

# MIZUHO

## Our JBoss Experience

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## Agenda

- Introduction
- Background
- The Project
- The Problem
- Road to JBoss
- Conclusions
- Q & A

## MHI Introduction

- Mizuho International Plc (MHI)**
  - Securities & Investment banking services
  - Based in London (est. 500 staff)
  - Subsidiary of Mizuho Securities, Tokyo
  - Part of the Mizuho Financial Group (MHFG)
- Mizuho Financial Group (MHFG)**
  - Formed 2002, merger of 3 leading banks
  - One of the world's largest banking groups
  - Japan's premier financial services group

**Jeff Mitchell**

- Lead Architect, MHI Enterprise Architecture
- Jointly responsible for MHI development strategy
- Primary goal to achieve an open SOA build out
- Initial focus on MHI's proprietary EAI/BPM platform

## Introduction

# Background of our Proprietary EAI/BPM...

## Pre- EAI/BPM Platform

- Up until 2000 80% of MHI business applications were running on a single monolithic COBOL platform
  - ✓ Centralised business data
  - ✓ Ease of data integrity (local transactions)
  - ✗ Limited means of meeting business demands
  - ✗ No means of leveraging new technologies

## Pre- EAI/BPM Platform

- In 2000 MHI undertook an initiative to migrate business applications from the monolithic platform to "best of breed" packaged applications
  - Off-the-shelf third-party applications
  - MHI developed applications

## Pre- EAI/BPM Platform

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- Disparate app landscape
- Distributed data
- Exponential interfacing

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## Birth of EAI/BPM Platform

- MHI EAI project was born out of disparate application issues
- Implemented as proprietary EAI application framework

- Pub/Sub msg backbone

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## Proprietary EAI/BPM Platform

- MHI EAI project was born out of disparate application issues
- Implemented as proprietary EAI application framework

- Pub/Sub msg backbone
- Single point integration
- Guaranteed data delivery
- Fences in app specifics
- Exposes business events

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## Proprietary EAI/BPM Platform

- Centralised Coordination Through Business Process Modeling

- Business centric processes
- Independent of the apps

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## Proprietary EAI/BPM Platform

- Shift in User Responsibility

- Business centric processes
- Independent of the apps
- User managed exceptions
  - Alerting
  - Resolution
  - Replay
- User process configuration
  - Data mapping
  - Simple transform rules
  - Event routing

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## Proprietary EAI/BPM Platform

- Limited Shift in Development Responsibility

- EAI/BPM Responsibilities
  - Implementation framework
  - Business process models
  - Central message definition
- Application Responsibilities
  - Support of their interface
  - Event transform
  - Event routing
  - % of app API connectivity

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## Mission Critical Platform

- Current "Mission Critical" Platform

- Supporting 30 applications
- Event volume circa 50,000 (average per day)
- £12 billion / \$20 billion (average nominal daily trade value)
- 80% static data events
- 20% trade events

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## Breaking the Camel's Back

- EAI/BPM vendor underwent a major version upgrade
- Vendor upgrade required us to...
  - Port all interfaces and BPM's to the vendor's upgraded (new!) platform
  - Upgrade the JDK
  - Upgrade database server
  - Re-iterate unit, integration, and user acceptance testing
- The effort required for this upgrade was nearing that of a complete platform change
- Existing licensing cost issues were contributing to
  - Inhibiting deployment solutions based on financial constraints
  - Limiting the number of developers (licensed per developer seat)
- Proprietary apps were undergoing a shrinking presence in EAI
- Afforded us the opportunity to look around a very changed market

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## Rebuilding the Camel !

# Road to JBoss...

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## Roadmap – Market Review

- Current Vendor EAI/BPM Upgrade and Other Proprietary Solutions
  - Rich quick start GUI, but low ceiling of productivity for experienced developers
  - Working within "black box" with no access to the source
  - Licensing costs → financially constrained deployments = restricted solutions
- Further Adoption of Open Source
  - Significantly matured technologies
  - Technologies being ratified in 2000/2001 are now de-facto standards
  - No licensing costs → no financial constraints = unrestricted solutions
  - No professional support → perceived as problematic for "Mission Critical" platform
- JEMS
  - Open source
  - No license fee → facilitates low barrier to entry
  - Wealth of non-proprietary components in a pluggable architecture
  - Professional support network

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## Roadmap – JEMS Paper Evaluation

