JBoss Certified Technology Partner

JBoss...
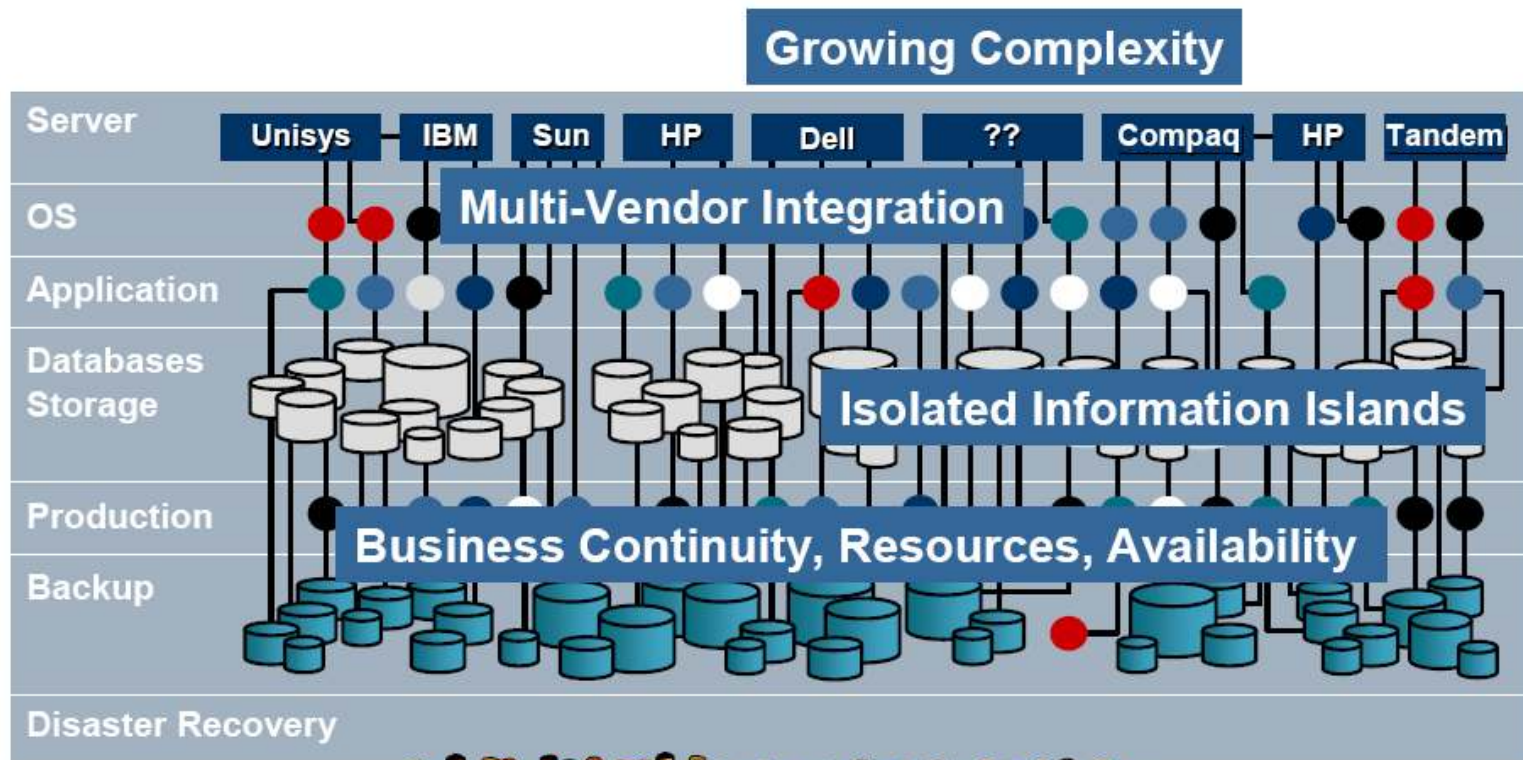# Not just an App. Server

By : Lior Kanfi   "Tikal"

