JBossESB
&
JBoss SOA Roadmap

Bernard Tison
JBoss SE EMEA

What is SOA?

- Service Oriented Architecture (SOA) is an **approach** for building distributed systems that deliver application functionality as loosely-coupled services

- SOA:
  - Focuses on improving business agility
  - Provides a standard way to represent and interact with application functionality
  - Enables reuse of services
  - Leverages open standards
  - Focuses on application assembly and creating new applications from existing components
  - Leverages business services inside and outside the enterprise

What is a Service?

A Service is component (chunk of software)

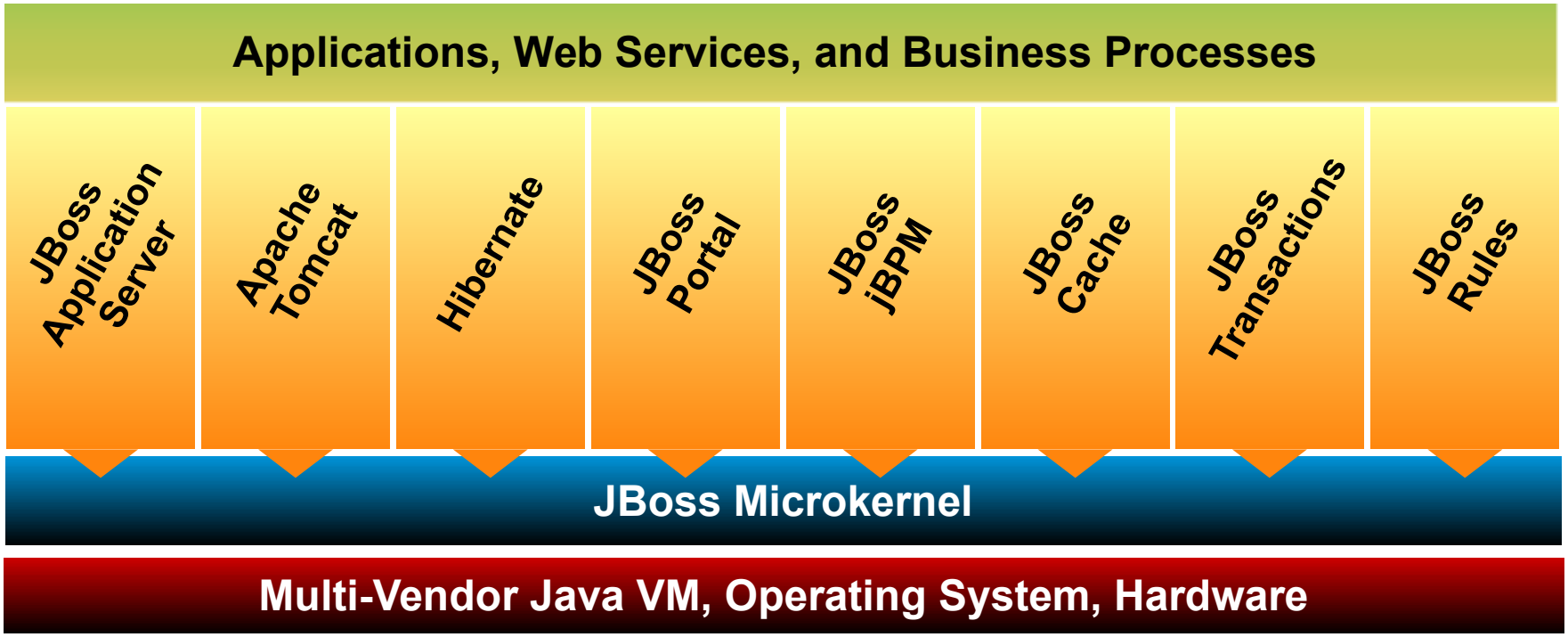
- Message Oriented
- Loosely Coupled
- Course Grained
- Contract Based
- Sync and Async Invocable
- Orchestration Ready
- Reusable
- And Ideally Inter-operable

SOA Approaches

- N-Tier development with
  - stateless,
  - UI-less,
  - SQL-less,
  - middle-tier business and technically focused “services” which can be easily modified and redeployed
- SOA is the next OO (but wasn't AOP the next OO)
- CORBA, DCOM, Jini, RMI/EJB
- XML + Async Messaging + Web Pages
- Web Services
  - Inter-operable
  - Multi-Vendor Support
  - Emerging Standards (OASIS, W3C, etc)
  - Real Application to Application (A2A, B2B) INTEGRATION
- ESB (SOA in a Box!)