- Proprietary v JEMS based on high level feature matching

Proprietary Platform	JEMS Platform
Implementation Framework	Open JEE Framework
Transaction Manager	JBossJTA / 3 <sup>rd</sup> party alternative plug-ins
Pub/Sub Messaging	JBossJMS / 3 <sup>rd</sup> party alternative plug-ins
Connector Architecture API	JBossJCA (Java Connector Architecture 1.5)
Business Process Modeling	jbPM / et al
Object Persistence	Hibernate

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## Roadmap – JEMS Paper Evaluation

- On comparison JEMS components provided a viable alternative
- JEMS most notable aspects
  - Pluggable architecture allowed for interchangeable components
  - Expert technical support based on professional service agreement
  - Large user community, including commercial use
  - Company deemed financially stable with positive future
- Recommended three month pilot
- Two JBoss Professional Silver Support contracts

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# Roadmap – JEMS Pilot

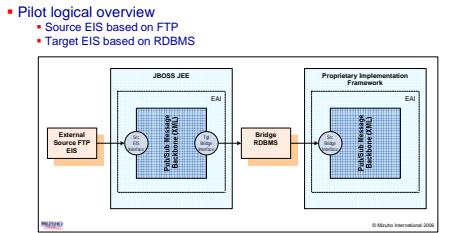


- Pilot Scope**
  - Sourcing data events from an external EIS
  - Routing data events across a publish/subscribe backbone
  - Distributing data events to an internal database
  - Ability to replay data from an exception handler application
  - Ability of each interface (logical component grouping) to intelligently recover/retry
- Specific focus on transactional integrity and messaging performance**
- Pilot was based on**
  - JBoss AS 4.0.1 (single server instance)
  - JBossMQ (Sybase persistence)
  - JBossJTA
  - JBossJCA
  - Tomcat
  - J2EE 1.4
  - Solaris 8

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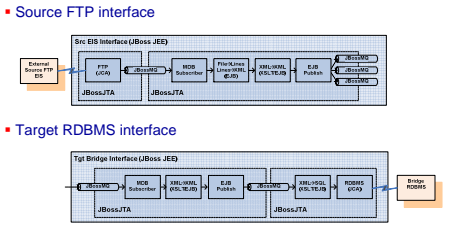
# Roadmap – JEMS Pilot Overview



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# Roadmap – JEMS Pilot Detail



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# Roadmap – JEMS Pilot Txn Issue

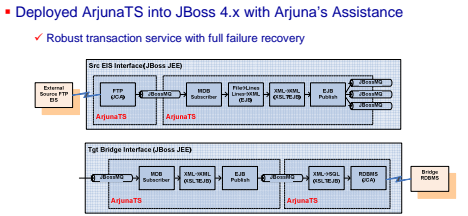
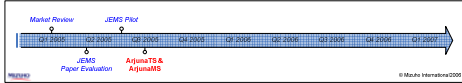


- JBossJTA Recovery Issue - Show Stopper**
  - No failure recovery in the event of catastrophe
- JBoss Plug-in Architecture → Options for JBossJTA Replacement**
  - JOTM (Java Open Transaction Manager)**
    - Open source
    - Concerns of support when this is for a Mission Critical platform
  - ArjunaTS**
    - Recommended by JBoss
    - Wealth of experience within transactional field
    - Used by TIBCO and other established enterprise vendors
    - Professional support
    - Proprietary software

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# Roadmap – JEMS Pilot Txn Solution



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# Roadmap – JEMS Pilot Msg Issue



- JBoss Site References → positive experiences of JBoss customers**
- Reference site replaced JBossMQ due to performance issues**
- JBossMQ**
  - JBossMQ was not always as performant as other JMS providers
  - JBossMQ has no failure recovery
- ArjunaMS as alternative**
  - Performant
  - Fully transactional
  - Proprietary
  - Not able to run within JBossAS; must run stand-alone

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## Roadmap – Phase 1 Actual Rollout

- Platform**
  - ✓ Dell / Red-Hat Linux
  - ✓ JEE 5
  - ✓ Sybase
- JEMS**
  - ✓ AS
  - ✓ JBoss Transactions
  - ✓ JBoss Messaging
  - ✓ JCA
  - ✓ Tomcat
  - ✓ AOP
- Third-party**
  - ✓ Hermes.JMS
- MHI Initial**
  - ✓ Core modules
  - ✓ JBoss/Proprietary bridge
  - ✓ Calendar static data feed