Agenda

▶ **Introduction**

> » The problem domain

▶ **JBoss History**

> » How things 'turned out'…

▶ **JBoss At Present**

> » Current offering: JEMS Component Review

▶ **The Future**

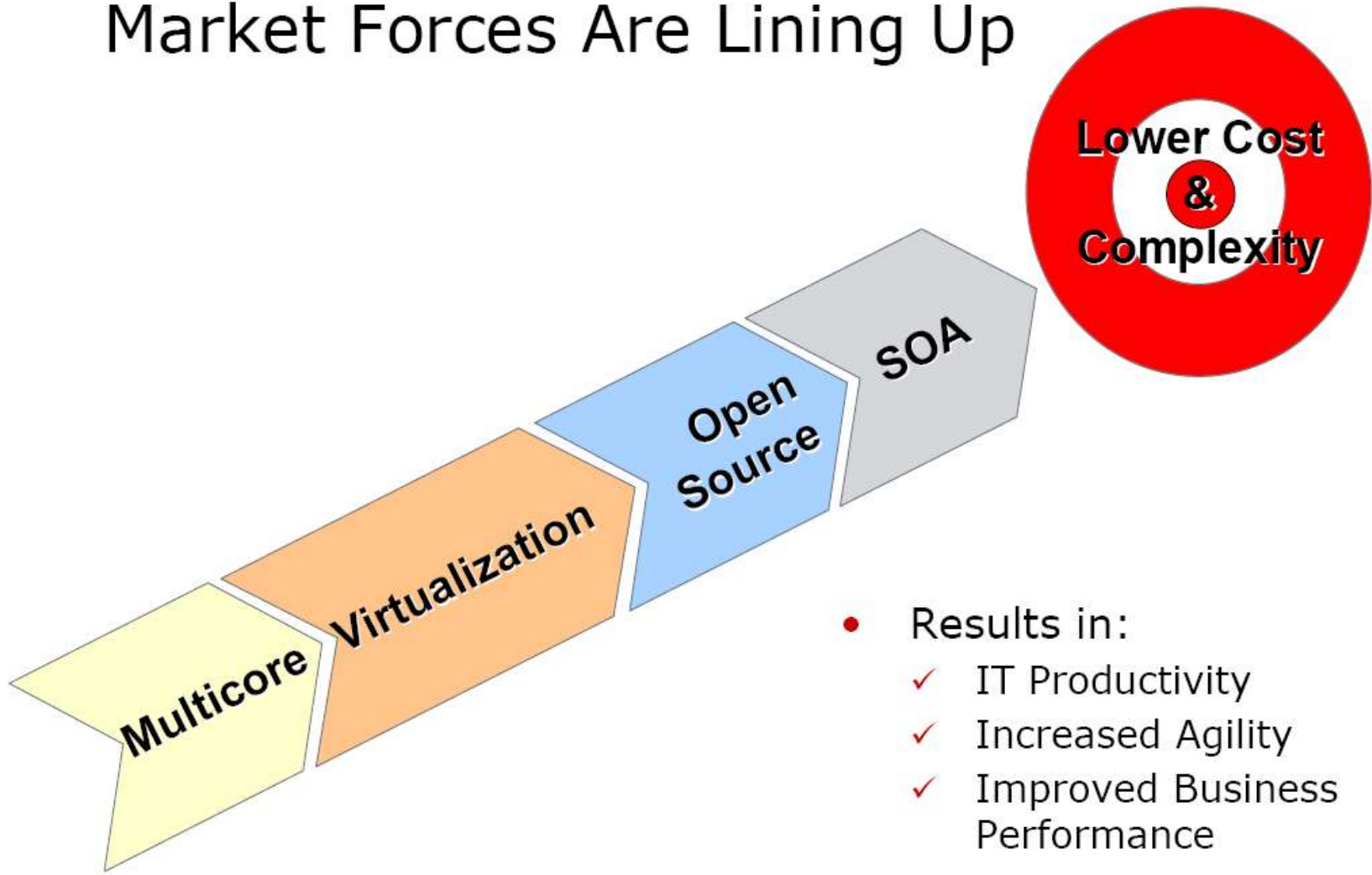> » The vision of SOA

Introduction

Problem:
Controlling the Costly Infrastructure Mess

Introduction

Market Forces Are Lining Up

Multicore

Virtualization

Open Source

SOA

Lower Cost & Complexity

- Results in:
  - ✓ IT Productivity
  - ✓ Increased Agility
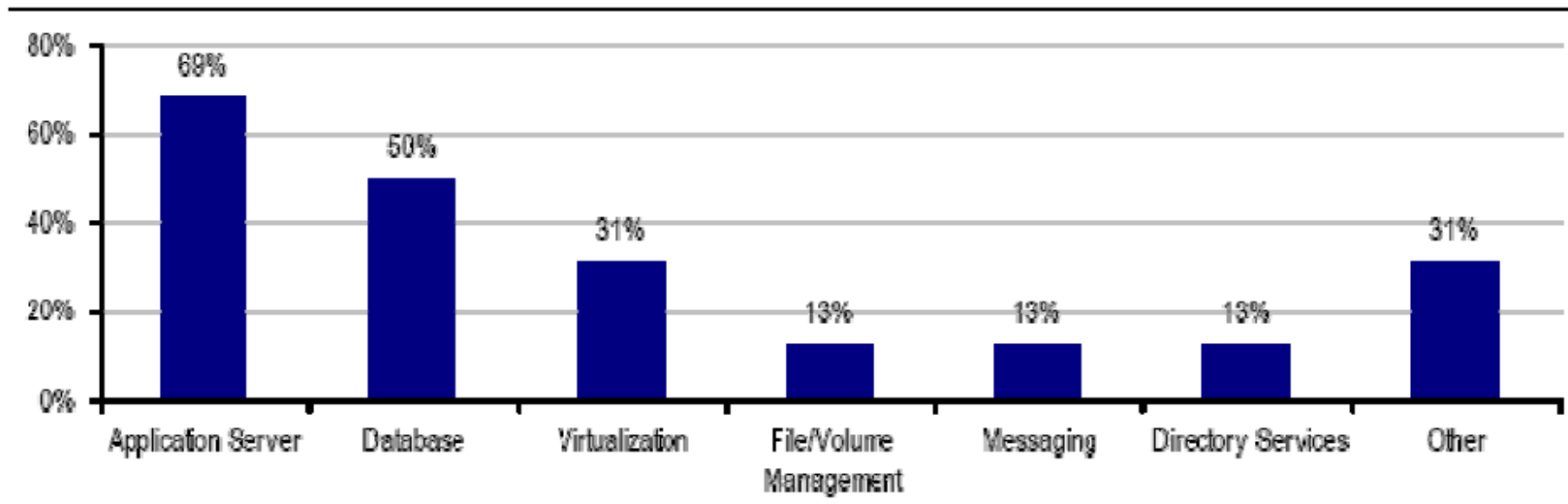 - ✓ Improved Business Performance

Introduction

Survey of CIOs on OSS Adoption

Chart 13: Likely Open Source Adoption Beyond the Operating System Layer

- Survey of 55 CIOs in Fortune 1000 across:
  - ✓ Financial Services, Construction, Retail, Consumer, Healthcare, Energy, Manufacturing, Materials, and Transportation

