

# ObjectWeb ESB Initiative : an Open Development Process

*Alain Boulze, SOA Project Coordinator*  
*Adrian Mos, SOA Technical Lead*

*ObjectWeb @ INRIA*  
*Grenoble, France*

- Part I : An Open Development Process
- Part II : Assembling Pieces for SOA

# Overview Part I : An Open Development Process

- Context, a New Generation OSS Organization
- The *ESBi* Fundamentals
- The *ESBi* Incubation Process
- Usage Oriented Projects & Activities
- Towards OW2 & Mature Initiatives

# OSS: Collective Strategy to Produce Middleware



→ Peer review QA, shared-cost R&D, durability by adoption

→ > 20 years of proven efficiency

→ Opportunities for innovative business models

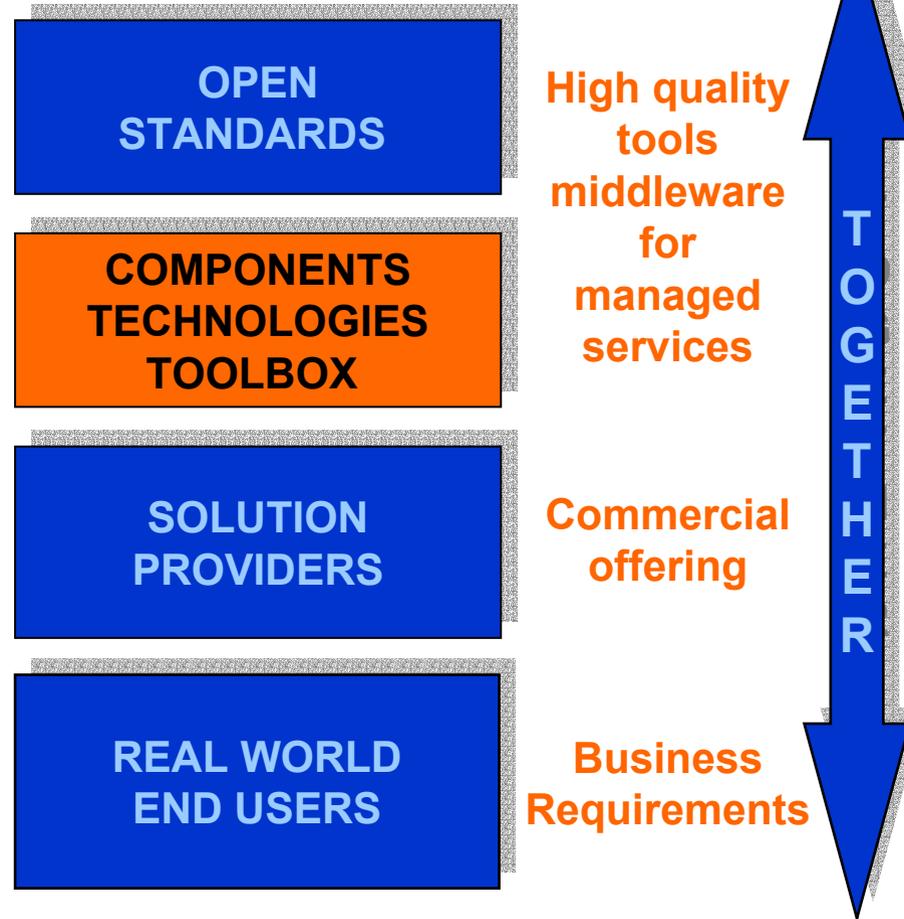
→ Third Generation of Open Source: Eclipse, OW2

