X(10) VALUE SPACES
     02   OUT-ZIP        PICTURE X(7) VALUE SPACES.
```

Map the message…Wrap the app

Java data binding

WSDL

Embedded Web Service Test Environment
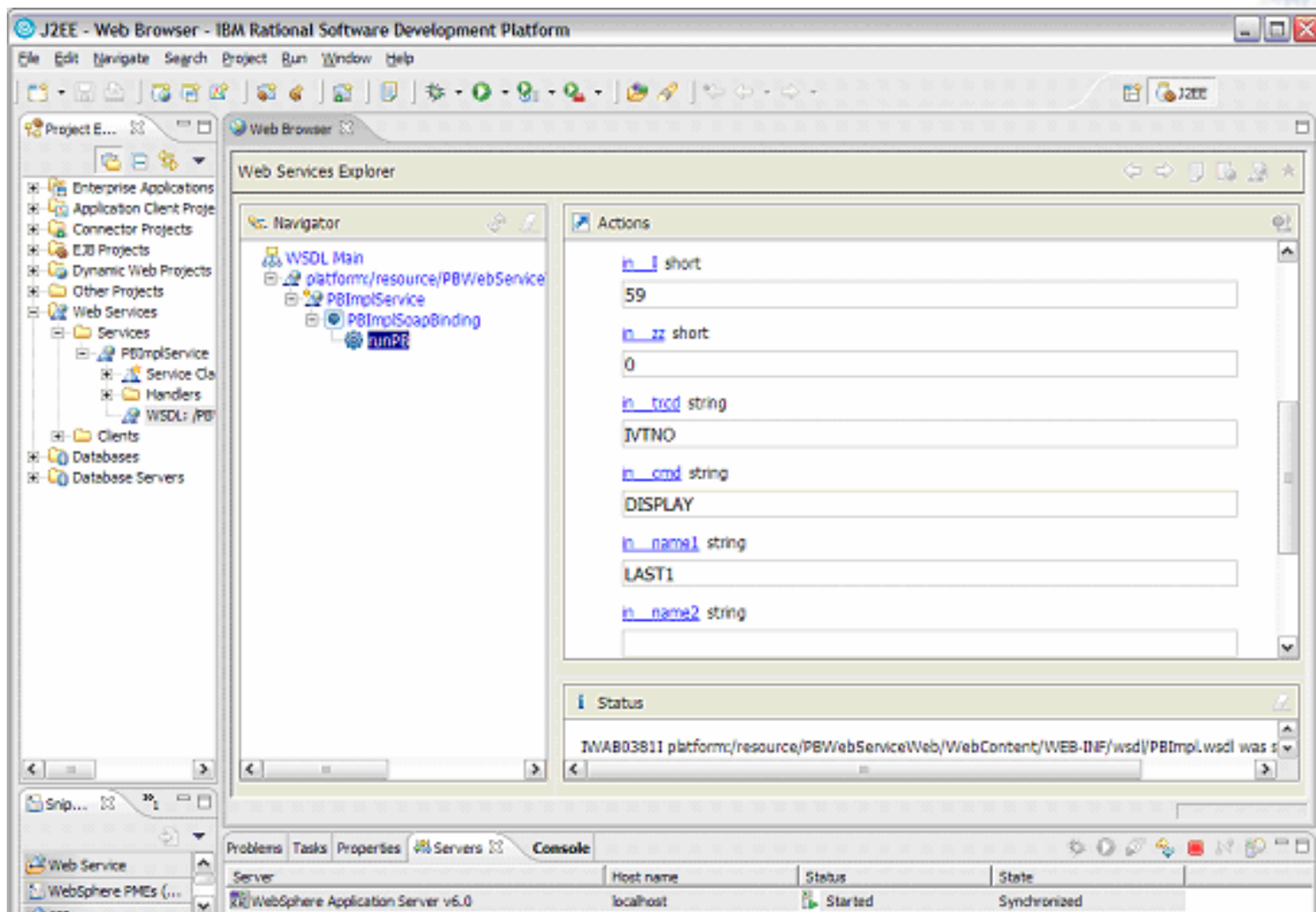
IMS MFS SOA Support

- **M**essage **F**ormatting **S**ervice SOA is designed to provide a systematic approach of transforming existing MFS-based IMS application into MFS J2C Services

- Enables MFS-based IMS transaction to be accessed from the web and reusable

WebSphere
Application
Server

MFS SOA Services

IMS
CONNECT