JEMS

JBoss Enterprise Middleware Suite



The Open Source Platform for SOA

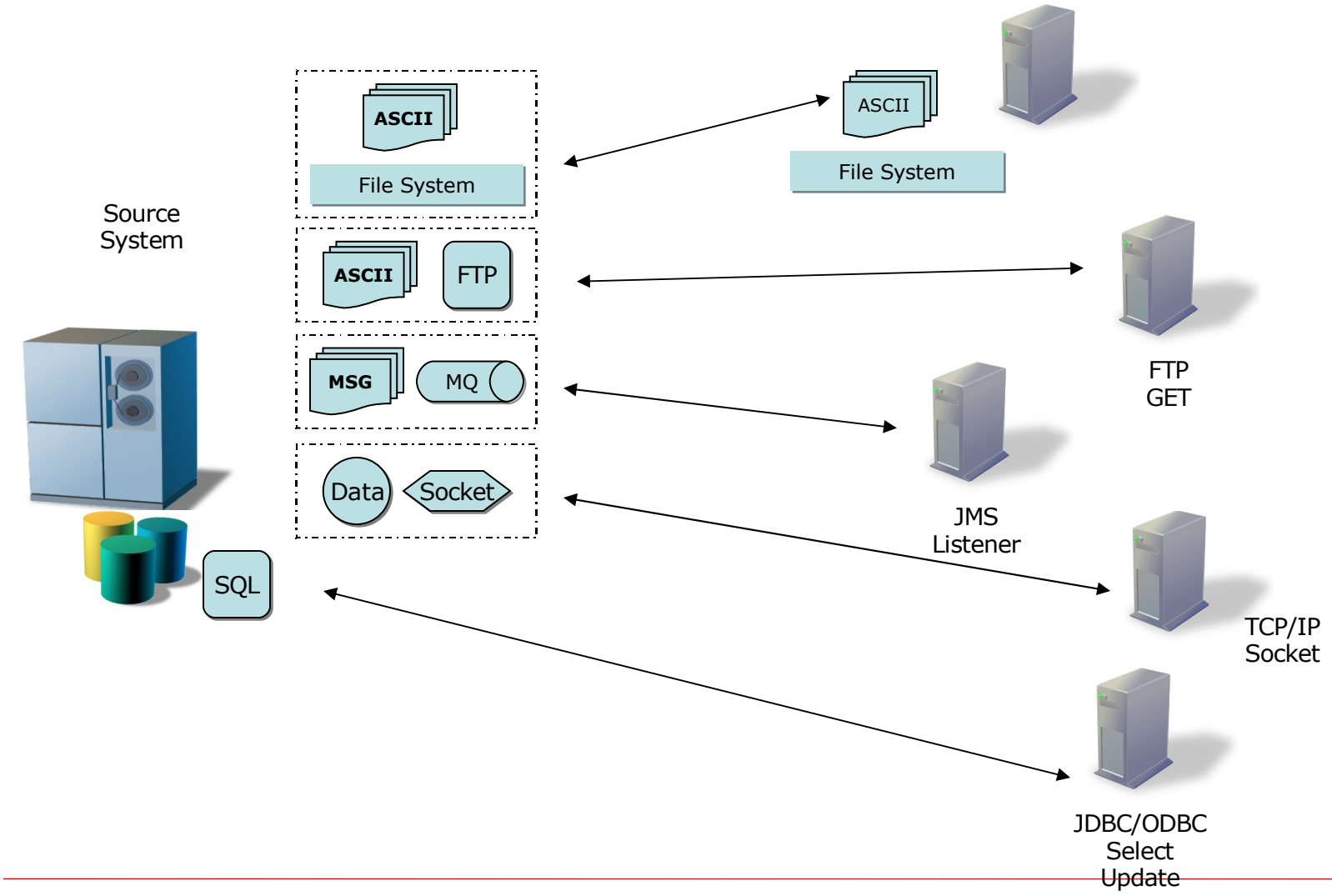
Integration Prior to ESB

- File Transfer (FTP)
  - Send the same file, changed records multiple times
- Shared Database
  - Triggers and/or Stored Procedures
- Remote Procedure Invocation/Call
  - RMI, CORBA
- Various Messaging platforms
  - MQ Series
- EAI Brokers