# The ESB Initiative, an Example of an Open Development Process

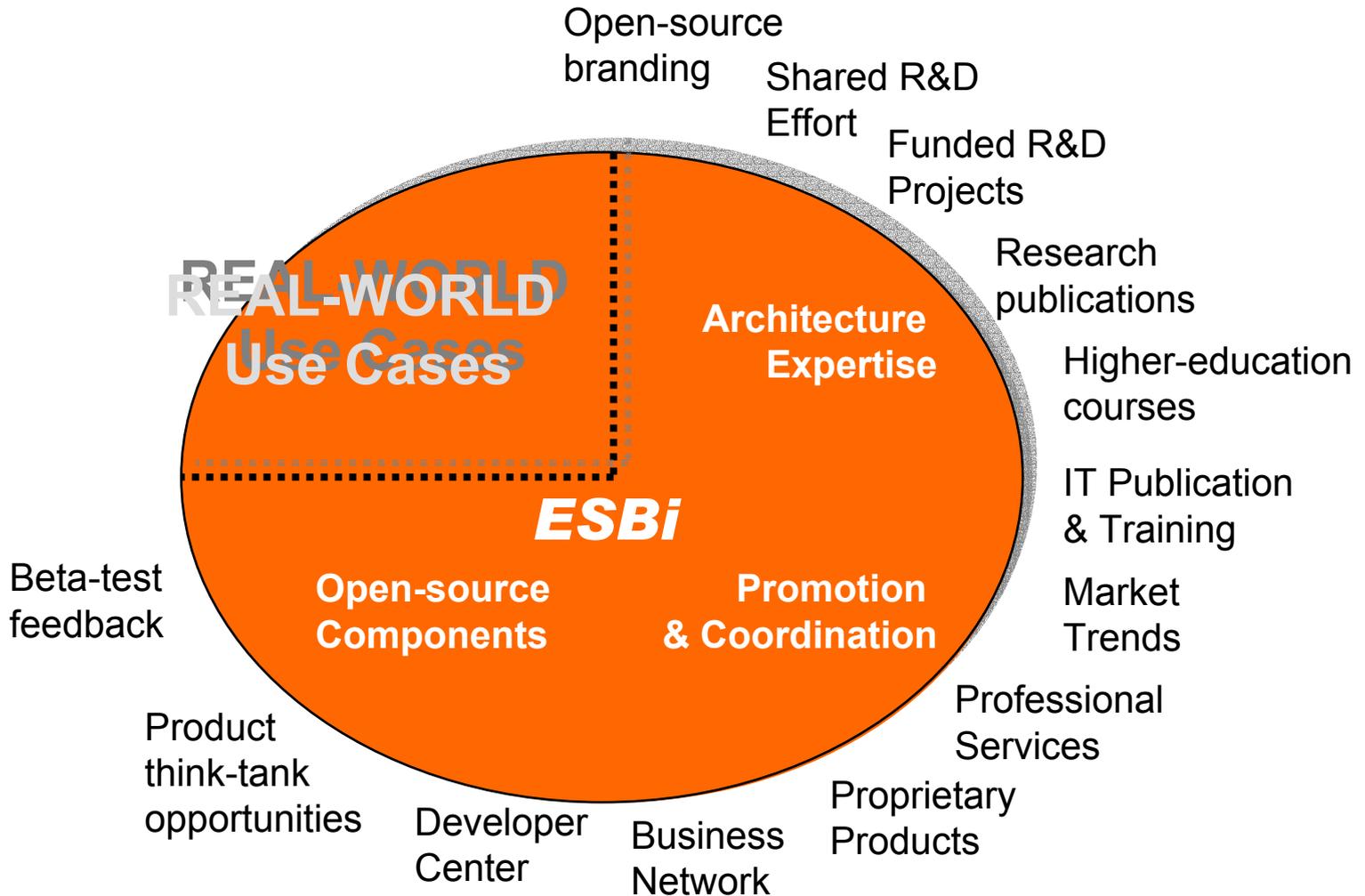
- ➔ A collaborative program undertaken by ObjectWeb members to promote a set of technologies and bring them to the mainstream
  - Targeted sector ➔ **ESB**, as a "neutral, standards-based integration solution that is flexible, robust, scalable, and at the same time, easy to implement and maintain".
  - Market-driven ➔ "more than one-half of large enterprises will use ESBs by end of 2006" (source : Gartner)
- ➔ A live experiment and proof of concept for a new initiative process
- ➔ An incubation process for new initiatives in various domains (BI, Telco, e-Gov, Embedded, ...)

# The ESB Initiative: the Initial Vision

- ➔ The Enterprise Service Bus initiative
  - a user-driven process
  - bringing together technology providers, end users and integrators
  - defining business requirements for ESB platforms and creating a toolbox of open-source components targeting such solutions
  - providing vendors with the high-quality open-source bricks they need to build their commercial ESB offering
- ➔ Our goal is to be the focal point where ESB solutions based on open-source software are designed in a professional fashion, driven by REAL WORLD user needs



