SOA and JBoss

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JBossESB Aims

- To provide the standard OSS infrastructure for SOA
  - SOA principles first and foremost
  - Work well with other implementations
    - Does not exist in a vacuum
    - SOA aims to leverage existing infrastructure

- Use SOA principles internally as well as externally
  - Everything will (conceptually) be considered as a service
  - Everything will be replaceable

- Standards compliant
  - Though requirements live longer

JBossESB Will Leverage JEMS

- Process orchestration

- Protocol translation

- Adapters

- Repositories (e.g., UDDI)

- Management (hot deployment, versioning, lifecycle management)

- Quality of service (transactions, failover)

- Quality of protection (message encryption, security)

Requirements

- Cannot mandate specific capability implementations
  - Not Java™ Message Service (JMS) vs. SOAP/HTTP
- *All* capabilities accessed as services
  - Plug-and-play
  - Extensibility
- *All* capabilities are message based
  - Including (conceptually) the container
- Standards are important
  - Java Business Integration (JBI)

Open ESB

Peter Walker

JBI Co Spec Lead
Sun Microsystems, Inc.

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Open ESB Topology

ESB (JBI System)

Node 1

JBI Environment A

BPEL | XSLT | Sequence

JMS | File | SOAP HTTP | Proxy

Node 2

JBI Environment B

SE | SE | SE

BC | BC | BC

JBI Environment C

SE | SE | SE

BC | BC | BC

Node 3

JMS Broker

Queue/Topic

Node 4

Administration Server

SOAP/ HTTP

External Service Consumer

Legend:

BC — Binding Component

SE — Service Engine

NMS

Proxy Binding

Open ESB
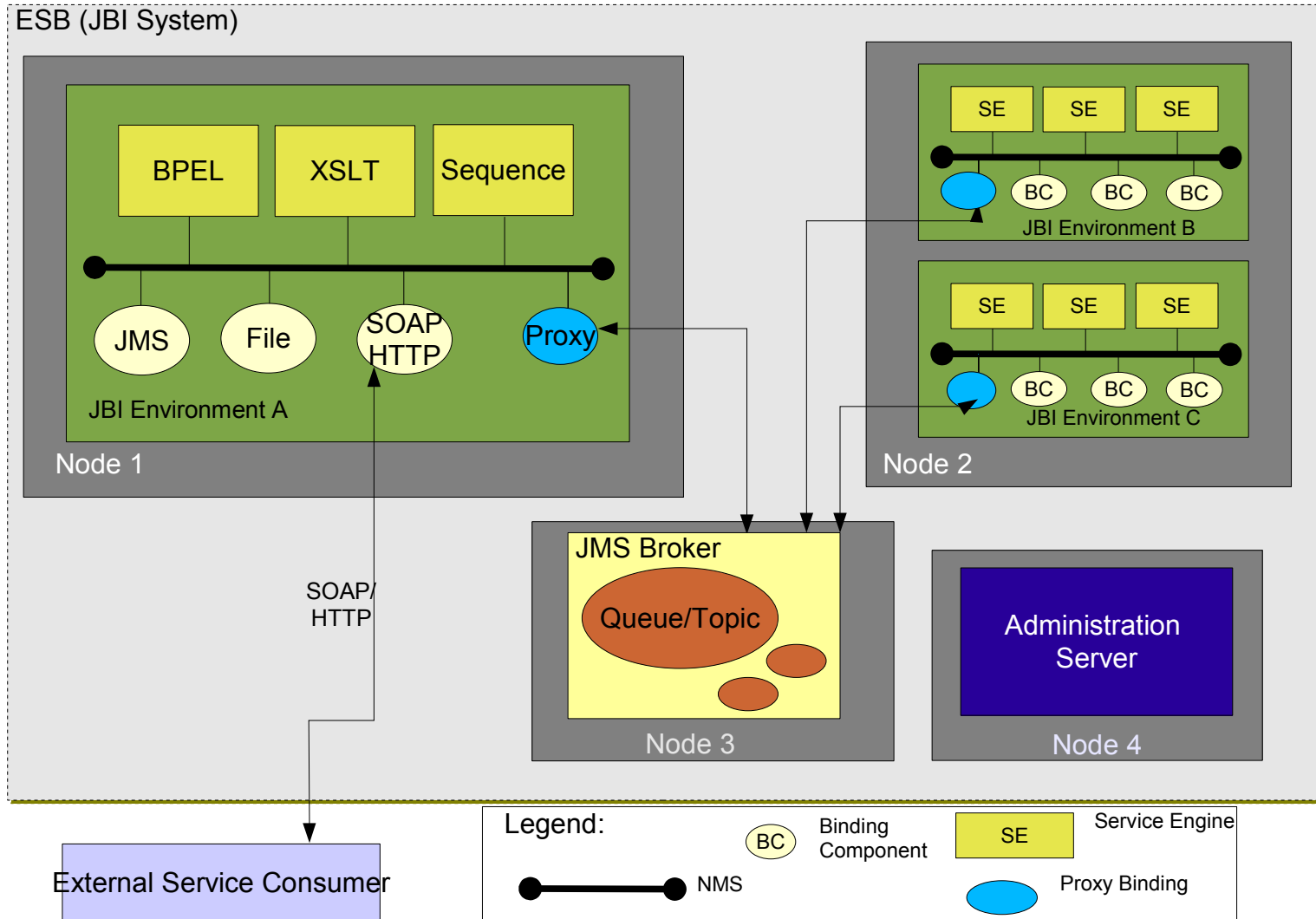
- https://open-esb.dev.java.net/
- Launched shortly after the 2005 JavaOne^{SM} conference
- Currently milestone 8 available publicly
- Milestone 10 to be posted just before the 2006 JavaOne conference
- Version 1.0 in the early fall?