Reference: UBS CIO Pulse (Sep 6, 2005): A Quarterly Snapshot of IT Trends

JBoss History

▶ Started in 1999 as an open source EJB container

▶ JBoss 2.x was a J2EE compliant server

▶ The 3.x series started gaining recognition as an extensive framework for building & deploying enterprise applications

▶ JBoss 4: Aspect oriented middleware, independent of J2EE

JBoss History

▶ Developed by the Open Source community, JBoss established a massive fan base across the world

▶ JBoss is free software distributed under the LGPL license

▶ JBoss had won several awards as a J2EE application server

▶ Highlights:

  ✓ More than 5 million downloads

  ✓ Easy to use

  ✓ First in OEM/ISV – due to the open and modular nature

  ✓ 25% market share in production (3rd position)
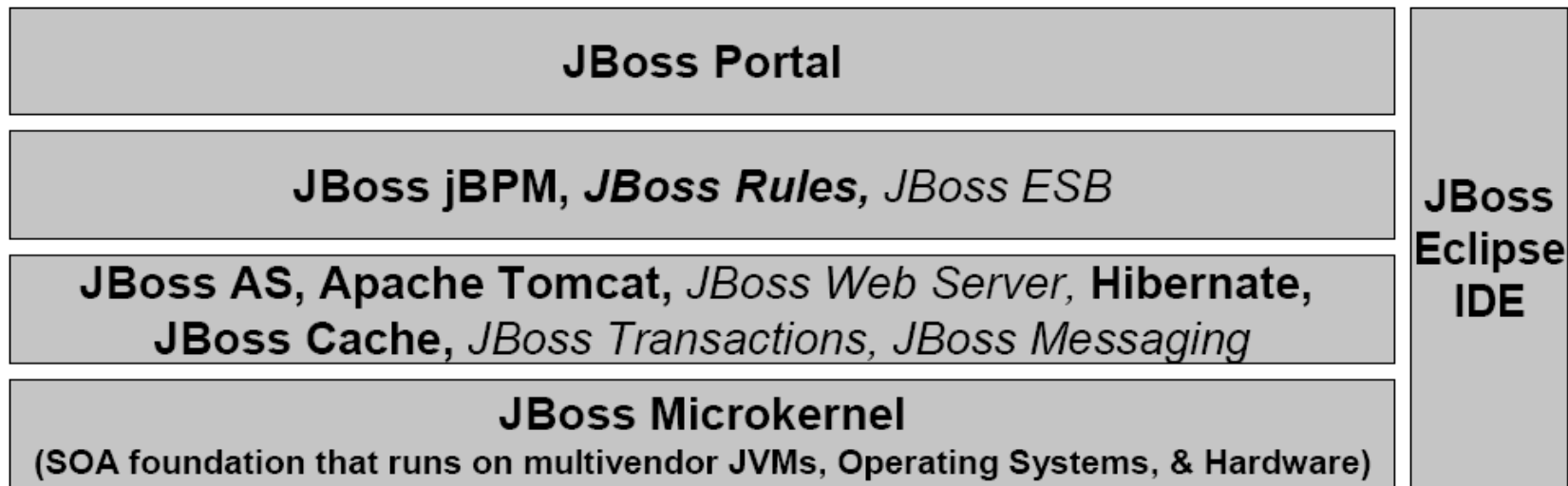
JBoss: Tech Cheatsheet