# Sustainable development & Business ecosystem



# ESBi Incubation Process

→ A process incubation in three main phases

**ASSESSMENT**

Opportunity  
Assessment  
phase in 2004

Public Kick-off  
end of 2004

**COLLABORATION**

Collaboration  
phase in 2005-  
2006

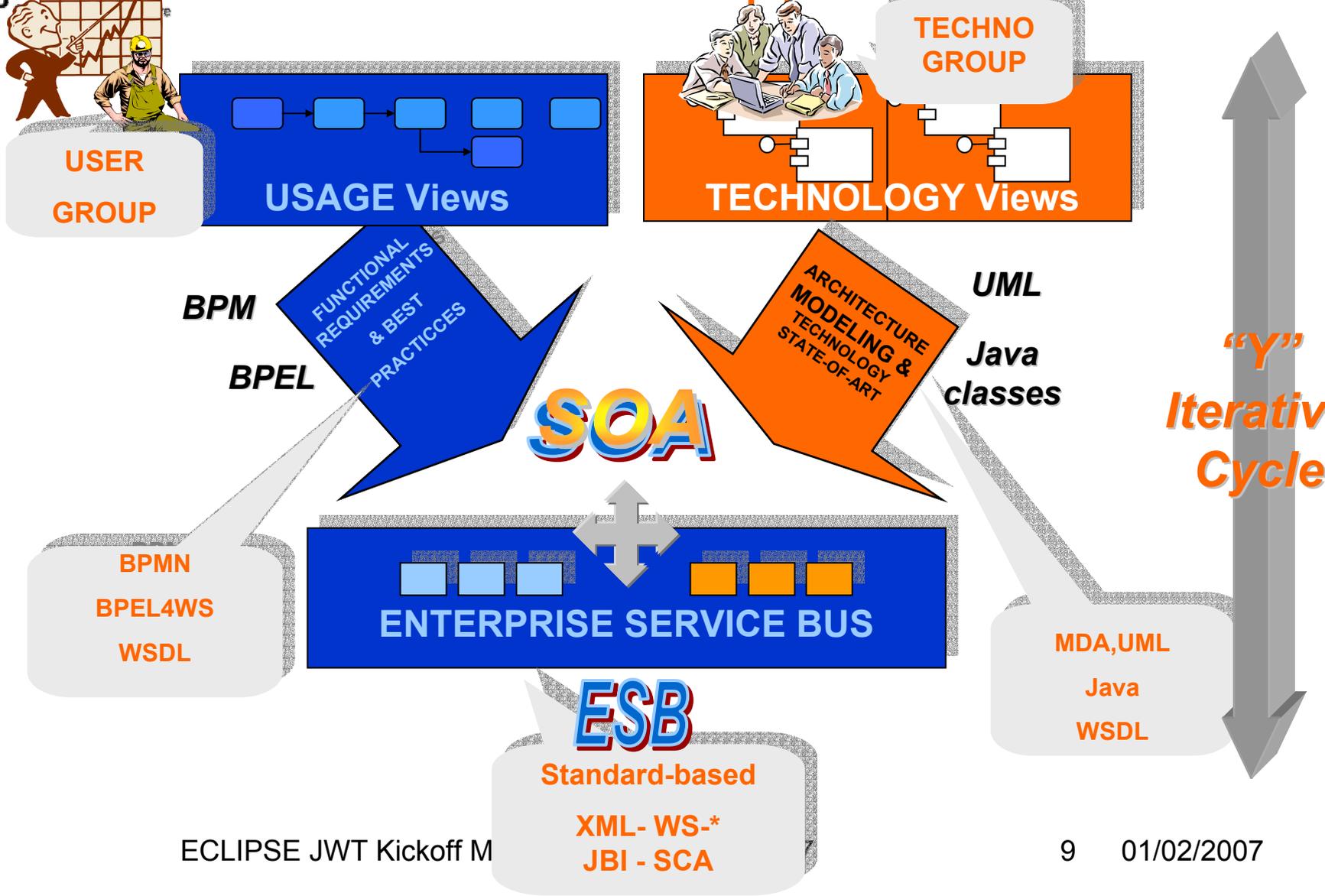
Sharing Techno /  
Usage views

**PROPOSAL**

Ecosystem  
Consolidation  
phase end 2006

A mature  
proposal : SOAi

# A Collaborative & Iterative Approach



# Open Collaborative Platform : Across Projects & Activities

**ORIENTWARE**  
ECLIPSE Org  
STP, JWT

Partnership

PEtALS, Orchestra, Bonita  
WebSASE, XService, XLinker  
JORAM, XQuare  
Acceleo, eXo Platform, XWiki  
JOnAS, Spago  
*Demonstrators*  
(S4ALL-SDK, JOnES)

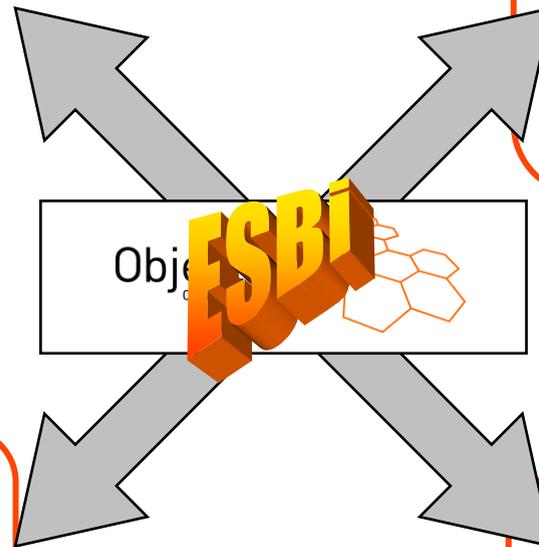
Code base

Impact

Integration Consortium  
WWRF / WWI  
Other Initiatives  
(SOA, BI, Telco, e-Gov,  
Embedded, ONESSI)

Recognition

French / EC Support  
RNTL JOnES, SCOrWare  
ITEA S4ALL  
SUN JBI Scholarship  
SCA Industry Standard  
IDG/LMI SOA Forum



→ RNTL JOnES project

- Contribution to an open JBI-compliant distributed ESB “canvas”
- Architectural core of the ObjectWeb ES*Bi* developments
  - INRIA Fractal component-based model
  - Integrates other INRIA R&D technologies (Dream and GoTM projects)

→ RNTL SCOrWare project

- Contribution to an open SCA-compliant service component oriented software platform
- Run-time components unifying architecture and service-oriented infrastructures and a design / development environment

→ Major contribution to usage demonstrators and valorisation of *ES*Bi** developments



# An Open-Source Service Execution Platform

## → ITEA S4ALL project

- Targets a “services for all”-oriented usage view (*all citizens, everywhere, any time, any condition, anyone*)
- Contribution to an open-source service execution platform
  - Service Bus
  - Data transformation and mediation
  - A coherent distribution of Open Source components (S4ALL-SDK)

## → Partnership with WWRF / WWI

- A Wireless World offering
  - End-user I-centric services
  - Implemented on top of fully cooperating, easily deployed, compatible and secure Service Execution Environments
- Contribution to a service architecture for the Wireless World