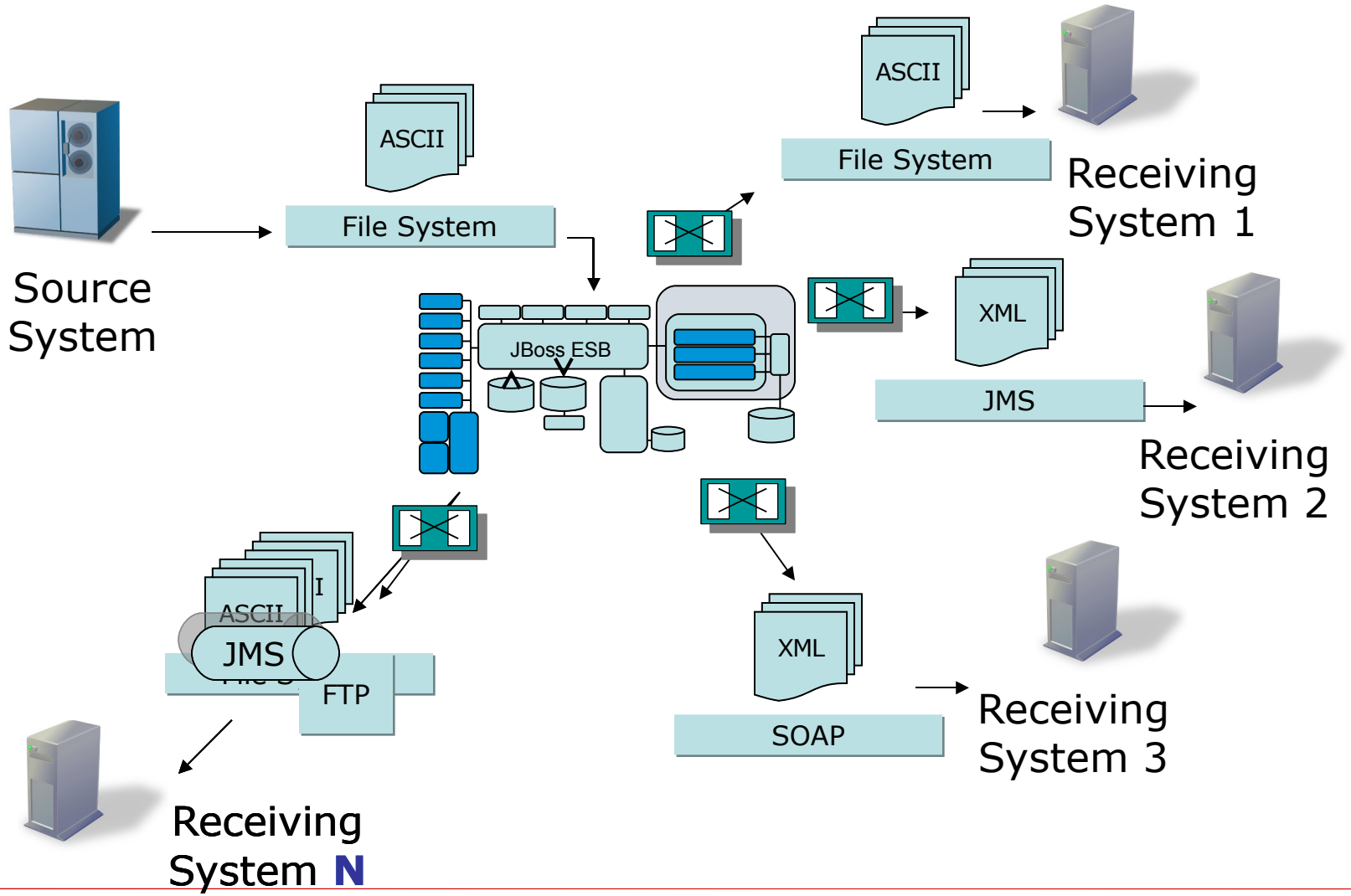
ESB as Integration Platform

- ESB = Standards-based integration platform for loosely coupled services in a heterogeneous environment
- Based on event-driven messaging engine (the bus)
- Distributed architecture
- Offers functionalities like
  - Data transformation
  - Intelligent routing
  - Business process orchestration
  - Registration and discovery of services
  - Quality of service (scalability, transaction support, security)
  - Management & Governance
- Infrastructural component of SOA architectures