java.sun.com/javaone/sf

Celtix 1.0

Open Source ESB

- Adi Sakala

Fully Featured, Production Quality ESB

- Advanced Java Technology Support
  - JAX-WS 2.0—The only Open Source ESB with JAX-WS
  - Dynamic Language Support—JavaScript™ technology and ECMAScript for XML (E4X)
  - Multiple Container Support: J2EE™ Platform, Servlet, Stand-alone
  - Java 1.5 Support—the latest Java technology spec

- Core ESB Functionality
  - Service Enablement
  - Communications
  - **Reliable Messaging**
    - ActiveMQ JMS,
    - WS-ReliableMessaging, WS-Addressing
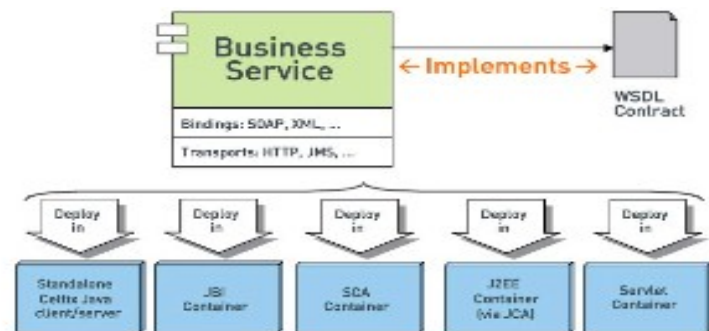
- Interoperability with JBI and SCA
- Extensible Plug-in API

Celtix Open Source ESB

- Hosted at Objectweb, the house for Opensource Middleware.
- Uses highly interoperable Web Services stack donated by IONA
- Currently used by Petals, JOnAS, Geronimo, Yoko, ServiceMix, Tuscany
- Tools support provided by Eclipse STP project.

IONA

Making Software Work Together ™

What Is Happening With SOA in Open Source? Apache Tuscany Project

Jeremy Boynes

Apache Tuscany Project
http://incubator.apache.org/projects/tuscany/

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java.sun.com/javaone/sf

Apache Tuscany Project

- Under incubation at Apache Software Foundation
    - Sponsored by Web Services PMC
    - Launched Dec 2005
    - Initial code contributed by BEA and IBM
        - Now joined by people from IONA, WS02, ???
- Goal is to produce an open source implementation of SCA and related specifications under the Apache License
    - Full implementation, **NOT** a reference implementation

- **http://incubator.apache.org/projects/tuscany**
- **mailto:tuscany-dev-subscribe@ws.apache.org**

Service Component Architecture

- A model for building loosely-coupled systems based on a Service Oriented Architecture.
  - Language neutral
  - Technology neutral
  - Vendor neutral

- Specification produced through collaboration of many industry leaders including BEA, IBM, Oracle and SAP

- Aims to make manageable the complexity associated with large-scale systems and enterprise applications

- Specification can obtained from:
  - http://www.ibm.com/developerworks/webservices/library/specification/ws-sca/

Project Family

	Java	C++	PHP
SCA	Apache Tuscany May 06	Apache Tuscany Jun 06	PECL SCA ??
SDO	Apache Tuscany May 06	Apache Tuscany Jun 06	PECL SDO Apr 06
DAS	Apache Tuscany May 06		

Mediation

- Intermediaries are "go-betweens"
  - Insulates one/both sides from change
  - Adapts differing protocols, QoS, data formats, MEPs
  - Separation of concerns (business logic <-> policies)
  - "Virtualizes" endpoints for load balancing,
    IT work, etc.

- Synapse is a Web Services Mediation Framework

Rules-based Message Processing

- XML config file contains a list of mediator descriptors

- Synapse runs each message through each mediator until told to stop

- Mediators typically match on XPath expressions, WS-Addressing headers, etc. and perform particular work

- At the end of the chain, Synapse defaults to sending the message on to the appropriate place

Goals and Status

- Goals
    - Built on Axis2 (but not tied to it)
    - Don't boil the ocean (not an ESB, not a BPEL engine)
    - Customizable (clean plug-in architecture)
    - Easy to use (configuration not coding)
- Status
    - In "incubation" (milestone releases,
      not yet a "real" project)
    - Still lots of architectural churn; great time to hop in!
    - Hopefully building to 1.0 this year

Panel Questions

- What is the most important core concept in your project?

- Does your project extend SOA to cover services over JMS?

- What web services protocol stack is currently used by/provided by your project and how is interop with other stacks being validated?

- How important is it that developers be able to mix and match open source SOA facilities within the implementation of a service?

- What do you see as the major challenge that developers must overcome to design and implement services?

- Questions from the audience...

Q&A