## → ECLIPSE STP

### ➤ **SOA Tools Platform Project**

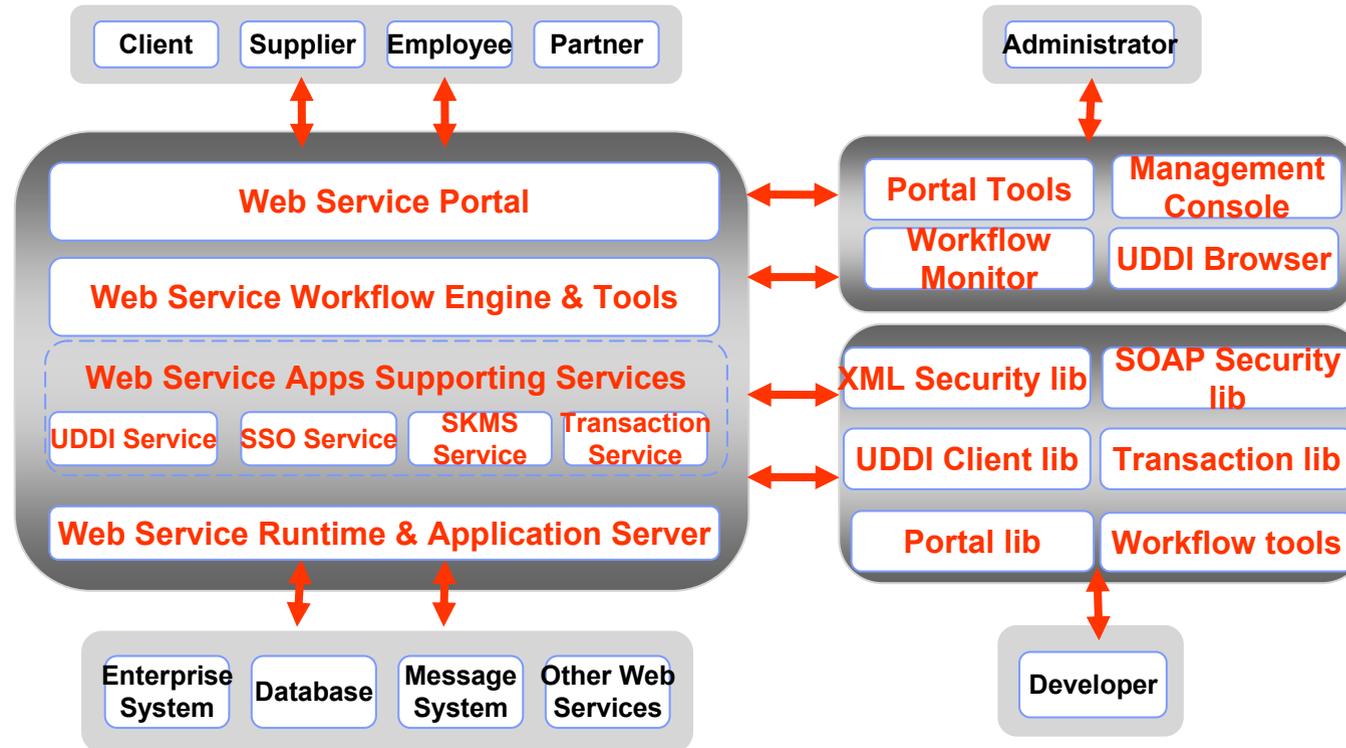
#### ➤ Eclipse top level project

- Creation review successfully completed on December 22, 2005
- ObjectWeb is a PMC member (incl. IONA, as leader, SYBASE)
- A generic, extensible, standards-based (WSDL, SCA) tooling platform for SOA applications and networks
- Partnership with major software and open-source industry leaders and (incl. BEA, IBM, INTALIO, IONA, LOGICBLAZE, RED HAT, SYBASE, SCAPA Tech.)
  - ObjectWeb Corporate Members such as EBM WebSourcing, Eteration, Obeo, Open Wide

## → Associated with other Eclipse “friend” projects

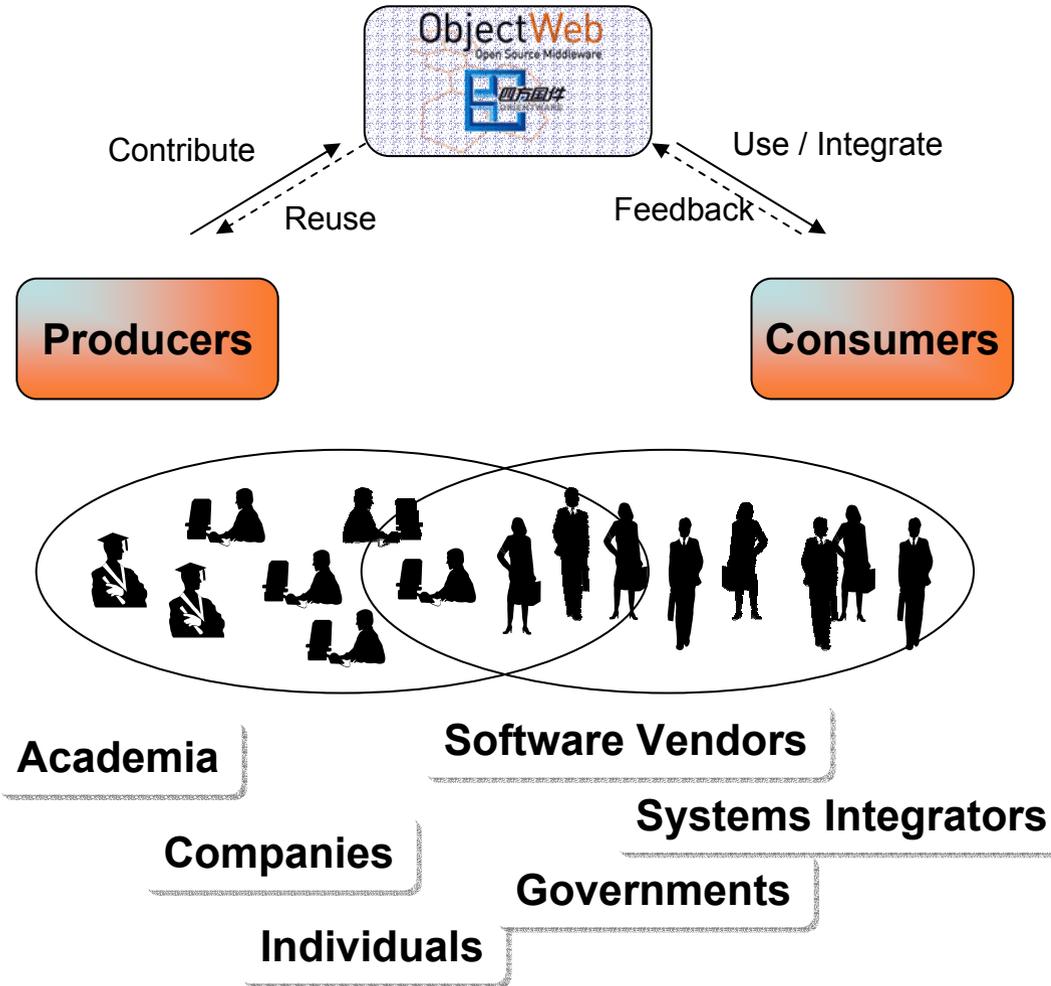
- Top level project WTP (Web Tools Platform)
- Technology project JWT (Java Workflow Toolbox)