A Real World Scenario



Real World Solution



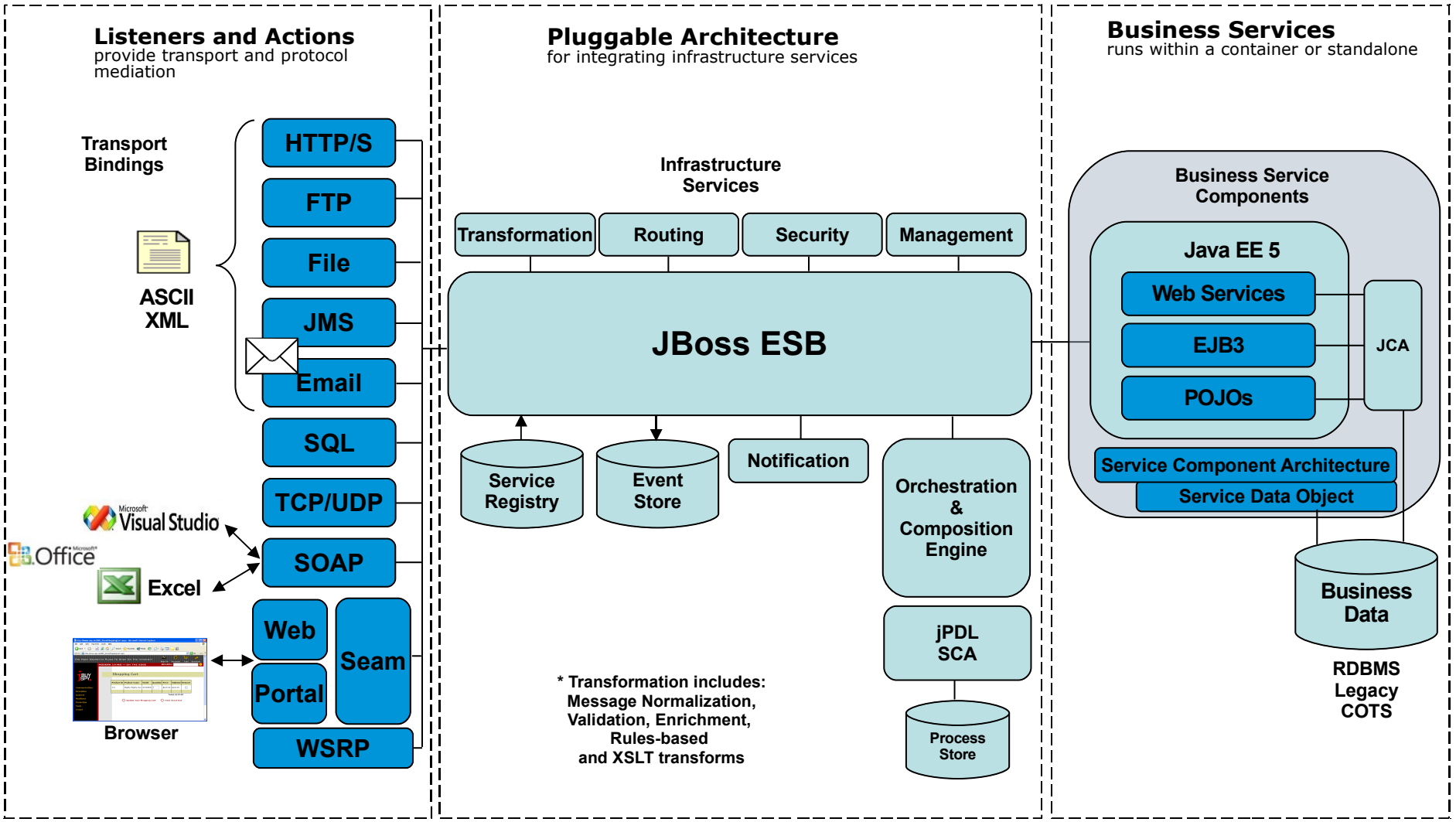
Introducing JBossESB

- First release in August 2006 (JBossESB 4.0 Beta1). This was an important step on the road to continue the dominance of JEMS as the SOA development environment.
- JBossESB is based on the Rosetta ESB, which was donated to JBoss by one of the world's largest insurance companies.
- It has a tried and trusted pedigree, running their backbone systems for 3 years continuously.
  - Increasing number of applications including new Oracle 11i installations need integration
  - Used JBoss Enterprise Middleware as SOA framework
  - Built enterprise service bus decoupling apps
  - Services are stateless session EJBs, some Web Services
  - Adapter framework plugged into ESB for data transfer and transformation
    - Mainframe data to JBoss SOA fabric to Oracle 11i