IMS

MFS Source

MFS SOA
EMD Wizard

DEPLOY

MFS Reverse
Utility Tool

(optional)

XML
schema
(XSD)

JSP

WSDL

EJB

E
A
R
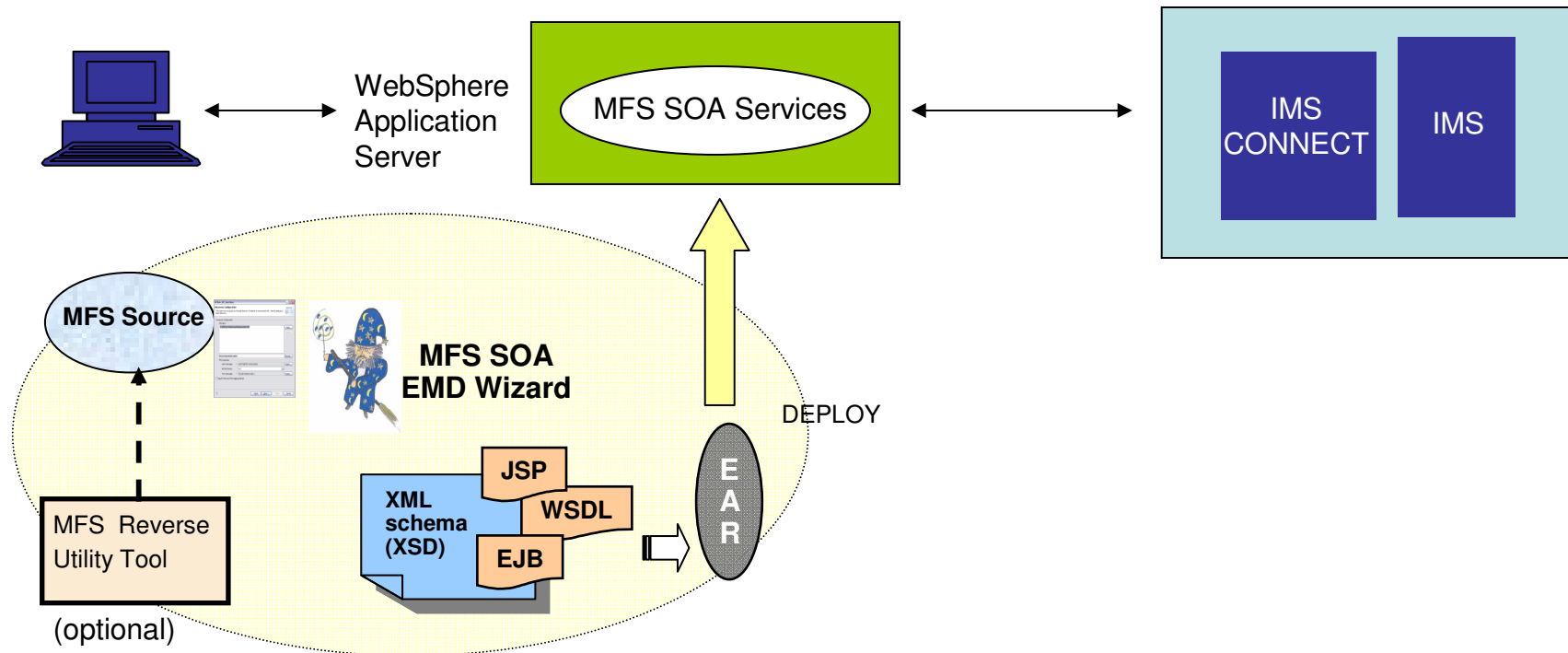
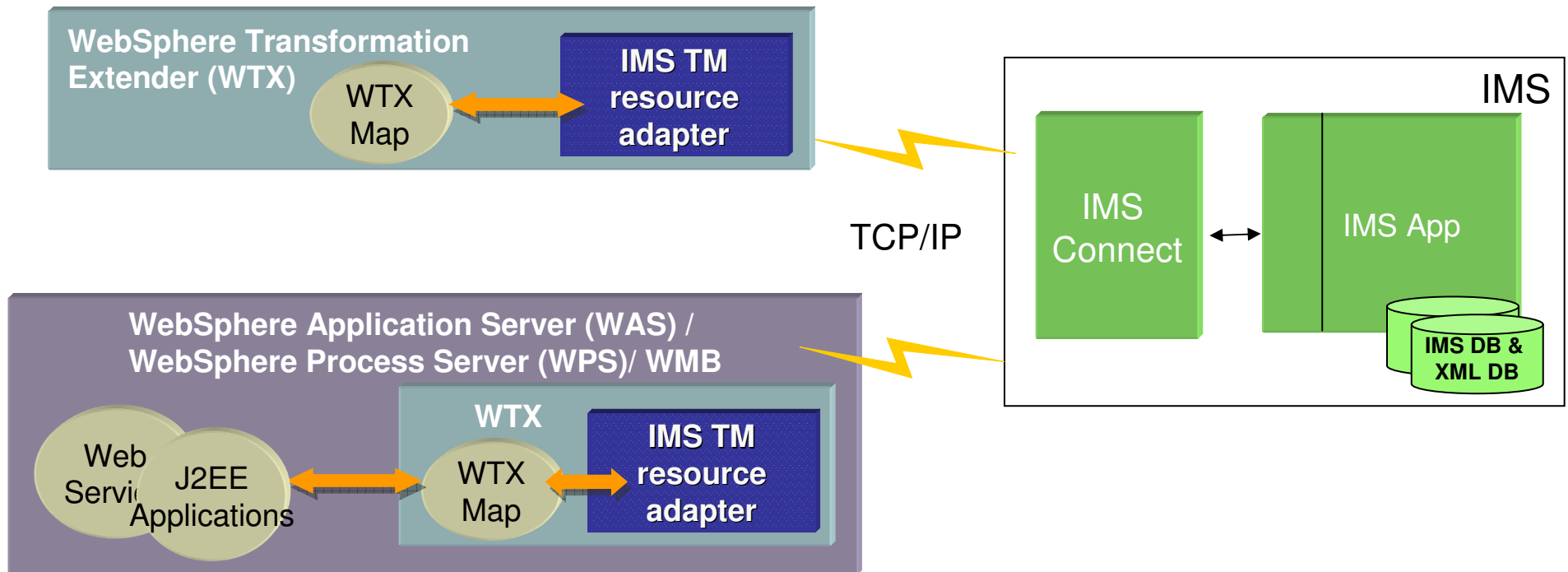" *Transformation is the hard, ugly part of integration.* "

– Ted Friedman, Research VP,
The Gartner Group

WebSphere Transformation Extender and IMS

- WebSphere Transformation Extender (WTX) and IMS TM Resource Adapter enable compliance with complex data formats like
    - SEPA
    - SWIFT (financial services)
    - HIPAA (healthcare)
    - EDI (cross-industry)
  for IMS applications

WebSphere Transformation Extender and IMS

WebSphere Transformation Extender (WTX)

WTX Map ⟷ **IMS TM resource adapter**

WebSphere Application Server (WAS) / WebSphere Process Server (WPS)/ WMB

WTX

Web Services / J2EE Applications ⟷ WTX Map ⟷ **IMS TM resource adapter**

TCP/IP

IMS

IMS Connect ⟷ IMS App

IMS DB & XML DB

- Runs on
  - Microsoft™ Windows™, AIX®, z/OS Batch, z/OS IMS™, z/OS UNIX® System Services, Red Hat and SUSE Linux™, Solaris, and HP-UX.