## → WebSASE Platform (Beihang University)



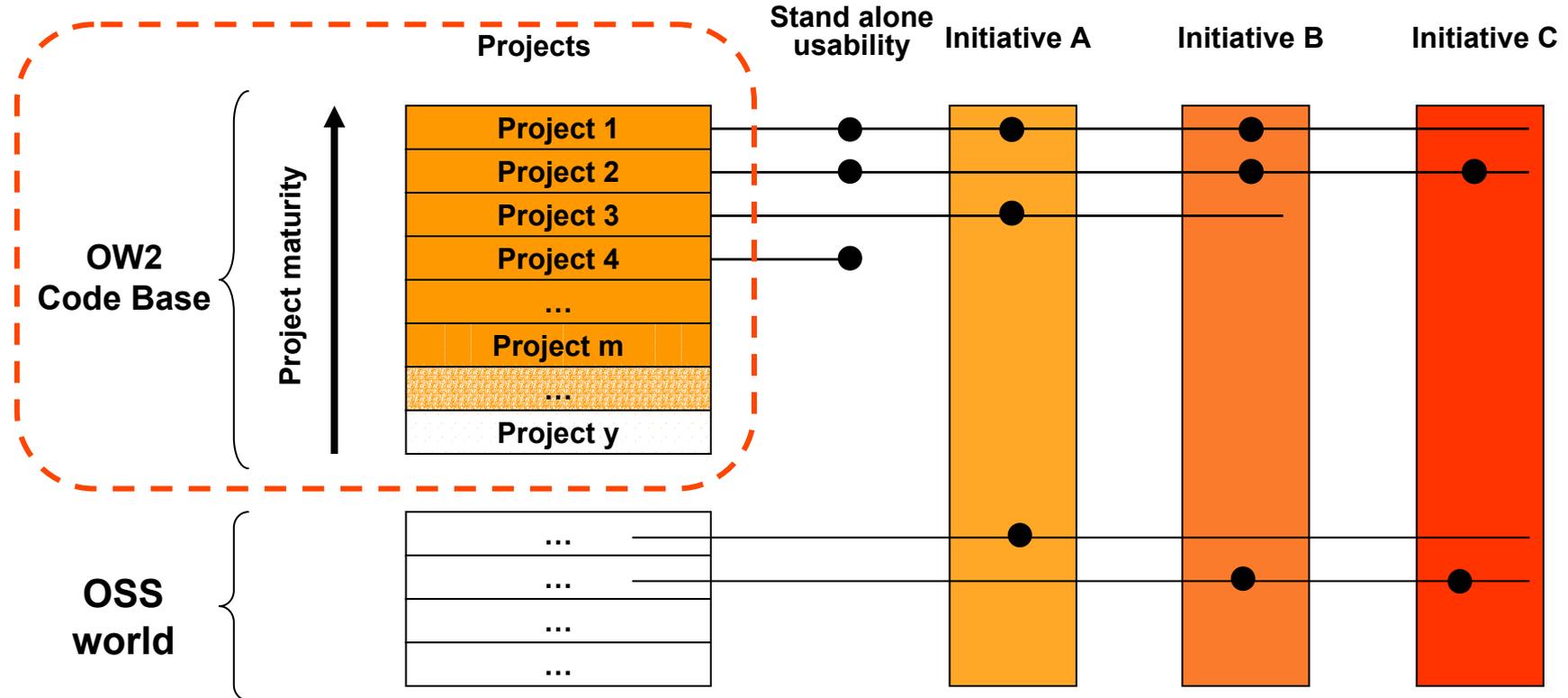
- **XLinker**
  - Lightweight Soap Engine
- **XService**
  - Web Service Application Server
- **WSWF**
  - Web Service Workflow Server
- **UDDI**
  - Web Service Registry Center
- **WSPortal**
  - Web Service Information Portal
- **WSRF & WSN**
  - WS-Resource Framework & WS-Notification

# A Common Platform Shared by Developers and Users



→ OW2 facilitates interaction between open source code Producers and open source code Consumers

# Technology-Driven Projects and Market-Driven Initiatives



- **Governance**
- Code stability
  - Packaging and usability, documentation
  - Community support
  - Interfaces
  - Standard compliance

- **Mature Initiatives, incl. :**
- SOA
  - Business Intelligence
  - Telco middleware
  - E-Gov
  - Embedded
  - ONESSI