## Roadmap – Phase 2 Goals

- JEMS**
  - ✓ JBoss Clustering
  - ✓ EJB3.0 / Hibernate
- MHI Static**
  - ✓ Party and asset static data feeds
  - ✓ Ratings static data feeds
  - ✓ CB static data feed
  - ✓ Custody static
  - ✓ Reconciliation static
  - ✓ Regulatory static
  - ✓ London → Tokyo static feeds
  - ✓ Static data warehouse
- MHI Trade**
  - ✓ First vendor trade feed
- External Projects**
  - ✓ Porting proprietary AS to JBoss

## Roadmap – Phase 3 Goals

- JEMS**
  - ✓ JBP
  - ✓ JBossON
- MHI Trade**
  - ✓ Trade allocations feed
  - ✓ Fixed income trading system
  - ✓ External broker feeds
  - ✓ Futures trade feed
  - ✓ Repo trading system
  - ✓ Positions & Records
  - ✓ MTN trading system
- MHI Business Process Modeling**
  - ✓ Fixed income booking
  - ✓ Repo booking
  - ✓ Client allocations
  - ✓ Back office
  - ✓ Exception Status

## Roadmap – Phase 4 and Beyond...

- JEMS**
  - ✓ JBossESB
- MHI Modules**
  - ✓ Deprecate the JbBridge
- Service Oriented Infrastructure**
  - ✓ Storage area network (SAN)
  - ✓ Grid computing
  - ✓ Server virtualisation
- Service Oriented Applications**
  - ✓ From site to services
  - ✓ Geographically agnostic
- Service Oriented Enterprise**
  - ✓ Business architecture
  - ✓ Technical architecture
  - ✓ Governance

## MHI SOA Perceptions

- MHI's SOA is about making IT more agile**
  - High profit margins are available on initial trading of new financial products
  - IT is struggling to meet these initial fluid requirements from day 1
  - We need a more adaptable approach
- Leveraging an SOA architecture based on an EAI platform**
  - Similar paradigms → head start with the EAI architecture?
  - EAI is not SOA
  - Need to address constituents and granularity of a service
- Leveraging an SOA architecture from our silo applications**
  - Paradigm shift is much greater
  - Similar questions of a service
- SOA driven from an Enterprise Architecture**
  - loosely coupled
  - highly cohesive
  - business focused → marry business architecture to the technical architecture
- JEMS can provide core components for a full open SOA build out**

## Open Source Full Circle

- MHI has an ongoing strategy to adopt open source apps that are**
  - Mature
  - Robust
  - Open and standard
- Open Source adoption in development has been good to date**
  - Eclipse
  - CruiseControl
  - CVS and subsequently Subversion
  - Various Apache projects (HTTP Server, Tomcat, libraries and frameworks)
- Open sourcing MHI developed financial connectors**  
(subject to vendor license agreements, where applicable)
- Open sourcing our developed connectors would...**
  - Provide off the shelf connectivity for any applications adhering to JCA 1.5
  - Eliminate API development costs – circa 50% of an integration project costs
  - Beneficial to both vendor and clients
  - Potential issue of some vendor's licenses being too restrictive to participate fully

## Have We Taken the Right Road?

- Have our component selections been right?
  - Yes, we believe so.
  - Does it matter? We've already demonstrated the ease of plugging in alternatives
- Does the JEMS professional support work?
  - We have had good experience of dealing with JBoss's professional developers
  - We are no longer being asked "have we tried turning it off and on?"
- What is the business impact of our EAI/BPM replacement?
  - Confirmed
    - Hard to say at this point – we are at the start of our build out
  - Forecast
    - More performant and scalable infrastructure
    - Agility in meeting the business → building on common standard technologies
    - Zero licensing
      - financial savings
      - unfettered technical solutions
    - 24x7 availability, even with planned down-times
- Our views on the RedHat Acquisition of JBoss
  - Seen as a positive acknowledgement of JBoss's presence and future potential

## Our JBoss Experience

### Thank-you for your time...

For further details contact

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## Our JBoss Experience

### Q & A...

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### Our JBoss Experience *to date*...

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June 2006

## Reference Slides

### Additional Reference Material

## Interface Anatomy Concepts

- Focusing on the components within a source interface...

The diagram illustrates the flow of data from a source interface through several processing stages. On the left, a box labeled 'Source Interface' contains 'EAI & Integration (Source)', 'EAI & Integration (Target)', 'Generic Transform', 'Semantic Transform', and 'Publish'. Arrows indicate the flow from left to right through these stages. On the right, a box labeled 'Conceptual Components' contains a complex network of nodes and connections, representing the underlying architecture of the system.

