J6Boss Migration Solution (JBMS)
Unisys Corporation
JBoss Migration Solution (JBMS)
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Unisys - Open Source – A Trusted Advisor

- Why use Open Source
- Where to use Open Source
- When to use Open Source
- How to use Open Source
- How to secure your Open Source investment
Why do Customers Migrate App Servers?

**Common Reasons**

- Reduced / No availability of support for current application server
- Escape Vendor “lock-in” and control
- Agility in terms of growth of systems
- Merger with another company (standardization effort of heterogeneous applications)
- Standardization with other IT applications or systems in company (support consolidation)
- Steadily rising Total Cost of Ownership (TCO)
- Better Technology
Why People Migrate?

Migration Challenges

JBoss Migration Solution (JBMS)
The Vision and Value

JBoss Migration Solution (JBMS)
The Methodology and Toolkit

Lessons Learned and Case Studies
Migration is About Managing Change

Typical Migration Concerns and Issues

- My current application works fine. Why do I need to migrate?
- What technology / business benefits will I get after migration?
- How can I achieve migration without impacting my current customers?
- How much will it cost? How long will it take?
- How will I accommodate the migration effort in my schedule?
- Where will I get skills / training for the migration?
Plan Challenges

A typical migration project:

- Single event
- "Artifact-less"
- Manual
- Time/Resource Intensive
- Error-prone
- Poorly Communicated
- Poorly Scoped
Application Challenges

- No SME’s
- No Tests
- Use of proprietary code/libraries
- Non-frozen base
- Multiple migration factors
- Poor coding practices
Our Migration Experience – The request

- Internal and External Projects
- Common tasks (different scenarios)
  - Enterprise migration (e.g. OS too)
  - Operation changes
  - Upgrading Skills
  - Hybrid production
  - Server configuration
  - Code not frozen
  - Refactoring needs
  - No tests/Subject matter expert
  - Use of proprietary features
  - J2EE compliant application

FACT: No two migrations are the same!
Why People Migrate?

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Lessons Learned and Case Studies
The Opportunity

- What we saw
  - Need for a process
    - Assess
    - Implement
  - Repeatable tasks
  - Need to communicate/share resolution to common tasks
  - Need to scale capability
  - Great Java/Open Source skills
JBoss Migration Solution (JBMS)

- A Strategy – Assess the entire environment
- A Flexible Methodology (Contradiction?)
- A Blueprint
  - Iterative
  - Evolving
  - Repeatable processes
  - Reusable
  - Safe
- Provides value by:
  - Reducing effort
  - Saving time
  - Preventing errors
  - Allows human resource scaling
The Solution Must Eliminate Migration Concerns

- How can I achieve migration without impacting my current customers?
- Will the integration with other components, products work as before?
- How can I achieve migration without impacting my current customers?
- My current application works fine. Why do I need to migrate?
- What technology / business benefits will I get after migration?
- How much will it cost?
- How long will it take?
- What technology / business benefits will I get after migration?
- How will I accommodate the migration effort in my schedule?
- Where will I get skills / training for the migration?
JBMS Components

- Trained Migration Implementers
- Knowledge Base
- Migration Toolkit
- Migration Methodology
  - Migration Processes
Migration Implementers

- JBoss Certified Consultants
- Experienced Java Enterprise architects
- Understand J2EE application best practices
- Understand J2EE application servers
- Understand the IT environment
- Collaborative support
JBMS Knowledge Base

- Extensible
- Migration Scenarios/Blueprints
- Artifacts from previous projects
  - Questionnaires
  - Estimates
  - Scenarios
  - Tasks
  - How to docs
- Process definitions
  - Templates
  - How to documents
- Best Practices

Note: The weblogic.xml file contains a <verbose> JRS parameter set to false. This is the JBoss4.x (bundled with Log4j), add the following section to the $JBOSS_HOME/server/<}

You should see other <category> elements there. Note that this parameter affects all

Note: The weblogic.xml file contains a session parameter enabling the encoding of ses

Note: The weblogic.xml file contains an invalidation Interval session parameter set to