- Part I : An Open Development Process
- Part II : Assembling Pieces for SOA

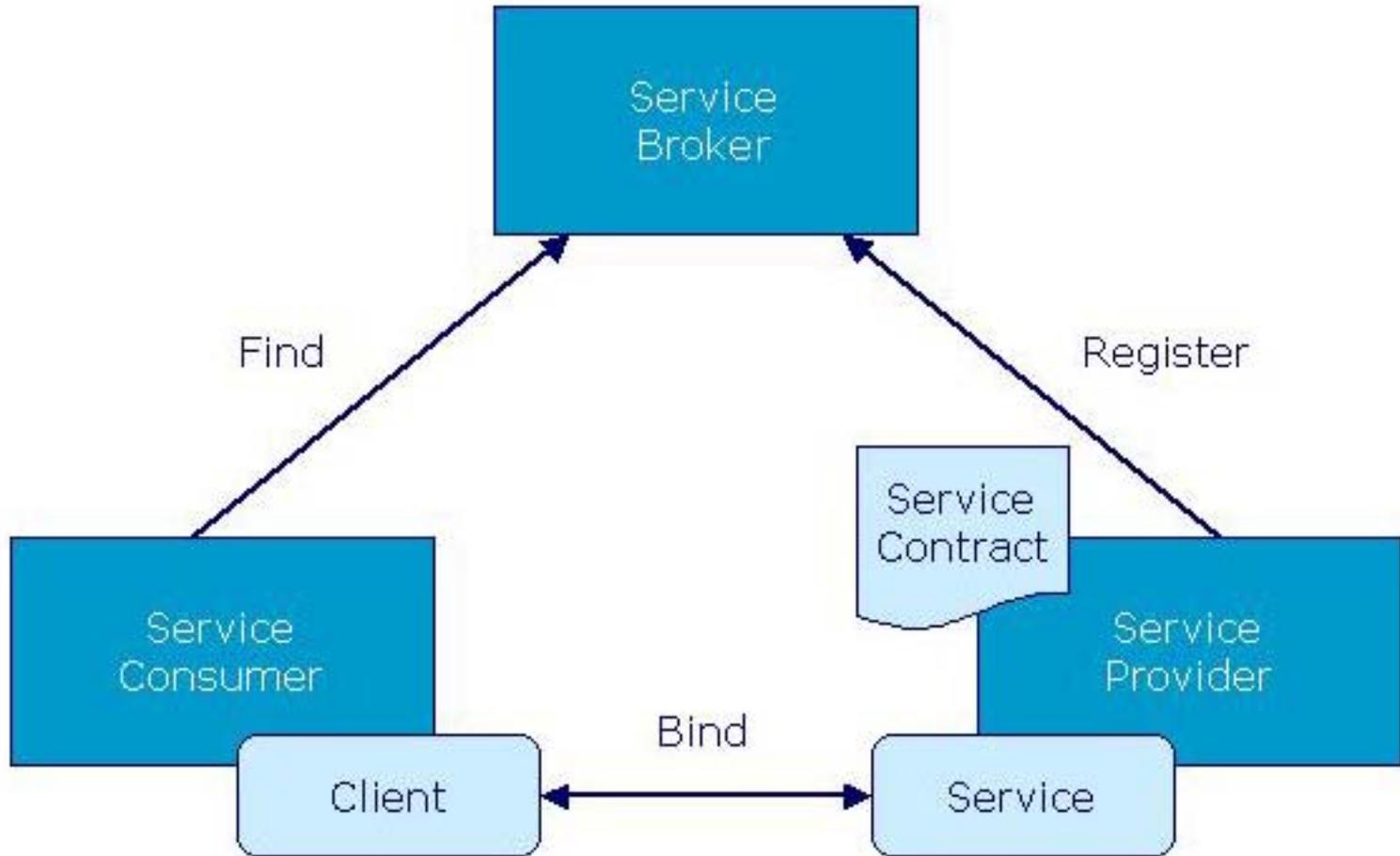
# Overview Part II : Assembling Pieces for SOA

- Service Oriented Architecture (SOA)
- Enterprise Service Bus (ESB)
- Java Business Integration (JBI)
- Projects for SOA Infrastructure
- Involvement in SOA Development Tools
- Summary and Conclusion

# Architecture for Integration

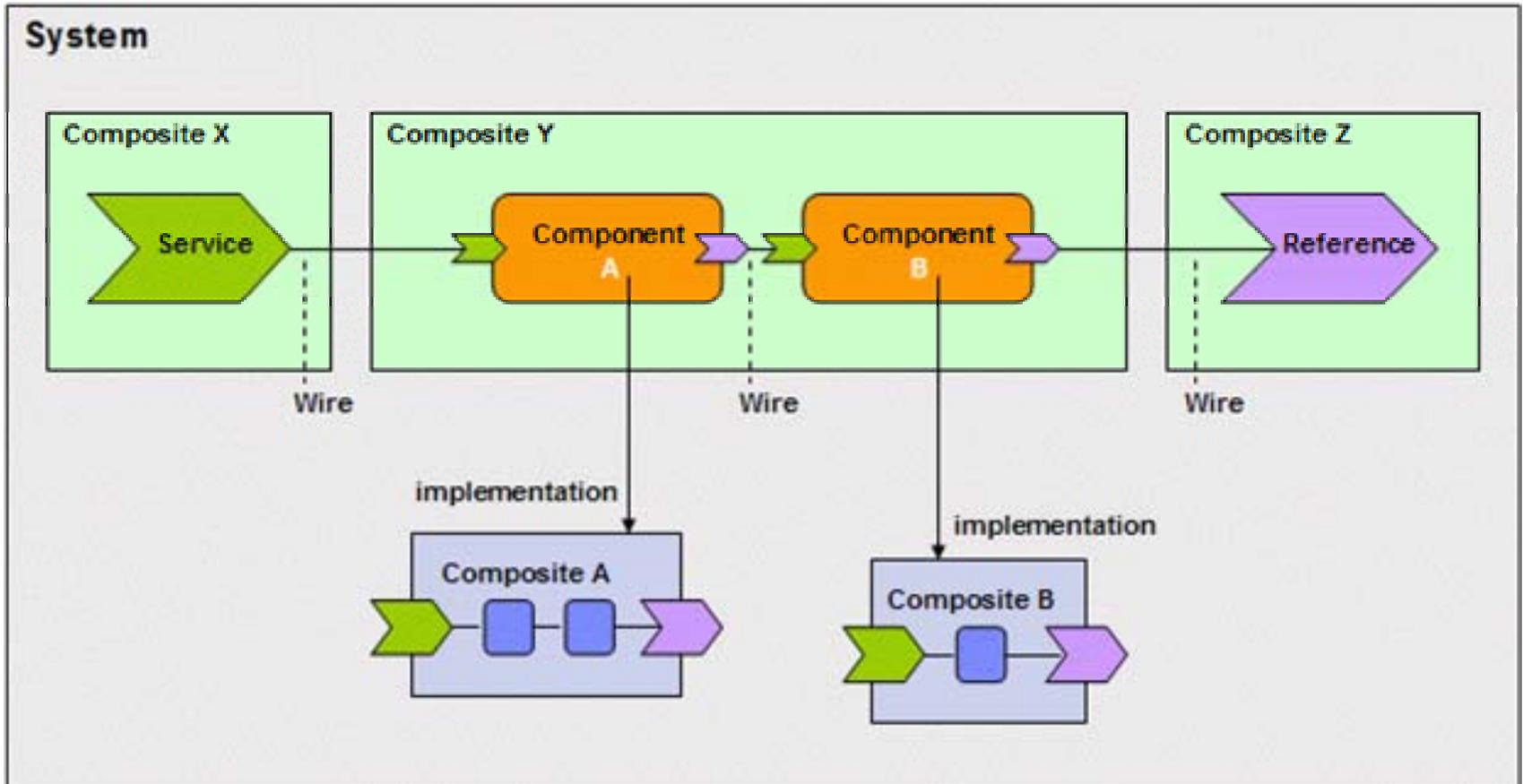
- Evolution from Application Silos to Services
- Business Applications no longer hidden behind proprietary walls
- Services are provided via public interfaces
- Interfaces respect standards
- Services DO NOT know who is calling them, therefore no client dependence (loosely coupled)
- Service Component Architecture (SCA)