Extending SOA with Web 2.0

" Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform… Chief … is this: Build applications that harness network effects to get better the more people use them. "
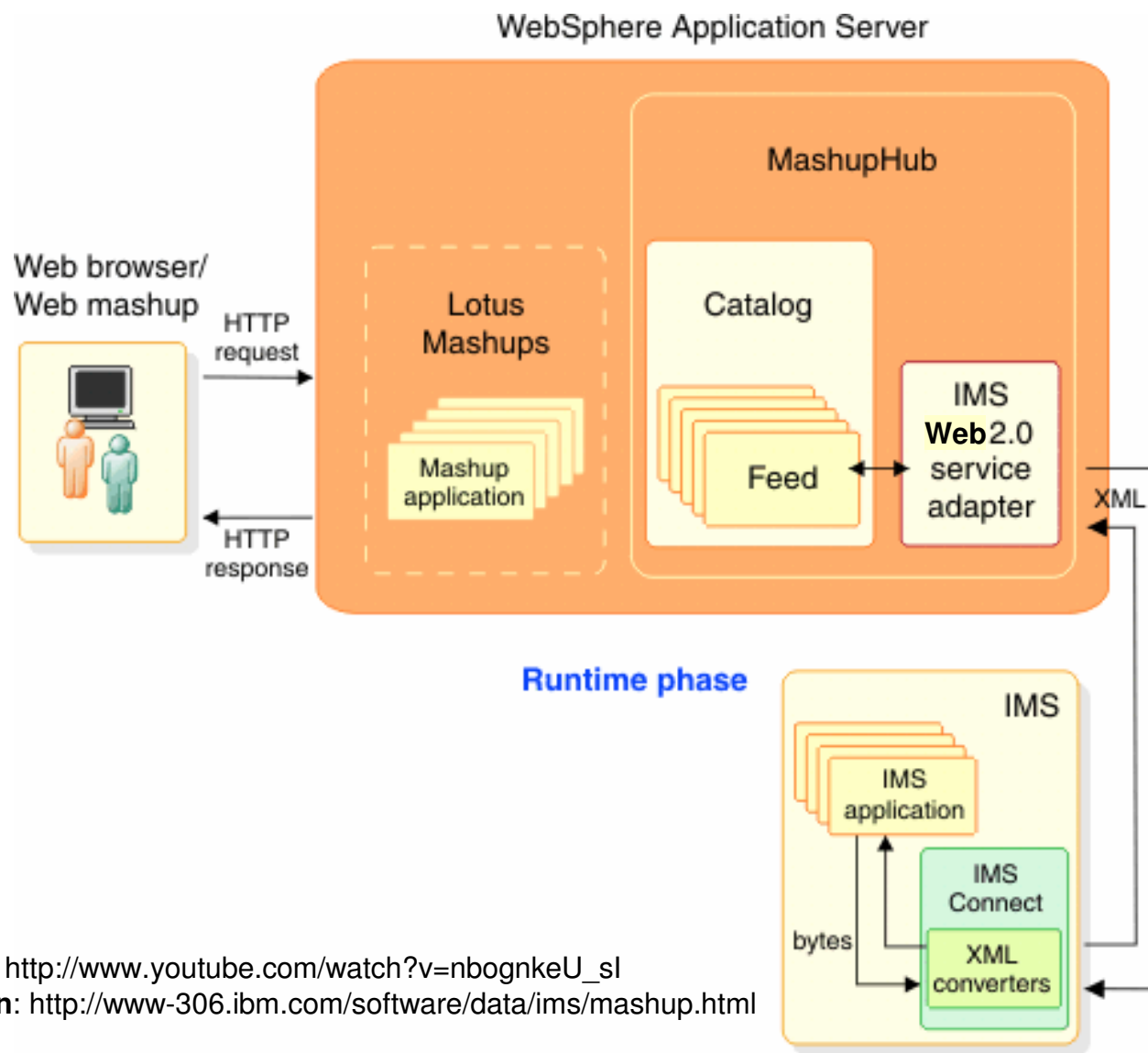— Tim O'Reilly

- Using Web 2.0 technologies based on an SOA can
  - reduce the overall effort of development
  - improving functionality
  - promoting data consistency
  - enhancing responsiveness to the customer

IMS Web 2.0 Solution

Now available as part of IBM Mashup Center
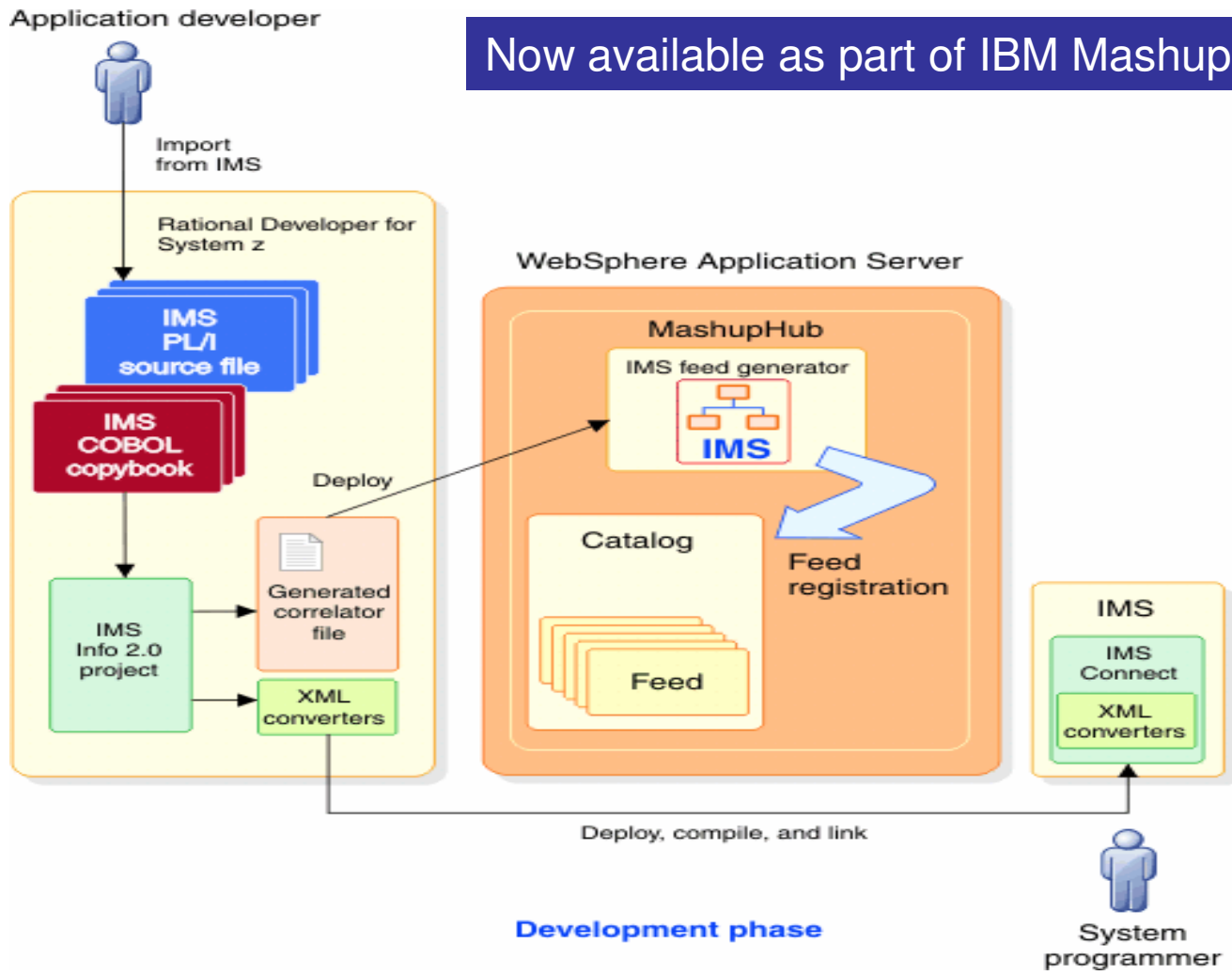
IMS Web 2.0 Solution