▸ Full microkernel approach based on Java Management eXtensions (JMX)

▸ Fully hot-deployable and cyclable service layer with Service Archive format (SAR)

▸ Fully automated and net based installation with hot-deploy of applications

▸ Full J2EE 1.4 support (EJB, JCA, JSP, JMX, HTTP etc)

▸ Full security implementation and JAAS integration

▸ Full clustering of any java objects (EJB, JMS, HTTP, POJO and custom services)

▸ Groundbreaking Aspect Oriented Programming model(behold, Spring devotees)

The JEMS Stack

JBoss Portal

JBoss jBPM, *JBoss Rules,* JBoss ESB

JBoss AS, Apache Tomcat, *JBoss Web Server,* **Hibernate,** **JBoss Cache,** *JBoss Transactions, JBoss Messaging*

JBoss Microkernel
(SOA foundation that runs on multivendor JVMs, Operating Systems, & Hardware)

JBoss Eclipse IDE

JEMS History

- ▶ 07/2004 JBoss AS 4 achieves J2EE 1.4 certification
- ▶ 10/2004 jBPM joins JBoss as JBoss jBPM 2
- ▶ 12/2004 JEMS officially unveiled
- ▶ 12/2004 JBoss Cache 1.2 released
- ▶ 03/2005 Hibernate 3 released
- ▶ 06/2005 JBoss Portal 2.0 released
- ▶ 06/2005 JBoss EJB 3.0 (Draft) and TrailBlazers released
- ▶ 09/2005 JBoss Seam 1.0 Beta unveiled
- ▶ 10/2005 JBoss AS 4.0.3 released w/EJB 3.0 and JSF
- ▶ 10/2005 Drools joins JBoss as JBoss Rules
- ▶ 10/2005 JBoss jBPM 3 launched
- ▶ 12/2005 JBoss acquires ArjunaTS as JBoss Transactions
- ▶ 12/2005 JBoss Portal 2.2 releases

JBoss Application Server

‣ Most widely used Java app' server on the market

‣ J2EE certified platform for developing and deploying:

  » Enterprise Java applications

  » Web applications

  » Portals

‣ Provides the full range of J2EE 1.4 features

‣ …as well as extended enterprise services including clustering, caching, and persistence

Apache Tomcat

▸ J2EE compliant servlet & JSP container...

▸ Used in the official RI by Sun

▸ Intended to be a collaboration of the best-of-breed developers from around the world

▸ Powers numerous large-scale, mission-critical web applications across a diverse range of industries

▸ Fully integrated with JBoss Application Server: configuration, authentication, clustering…

▸ Guaranteed future support(JBoss Web Server)

Hibernate

▸ Powerful, high performance ORM and query service

▸ Allows developing persistent classes using OO idioms: Association, Inheritance, Polymorphism, Composition, Collections

▸ Queries expressed using HQL, native SQL, or via Criteria API

▸ NHibernate subproject: port to .NET platform

▸ Fully integrated with JBoss Application Server via MBean configuration, JNDI SessionFactories and the HAR deployer

JBoss Eclipse IDE

▶ Series of integrated Eclipse plug-ins for building quality software applications

▶ Extends Eclipse and enables programmers to develop, deploy, test, and debug their JEMS-based applications without leaving the IDE

▶ Enables IT organizations to deliver greater value in less time

JBoss Eclipse IDE

▸ Highlights of JBoss Eclipse IDE include:

  » EJB 3.0 Project Wizard

  » JSP, HTML, and XML editors with syntax highlighting

  » Hibernate Tools

  » Aspect Oriented Programming (AOP) Tools

  » Wizards to ease and simplify J2EE development

  » Integrated debugging, monitoring, and lifecycle control of JBoss servers

  » Easy configuration and deployment of package archives

  » JBoss jBPM Graphical Process Designer

EJB 3.0

▶ EJB 3.0 is a deep overhaul and simplification of the EJB spec

▶ Its goals are to simplify development, facilitate TDD, and focus more on writing POJOs rather than on EJB APIs

▶ Allows you to use the new persistence API in plain Java applications

JBoss EJB 3.0

▶ JBoss EJB 3.0 is an implementation of the EJB 3.0 spec…

▶ Uses Hibernate as the Java Persistence engine via Hibernate EntityManager

▶ Usable outside of the container, also for Session Beans and Message Driven Beans:

   » Standalone programs

   » JUnit tests

   » Standalone Tomcat

   » Other application servers…

JBoss jBPM

▶ Powerful workflow, BPM, orchestration (BPEL) and web application pageflow platform

▶ Enables creation of business processes that coordinate between people, applications and services

▶ Designed for the mass market as well as supporting enterprise scale applications

▶ Opens up process automation to a much wider market

JBoss jBPM

▸ Combines easy development of workflow applications with a flexible and scalable process engine

▸ The JBoss jBPM process designer graphically represents the business process steps in order to facilitate a strong link between the business analyst and the technical developer

▸ Packaged as a simple Java library, can be used standalone or with an application server

▸ Enables easy change of complex business processes, enhancing business agility

JBoss Seam

▸ Application framework for Java EE 5

▸ Compatible with any application server that supports EJB 3.0 and JSF 1.1

▸ Unifies the component models of JSF and EJB 3.0, providing a streamlined programming model for web-applications

▸ Based on *declarative application state management* for POJO components

JBoss Seam

▶ Seam components are stateful and contextual, with a well-defined container-managed lifecycle

» Relatively easy to write applications with complex workflows and complex user interactions

» This approach helps solve a whole class of bugs and performance issues in non-linear or multi-window navigation

▶ Web applications made easily testable

▶ Fully integrated with JBoss jBPM (state management)

JBoss Rules

▶ Business Rules Engine, based on the popular *Drools* project

▶ Announced at JBoss World Barcelona, October 2005

▶ Important step in the evolution of JEMS as an SOA platform

▶ Allow organizations to easily customize their products and service offerings using business rules that can be applied across an SOA based on actions, events and historical activities

JBoss Rules

▶ Developers will be able to deploy a rule to quickly and continuously make consistent decisions based on hundreds of thousands of facts

▶ This process reduces the amount of time it takes to evaluate business processes and manually update applications deployed across an entire enterprise

▶ Coming in Early 2006 as part of the JBoss Subscription...

JBoss Portal

▸ Today's top enterprises look to achieve a competitive advantage by deploying enterprise Portals within their IT infrastructure...

▸ JBoss portal is an open source platform for hosting and serving a portal's Web interface:

» Content publishing

» Management

» Customized experience

» Flexible, scalable

JBoss Cache

▸ Cache frequently accessed Java objects

▸ Dramatically improve performance of e-business applications

▸ Decreases network traffic

▸ Increases application scalability

▸ Provides two caching APIs:

» Traditional, tree-structured node-based cache

» JBossCacheAOP API, for performing fine-grained object replication, for maximum performance

JBoss Transactions

▶ Technology purchased from Arjuna Technologies and HP on December 5 2005

▶ Java and Web Services distributed transaction management technology

▶ One of the most advanced transaction engines in the world, with a 20-year-old pedigree(שושלת(

▶ The market's only implementation supporting WS-TX and WS-CAF (WS Composite Application Framework) specs

▶ Release planned by the end of Q1 2006

JBoss TrailBlazers

▶ Tutorials and demo applications designed to alleviate setup and knowledge acquisition with JBoss products and technologies

