JBoss World 2006 — LAS VEGAS

Implementing an Open Source SOA

A JBoss Success Story

Bruno Georges, Glencore International AG

Agenda

- About Us
- Reasons to Consider JBoss
- Share our experience and challenges
  - ✓ Migrating to JBoss
  - ✓ Operations with JBoss ON
  - ✓ Implementing an Open Source SOA
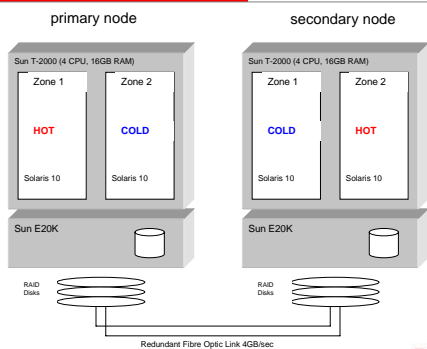- Next Steps
- Key Messages

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About Us

- Founded in 1984
- One of the biggest privately owned commodity trading companies in the world
- US$ 91.0 billion turnover in 2005
- 2000 employees worldwide
- 50 offices in 40 countries

GLENCORE INTERNATIONAL AG

"A major participant in the global flow of natural resources..."

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Application Landscape

- Client Server
  - ✓ Accounting/Finance
  - ✓ Traffic and Physical Operations
- Web Applications
  - ✓ IT Governance
  - ✓ Price Feeds
  - ✓ New Trading Applications
- J2EE Based Service Architecture
  - ✓ Core Business Services
  - ✓ Infrastructure Services

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Physical Architecture Layout

primary node	secondary node
Sun T-2000 (4 CPU, 16GB RAM)	Sun T-2000 (4 CPU, 16GB RAM)

primary node — Sun T-2000 (4 CPU, 16GB RAM)
- Zone 1: **HOT** — Solaris 10
- Zone 2: **COLD** — Solaris 10
- Sun E20K
- RAID Disks

secondary node — Sun T-2000 (4 CPU, 16GB RAM)
- Zone 1: **COLD** — Solaris 10
- Zone 2: **HOT** — Solaris 10
- Sun E20K
- RAID Disks

Redundant Fibre Optic Link 4GB/sec

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Implementing JBoss

How did we get there?

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Reasons to consider JBoss

- SOA Workshop
  - ✓ Global Commitment to investigate open source alternatives
- Business Context
  - ✓ Licensing / Total Cost of Ownership
  - ✓ Promoting SOA to other sites optimizing costs
  - ✓ Time to Market

Reasons to consider JBoss

- Support
  - ✓ Need for responsiveness
  - ✓ Network of certified partners
- Development
  - ✓ Strong preference for Open Source
  - ✓ Relies on externals rather than internals
  - ✓ Complexity and dependence on infrastructure code
  - ✓ Training

Migrating to JBoss

- Migration Project initiated
- Phased Approach
  - ✓ Conduct Initial Assessment
  - ✓ Build a Team
  - ✓ Prepare Planning and scoping
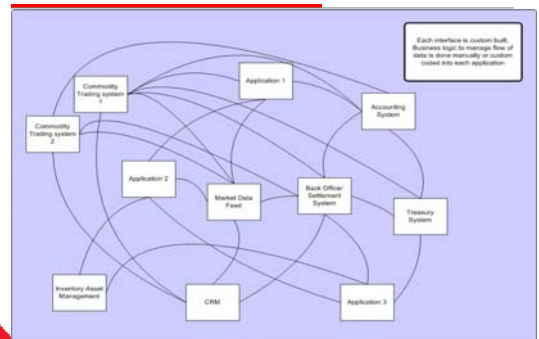 - ✓ Decision – Go / No Go
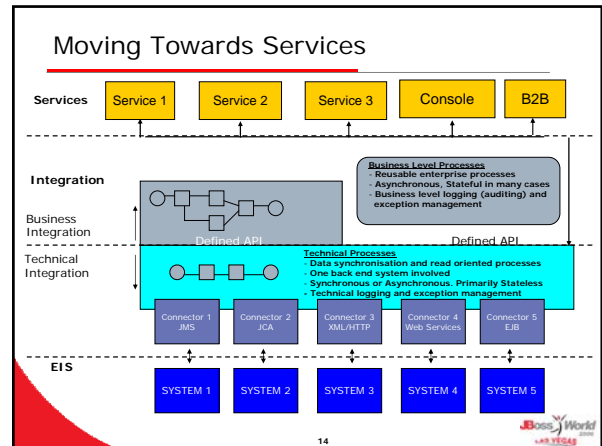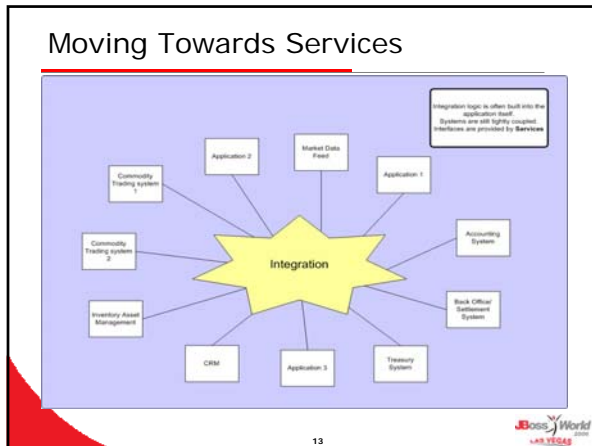 - ✓ Migrate