Demo on YouTube: http://www.youtube.com/watch?v=nbognkeU_sI
Detailed information: http://www-306.ibm.com/software/data/ims/mashup.html

IMS Web 2.0 Sample Scenario

Rapidly Extend Business Logic

- Expose an IMS transaction as an IMS RESTful service or feed

- Remix and mashup IMS data rapidly with IBM Mashup Center.

Other web feed

Google* web feed

IMS feed Inventory and branch locations

Learn more from recorded talk! - http://www-01.ibm.com/software/os/systemz/telecon/8apr/

*Google is a trademark of Google Inc.
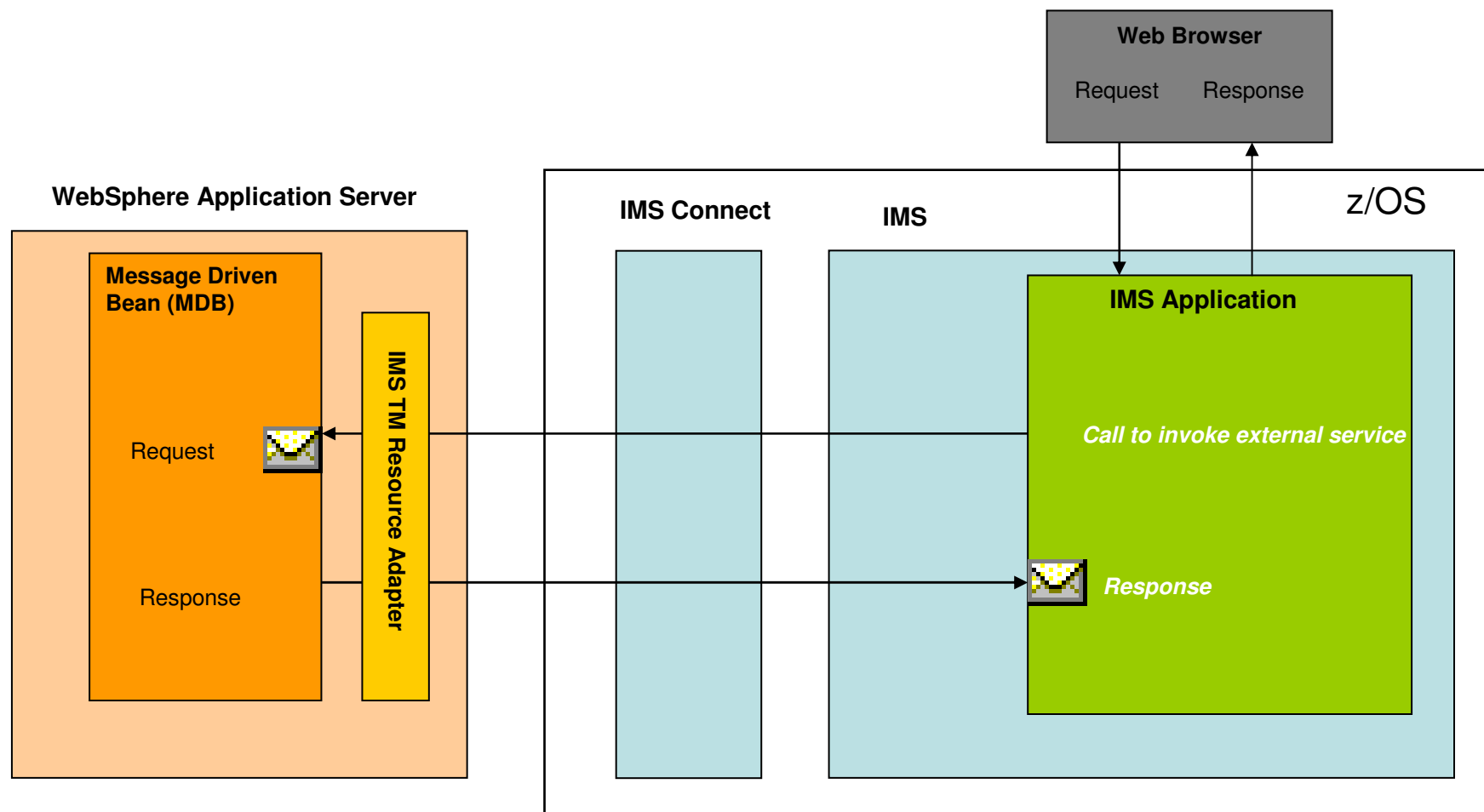