  » EJB 3.0

  » Seam Tools

  » Seam DVD Store

  » Seam Booking Guided Tour

  » POJO Clustering / Caching Guided Tour

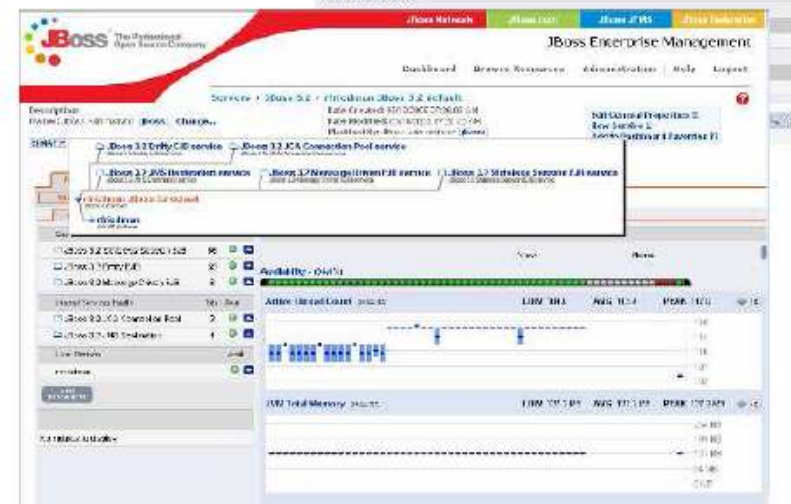 » JBoss Eclipse IDE TrailBlazer

  » DVD Store Demo Application

JBoss Microcontainer

▶ Lightweight container for managing POJOs, their deployment and configuration

▶ Project goals include:

» Provide POJO configuration management, support for dependencies, and support for clustering

» Enable JBoss services to be easily deployed in the other containers

» Allow the features to be used in more restrictive environments (e.g. Applets, J2ME, etc.)

» Make the JBoss Microcontainer available as a standalone project

JBoss Operations Network

- Manage and monitor your entire JEMS environment

- Rollout patches and upgrades automatically

- Provision new environments easily

- Maintain complete audit trail

JBoss ON Modules

▶ **Inventory Module**
  - » Auto discover JEMS resources
    - • Platforms, servers, applications, services
  - » Process tables, file systems and registry

▶ **Administration Module**
  - » Control JEMS infrastructure: Start, stop, re-start
  - » Apply to single nodes, applications or clusters
  - » Automatic actions(alerts, schedules)
  - » Roll-back to previous versions if needed

▶ **Monitoring Module**
  - » Statistics
  - » Agent based(JEMS, Apache web server, OS, FS)
  - » Alerting Actions(Conditional, Dampering)
  - » Baselines from historical data

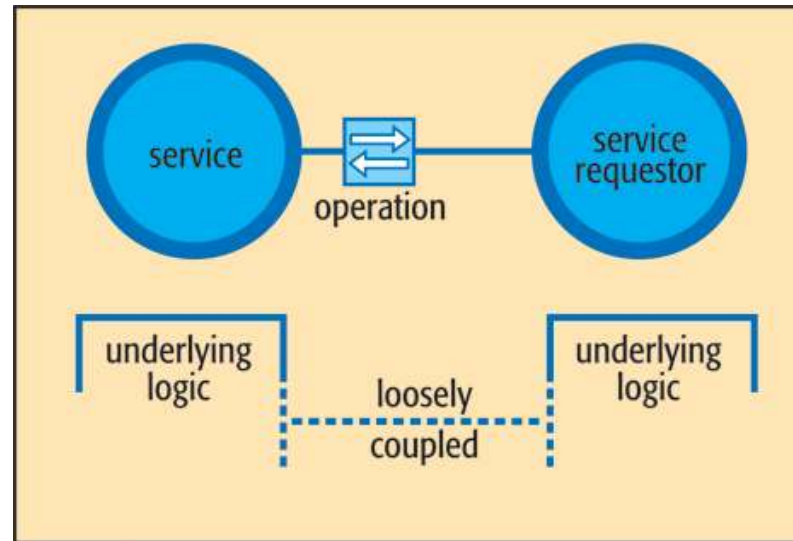▶ **Upcoming modules: Updater Module, Provisioning Module**

Introduction

Software of the Future

Traditional Applications ➡	Service Oriented Architecture
Designed to last	Designed to change
Tightly coupled	Loosely coupled, agile and adaptive
Integrated silos	Composed of Services
Code-oriented	Process-oriented
Long development cycle	Interactive and iterative development
Cost-centered	Business-centered
Middleware makes it work	Architecture makes it work
Favors homogeneous technology	Favors heterogeneous technology