Communicating the changes

- Who likes changes?
  - ✓ Communicate vision and direction
- Buy-in
  - ✓ Inform and promote
  - ✓ Education and Training
- Transparency
  - ✓ Communicate clearly and regularly
- Collaboration
  - ✓ Build a TEAM

Open Source SOA

Open Source SOA – Where did we start?
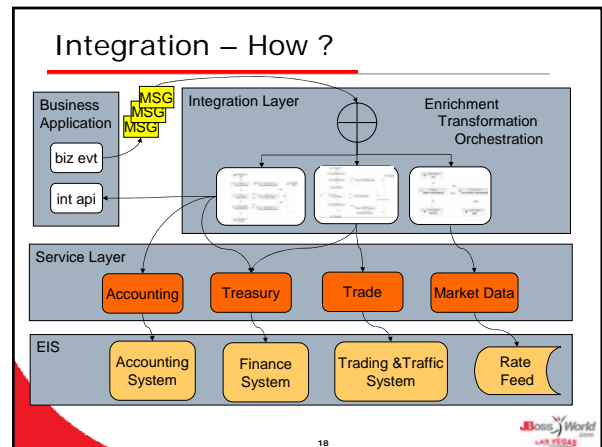
Moving Towards Services

Moving Towards Services

Moving Towards Services

Roles & Responsibilities

- Business Integration Architect
- Technical Integration Developer
- Additional roles, to support the successful deployment and operation:
  - ✓ Project Management
  - ✓ Build Management and Deployment
  - ✓ Testing
  - ✓ Operations
  - ✓ Support

JBoss Integration

How did we integrate our SOA?

Integration Requirements

- Decouple Services from consuming applications
- Fast transformation and orchestration
- Transactional, Resilient and Robust
- Common network infrastructure
- Common standards such as XML and SOAP to aid reuse

Integration – How ?

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Promoting Reuse

PROCESS
- Message Broker
- Integration Patterns
- Exception Management

REUSE

DATA
- Enterprise Data Model
- Referencing and Mapping

CONNECTIVITY
- Standards based
- Off the shelf adapters
- Fine and coarse grained interfaces

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Integration Patterns

Publish/Subscribe

Trading App → Integration Layer → Service / System B

Pub/Sub
- Loosely coupled integration
- Coarse grained messages
- Event based
- Enterprise Data Synchronisation

Technology choices:
- XML/JMS
- Message Broker

Asynchronous Request/Reply

Trading App → Integration Layer → Service

Asynchronous Request/Reply
- Loosely coupled integration
- Coarse grained messages
- Message correlation
- Inter system conversation

Technology choices:
- XML/JMS
- Message Broker

Synchronous Request/Reply

Web App → Integration Layer → Trading App

Synchronous Request/Reply
- Low latency requirements
- More tightly coupled integration
- Fine grained messages
- Portal oriented use cases

Technology choices:
- SOAP/HTTP (Web Services)
- EJB (JCA Application View)

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Process Management with jBPM

- jBPM
  - ✓ In the integration layer for Process Flow Orchestration.
  - ✓ Best of breed solution for both Developer and Analyst.
  - ✓ Fast Iteration
  - ✓ Lightweight
  - ✓ Communicate on a level of the picture between the developer and the business analyst

business analyst

developer

```
<process-definition
  name="booking-request">
    <start-state name="start">
..
<end-state name="success"/>
</process-definition>
```

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Transaction with JBoss TS

primary node

secondary node

Requests

Zone 1	Zone 2
Forex App + Services	Rate Feed + Services
Integration + Services	Trade App + Services
HOT	COLD

Requests

Zone 1	Zone 2
Forex App + Services	Rate Feed + Services
Integration + Services	Trade App + Services
COLD	HOT

Transaction log

Replication

■ = JMS Provider

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JBoss Components

Business/Client Application	Integration Layer	Services	EIS
Apache Tomcat			
	JBoss jBPM		
	Hibernate		
		JBoss Transaction	
JBoss Application Server			
JBoss Operation Network			

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Development Framework

Unified Development

Front End / UI: SOAP Client, Smart, SWT, Thin

Middleware: SOAP, jBPM, Spring / Hibernate, EJB

Test, Build & Deploy, Logging

J2EE Application Server

JBoss — The Professional Open Source Company

Scalability · High Availability · Performance · Distributed Transactions

Manageability · Messaging · Compatibility & Standards · Security

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Measuring success and ROI

- Investment in Quality and Staff Development not in Licenses
- Changes are not only in the binaries, they are reflected at every layer of the IT organization
- Faster delivery cycle
- Increase response time

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Next Steps

- Architecture
  - ✓ Integration Standards. JBI?
  - ✓ JBoss ESB
- Application Development
  - ✓ EJB3
  - ✓ AOP
- Operations with JBoss ON
  - ✓ Monitoring
  - ✓ Provisioning

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Key Messages

- Build on existing assets and common network infrastructure
  - ✓ Use of Standards to leverage existing application logic to remote process/clients
- Flexibility to orchestrate composite applications across the enterprise
  - ✓ Choose the right BPM for your needs
- Challenges are not only technical
  - ✓ The success of an SOA relies on the Enterprise to agree on a set of common, corporate wide business processes, rules and logic
- Keep It Simple and Standard

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Questions?

bruno.georges@glencore.com

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