# SOA



Source: w3c.org

# SCA



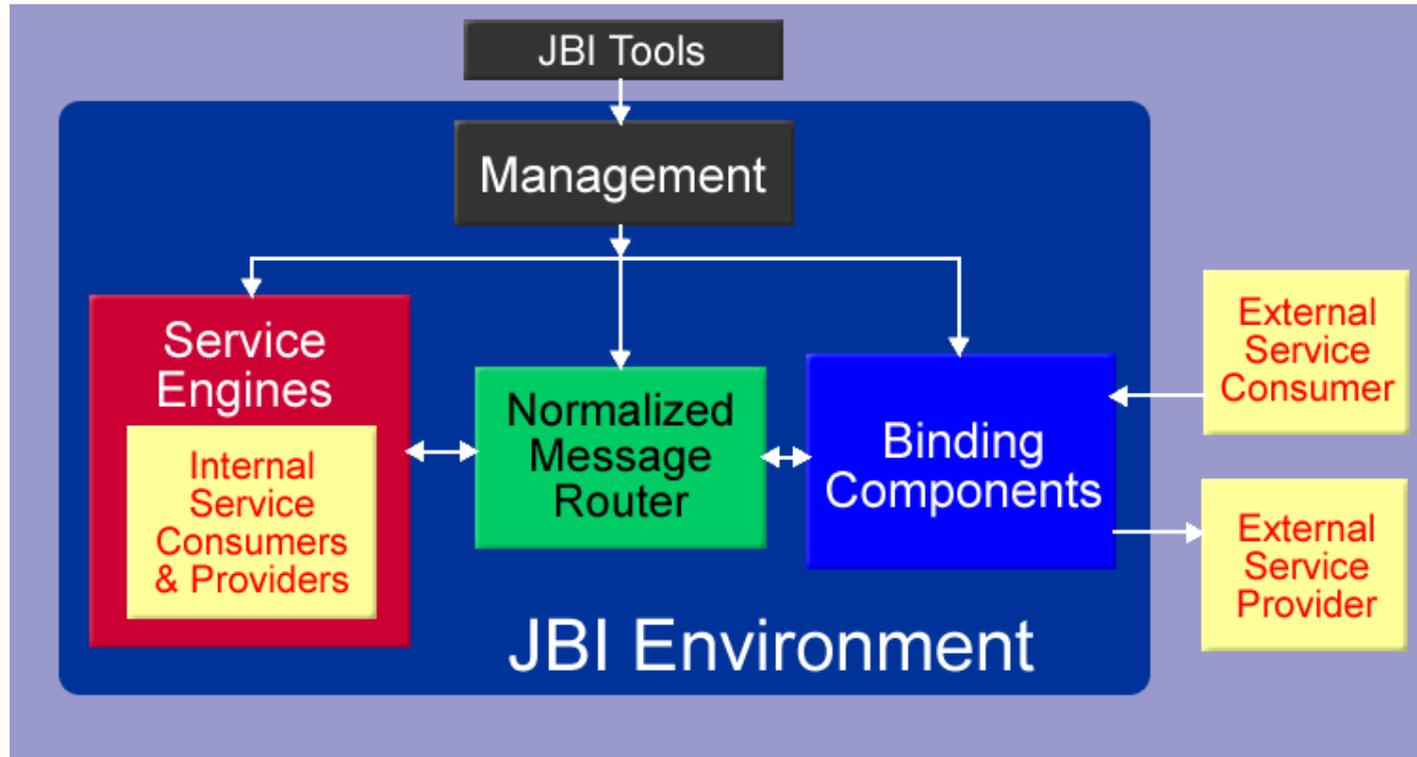
# Adopting SOA

- Open Standards (to avoid lock-in)
- Restructure existing business logic around independent services
- Use orchestration for service integration
- Use open-source --> lowers cost
- Use a standards-based ESB (JBI) - allows for lower costs and increased flexibility
- ESB - SOA backbone
- Moving to SOA requires commitment
- It can be expensive but it is worthwhile