The Future: Vision of SOA

▸ *Service Oriented Architecture*

▸ IT strategy that is designed to breakdown monolithic applications into discrete business services that can be shared and reused across the enterprise using standards that improve their interoperability
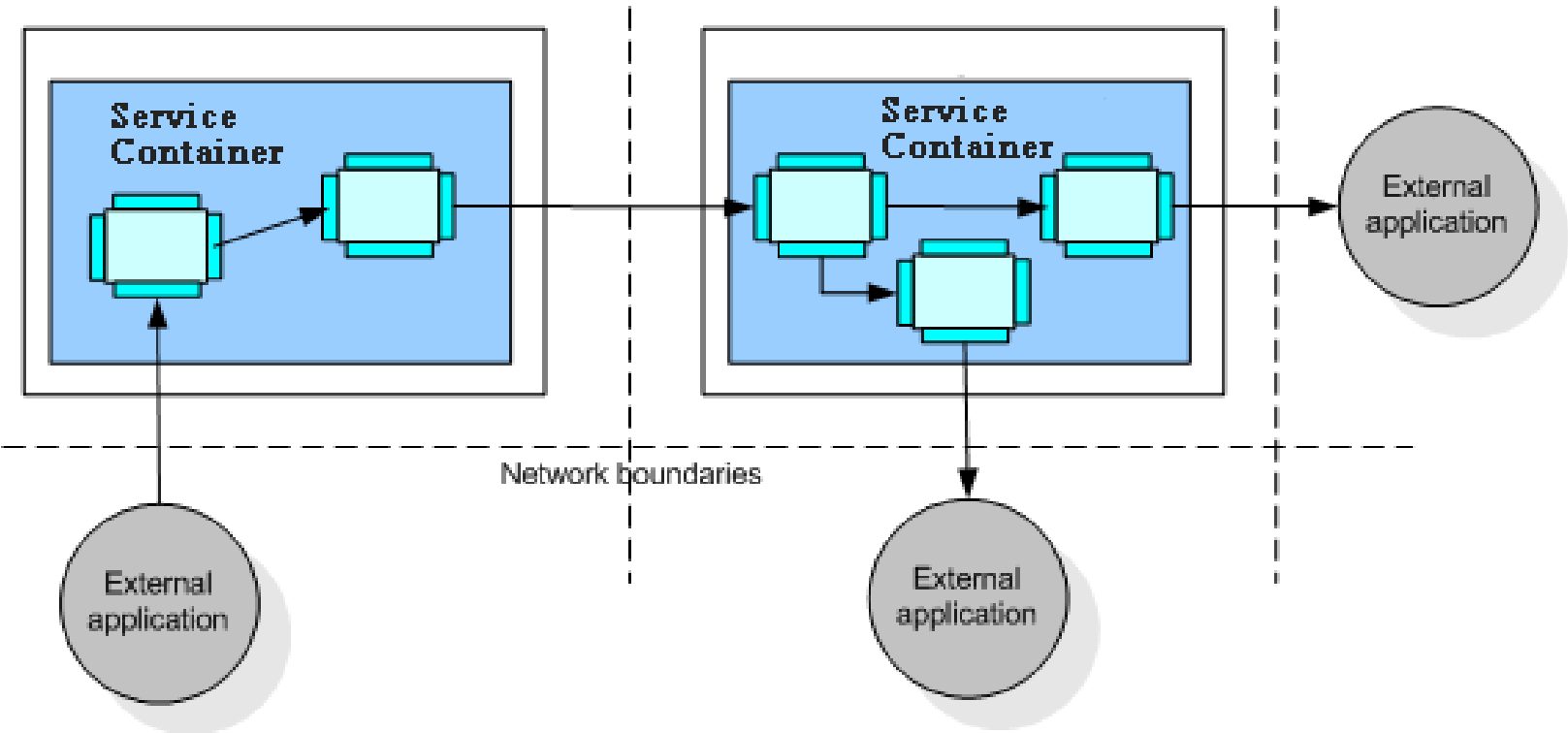
The Implementation: ESB

‣ *Enterprise Service Bus*

‣ Emerging standard for integrating enterprise applications:

» In an implementation–independent fashion

» At a coarse–grained service level (leveraging the principles of SOA)

» Via an event–driven and XML–based messaging engine (the bus)

» Intended to Support a large range of transport protocols: TCP, UDP, FTP, POP3, IMAP, Http, WS, Jabber, WebDAV, SSL, SOAP, File, EJB and others…