© 2008 IBM Corporation

What do I need?

- Rational Application Developer v 7.1

- WebSphere Integration Developer v 6.1

- IMS TM resource adapter v 10.2

- Rational Developer for z/Series v 7.1.1

- Mashup Center 1.0

- IMS v 10

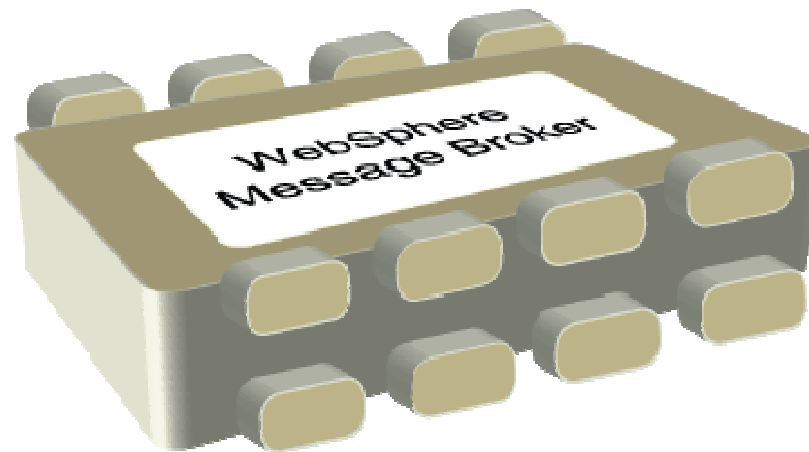- IMS Connect v10

Requirement

- Allow IMS to synchronously invoke an external service

Requirement

- Support for the IMS TM Resource Adapter in IBM ESB product: WebSphere Message Broker

Help make us better!   Send us your ideas for IMS!

For more information

- **IMS TM Resource Adapter**
  - IMS Integration Solution Suite page
    - http://www.ibm.com/software/data/ims/toolkit/
  - Contact Malaika Paquiot-Mose (mpaquiot@us.ibm.com)

- **Rational Application Developer**
  - J2C bean generation using Rational Application Developer
    - http://www.ibm.com/developerworks/rational/library/05/0920_nigul/

- **WebSphere Integration Developer page**
  - http://www.ibm.com/software/integration/wid/about/

- **WebSphere Application Server**
  - http://www.ibm.com/software/webservers/appserv/was/index.html

- **Java 2 Connector Architecture (J2CA)**
  - http://www.sun.com

THANK YOU