# What is an ESB?

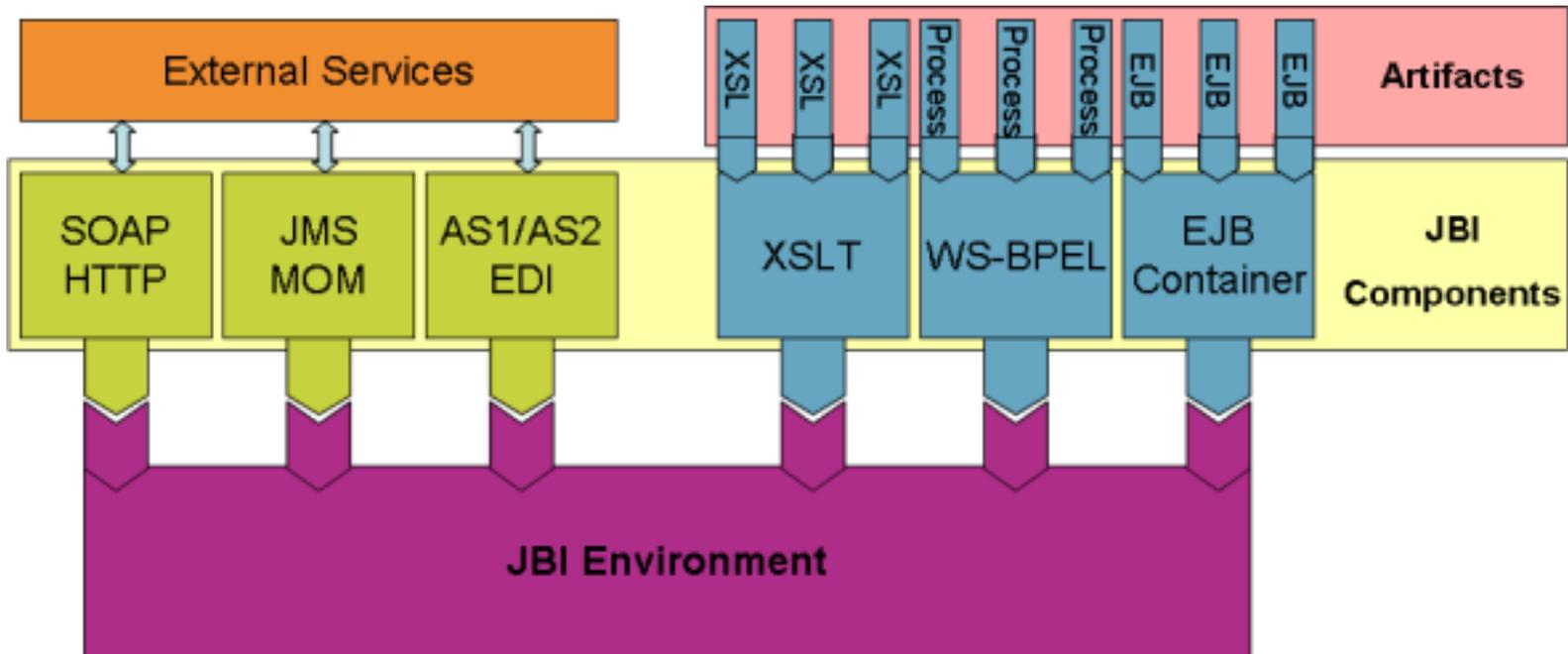
- ➔ No universally agreed definition
- ➔ Enables SOA through a common service bus
- ➔ The bus is most importantly a mediator
- ➔ An ESB provides [a subset of]:
  - Message Routing
  - Message Transformation
  - Service Repository / Directory
  - Workflow Management
  - Orchestration
  - Security
  - Transactions

# Standard ESB - JBI



Source: [java.sun.com](http://java.sun.com)

# JBI Components



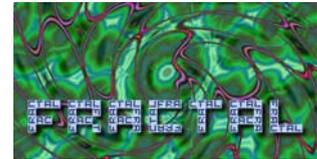
## Some Pieces ...

- PEtALS ESB
- JOnAS / EasyBeans
- Orchestra
- Vertical Integration
  - Spago / SpagoBI
  - eXo Platform



## Some Pieces more ...

- Fractal Component Model
- JORAM, reliable messaging
- BONITA, workflow engine
- XLinker, XService Web Services
- XQuare, XML-based integration and transformation



# Involvement in Eclipse STP

- Extensible framework and Eclipse tools
  - Design, configuration, assembly, deployment, monitoring and management of SOA software
  - Has SCA as its core model
- Our participation is mainly around JBI
  - Creation of Binding Components and Service Engines
  - Packaging of JBI components and services
  - Automatic generation of test clients (used via a BC)
- Add Petals support
  - Running / stopping and debugging Petals in Eclipse
  - Deploying JBI components and services on Petals
- Contribute to the Core Model and SOA System
  - Analyse JBI-specific requirements
  - JBI and SCA integration

# Eclipse WTP / Lombok

## Eclipse JWT

### → Eclipse Web Tools Platform Project

- ObjectWeb Lombok - instrumental in Eclipse WTP
- Creation, testing, deployment and monitoring
  - Web services
  - J2EE components and applications
  - SCA modules
  - Extensive runtime support (JOnAS and most servers)
- Code base will help Eclipse STP development
- Most downloaded ObjectWeb project

### → Eclipse Java Workflow Tooling Project

- Build-time & run-time tools for workflow engines
- Workflow Editor
- Workflow engine Administration and Monitoring tool