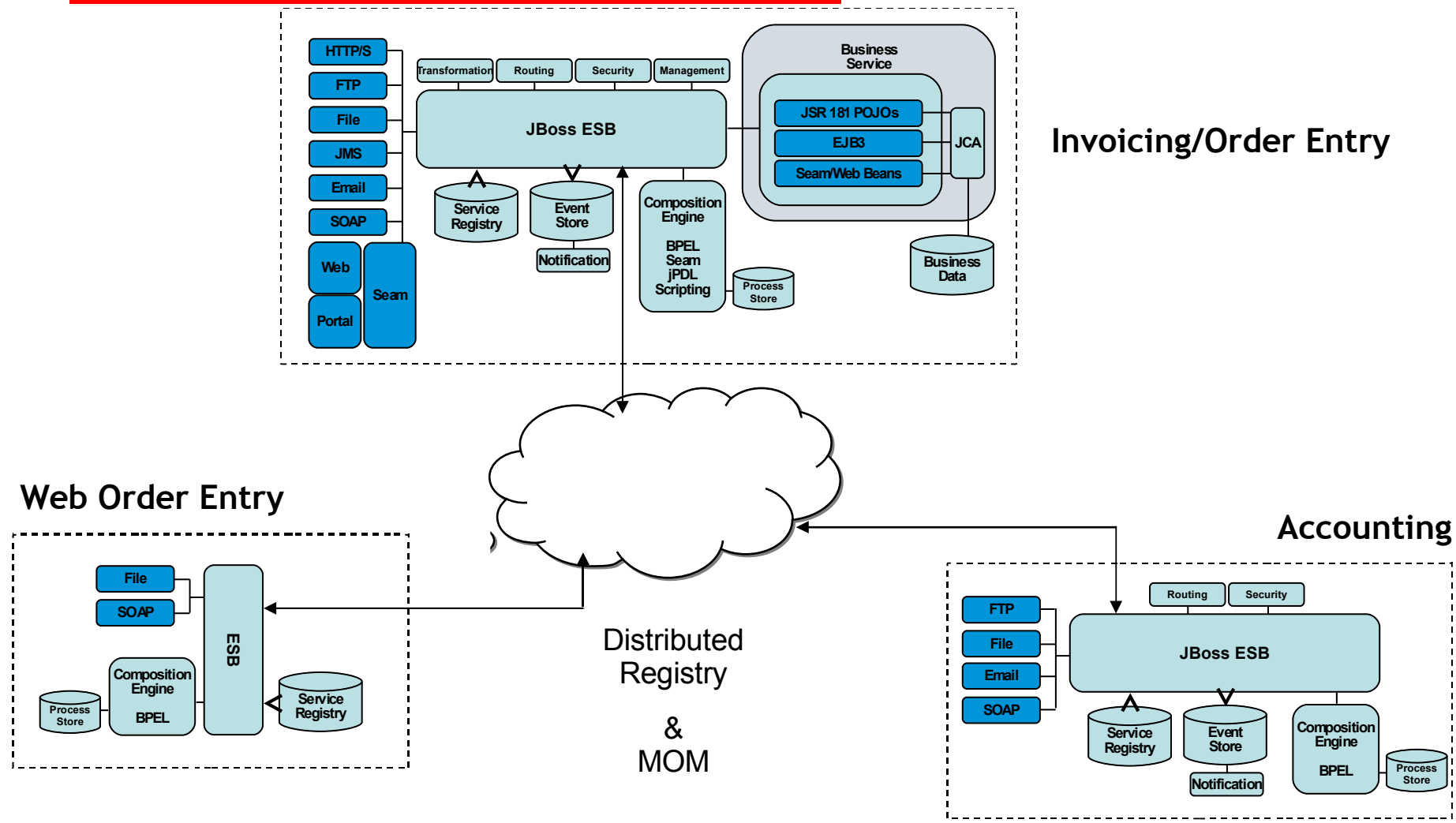
Architectural Principles

- Within JBossESB, everything is a service
  - Plug-and-play
- All services are interacted with via messages
- Messages are part of the contract between client and service
  - This includes non-functional aspects
  - For example, service lifecycle messages
- Messages do not imply specific implementations of carrier-protocol
- Services do not need to be bound to specific implementations of carrier-protocol
- At the heart of JBossESB is a messaging abstraction
  - Does not mandate implementation (JMS, SOAP, HTTP)
  - Support for multiple buses and implementations, concurrently

Enterprise Service Bus



ESBs Across The Enterprise



JBossESB 4.0 provides

- Message delivery
  - JMS (JBossMQ, JBoss Messaging, ActiveMQ, MQSeries)
  - (S)FTP, HTTP, email, database, shared file system
- Transformation
  - XSLT, Java, Groovy, StringTemplate
- Content-based routing
  - JBoss Rules, XPath DSL
- Orchestration
  - Light weight via XML configuration with hot deployment
  - BPM-based orchestration allows service and human interaction
- Registry
  - JAX-R based
  - UDDI support out-of-the-box (Scout and jUDDI)
- Gateways
- Extensive examples and documentation

ESB Transformation Engine

- Based on Smooks Engine
- Validation
- Enrichment
- In-line transformations (Fragment based Processing)
- Profile based XML/non-XML processing
- Anything to Anything (XML, CSV, binary, X12, POJO)
- Mix/Match transformers on a single message:
  - Java
  - Groovy
  - StringTemplate
  - XSLT
- 4X performance boost over plain XSLT (Xalan):
  - http://milyn.codehaus.org/Chiba+Integration
- Centrally managed through the ESB Console

Content Based Routing Engine

- Currently based on JBoss Rules – supports XPATH DSL
- Access to the complete Message Header and Body/Contents for evaluation
- One to many destinations

```
rule "Routing Rule using XPATH Greater"
  when
    xpathGreaterThan "/Order/@totalAmount", "50.0"
  then
    Log : "Really It's EXPRESS Shipping";
    Destination : "ExpressShipping:ExpressShippingService";
end

rule "Routing Rule using XPATH Less"
  when
    xpathLessThan "/Order/@totalAmount", "50.0"
  then
    Log : "Really It's NORMAL Shipping";
    Destination : "NormalShipping:NormalShippingService";
end
```