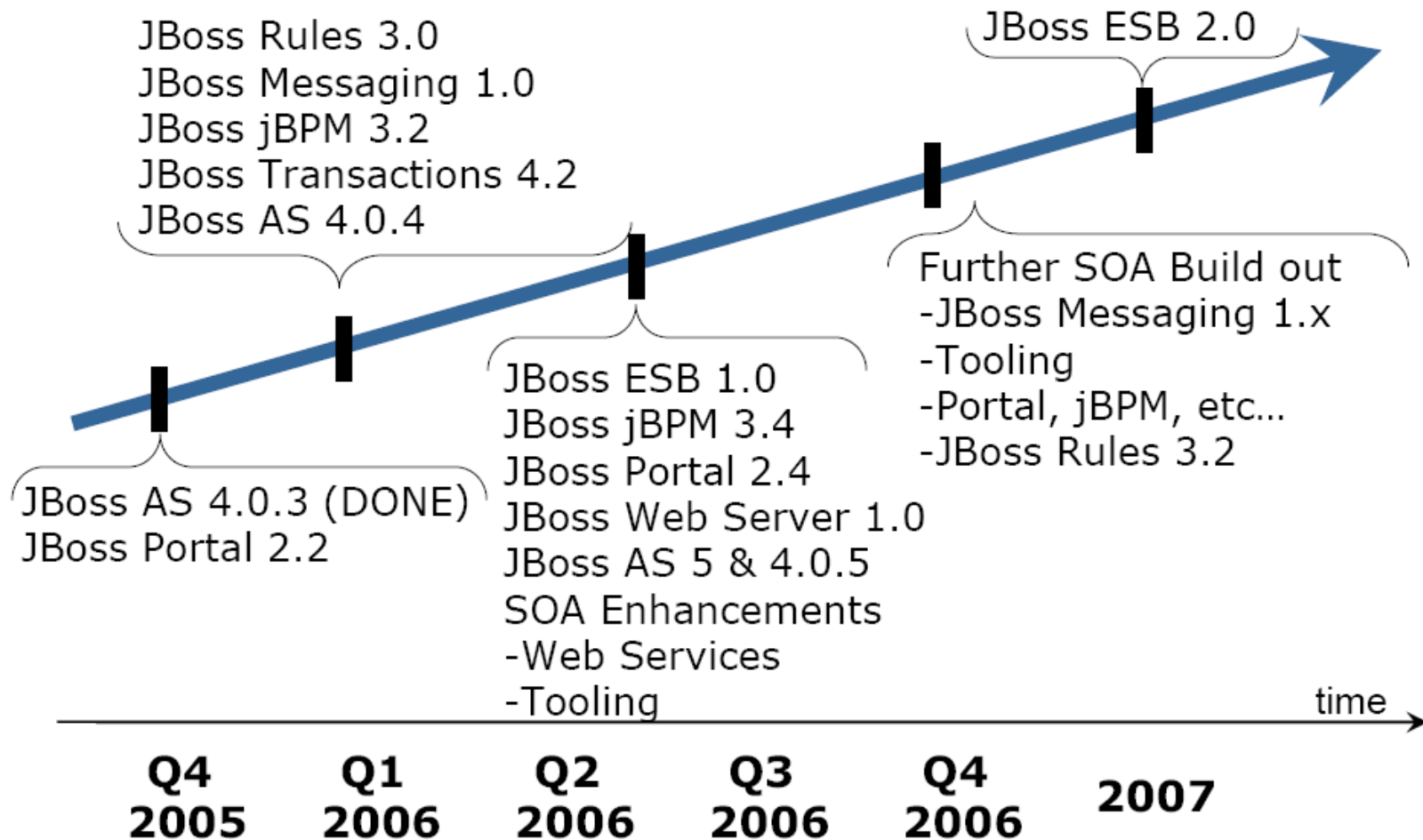‣ An ESB frequently is a delivery vehicle for an Enterprise Messaging System

Sample ESB Topology

JEMS 2006 Roadmap

JEMS 2006 Roadmap

JBoss Rules 3.0
JBoss Messaging 1.0
JBoss jBPM 3.2
JBoss Transactions 4.2
JBoss AS 4.0.4

JBoss ESB 2.0

Further SOA Build out
-JBoss Messaging 1.x
-Tooling
-Portal, jBPM, etc...
-JBoss Rules 3.2

JBoss ESB 1.0
JBoss jBPM 3.4
JBoss Portal 2.4
JBoss Web Server 1.0
JBoss AS 5 & 4.0.5
SOA Enhancements
-Web Services
-Tooling

JBoss AS 4.0.3 (DONE)
JBoss Portal 2.2

time

| Q4 2005 | Q1 2006 | Q2 2006 | Q3 2006 | Q4 2006 | 2007 |

Q&A

Thank You

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