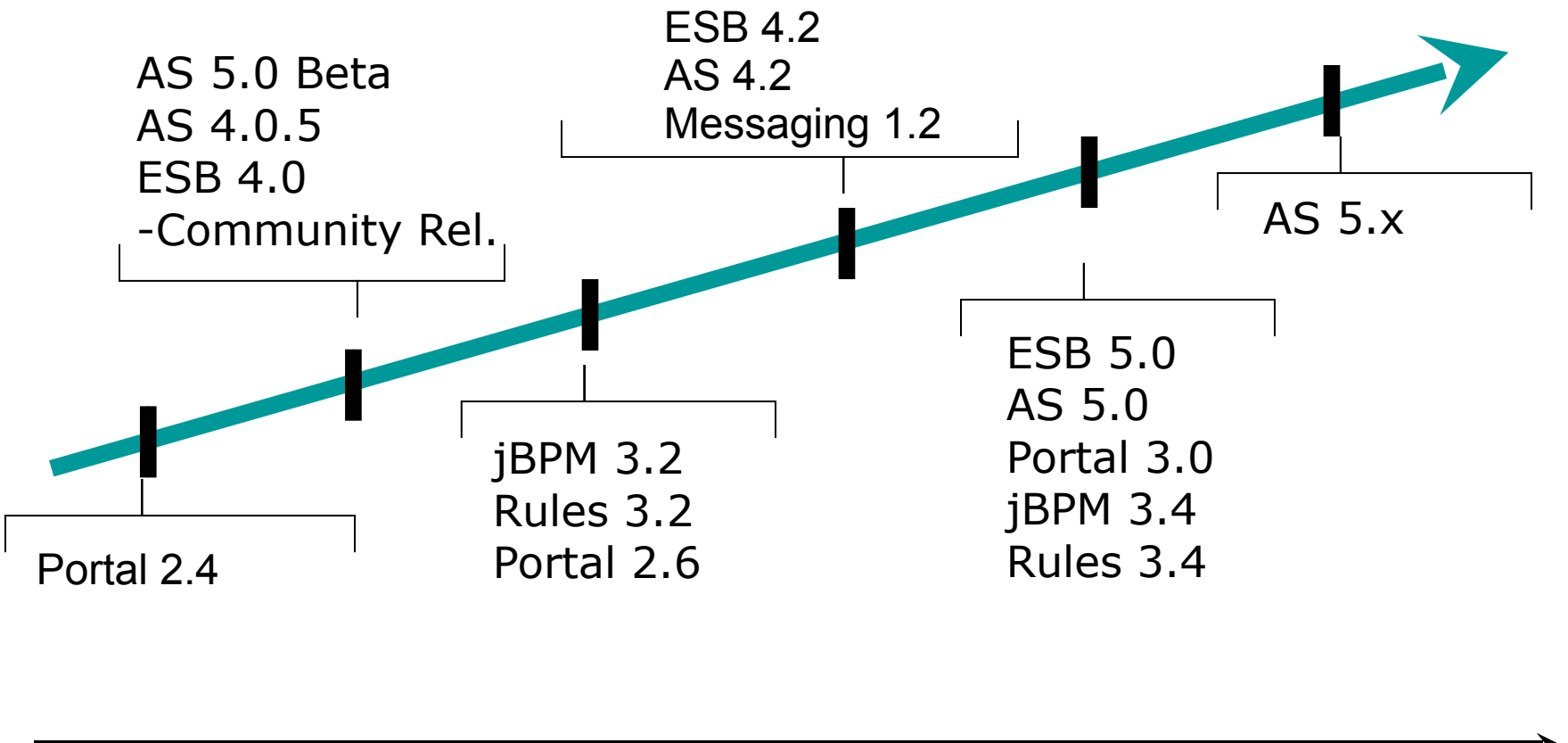
Gateways

- Need to allow legacy services to plug-in to the bus
- Need to allow legacy clients to plug-in to the bus
- Neither have concept of Message or EPR
- Must bridge from ESB-aware to ESB-unaware domains
  - Gateways perform this role
  - Gateways wrap the incoming payload into a ESB message envelope and route it into the ESB
- This allows the bus to be extended across the enterprise without perturbing existing infrastructure
- JBossESB 4.0 ships with gateways for JMS, FTP, File Transfer, SQL Table Poller
  - More to come

JBoss ESB Roadmap

- JBossESB 4.2 (June 2007)
  - JBPM JPDL support
  - JBPM BPEL 2.0 support
  - SOAP stack
    - WS-*, incl WS-Security, WS-Context, WS-Addressing
  - SEAM Service Endpoints
  - Bidirectional Gateways
- JBossESB v.5.0 (Q3 2007)
  - Change Management & Service Versioning
  - Quality of Service (clustering, transactions, security)
- JBossESB v.5.5 and beyond (2008)
  - JBI, SCA
  - UDDI v3
  - Federated management & administration
  - Repository

JEMS Roadmap



Conclusions

- Open Source will make SOA happen
- It is NOT all about Web Services
- ESB a solution for application integration
- JBossESB architecture is key to flexibility and future-proofing
- Forms the backbone of our SOA strategy
- JEMS components are the flesh
- JBoss ESB 4.0GA available TODAY.
- DOWNLOAD and start exploring today.

The End

Questions?