Create a Context to use the following attribute:
JBMS – Scenarios and Tasks

**Scenario**
- **isAutomated**: bool = True

**Task**
- **isAutomated**: bool = True

### Example

**Knowledgebase**
- Contains 1 *

**Scenario**
- Has 1 *

**Knowledgebase**
- Contains 1 *

**Scenario**
- Contains *

**Task**
- isAutomated: bool = True

#### EJB (weblogic-ejb-jar.xml) Migration:
- **isAutomated**: bool = True

#### Destination (Queue/Topic) Migration:
- **isAutomated**: bool = True

#### Ear (weblogic-application.xml) Migration:
- **isAutomated**: bool = True

#### JDBC Conn Pool (weblogic-application.xml) Migration:
- **isAutomated**: bool = True

#### WebServices Migration (custom types):
- **isAutomated**: bool = False
Migration Toolkit

- Executes Migration Scenarios
  - Automated tasks (transforms)
  - Manual tasks
- Integrated with the knowledge base
- Swing Client/Eclipse Plug-in
- Configurable Scenarios
  - Task/resource separation
- Repeatable
- Reports on success and failure
JBMS Methodology and Services

- Migration Assessment
  - Estimating the Effort
  - Assessing the Environment

- Migration Workshop
  - Education & Enablement

- Migration Implementation
  - Optional use of customer resources
  - Offshore possibilities (for large projects)
  - Reusable tasks
Migration Assessment Service

- Information gathered via “migration questionnaire”
- Engagement can be performed on-site directly with Unisys assistance

Goal: the Assessment Service determines the scope and level-of-effort of a Migration

The JBMS Migration Assessment Process

1. Scope Migration Project
2. Capture/Assess Current Environment
3. Prepare Target Environment
4. Determine Migration Paths/Tasks
5. Estimate and Summarize

Iterative
Migration Assessment - Questionnaire

Questionnaire addresses key impact areas in migration:

- Hardware
- Software
- JVM
- Database
- Build and deployment
- Testing
- Servlet/JSP
- EJB
- JNDI
- Security
- JMS
- JTA

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many 3rd party JARs are deployed as part of the application (EAR, WAR, or EJB Jar)? Please list with versions.</td>
<td></td>
</tr>
<tr>
<td>Are you using Log4j and what version in your application?</td>
<td></td>
</tr>
<tr>
<td>Are you using Apache SOAP and what version in your application?</td>
<td></td>
</tr>
</tbody>
</table>
Migration Assessment Service

Service Deliverables

- Detailed Migration Assessment Document contains
- Migration Scope Definition
- Comprehensive IT Environment Documentation
- Foundation for Business Case and ROI Analysis
- Implementation Plan
  - Training Needs
  - Tooling Needs
  - Migration Path Options
  - Migration Recommendation

Risk Mitigation - Proof of Concept/Pilot
Migration Implementation

Project Assessment

Questionnaire → Reviews and Interview → Scope the Work → Order Based on Significance

For Each Application

Assessment → Implementation → Compile and Configure → Deployment → Verification → Replication

Install and Import → Test and Tune → Document and Deliver

Key Points
- Guideline - Flexible
- Migration Options
  - Customer
  - Joint
  - Unisys
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Lessons Learned and Case Studies
Lessons Learned – Best Practices

- Consider the entire IT environment
- A Proof of Concept will help with risk mitigation
- Don’t forget testing. Not having tests will make it difficult.
- Plan to have access to source environment resources. Without these people it will be difficult.
- Be prepared to add build and deployment work
- The migration is iterative
  - One aspect of the migration at a time (e.g. OS)
  - Move to Standard first (e.g. webservices)
  - Get it working then begin refactoring
- Extensions to J2EE can be tough (manual)
  - Workflow
  - Portals
Typical Migration Flow

- Handle Logistics (e.g. Ensure access to current environment, source control)
- Examine the current configuration (e.g. cluster, HA, JMS, caching)
- Plan and Setup target development environment
  - Development environment (IDE, Source Control, Build...)
  - Software (e.g. app server, appropriate JDK, database access)
  - Configuration
- Examine and assess the application (determine and document the migration tasks that are needed)
- Prototype any risks (e.g. proprietary extensions like Stateful webservices)
- Implement the Migration
  - Create build and deployment scripts – use JBoss ide Packager
  - Migrate descriptors: datasource, Queue destinations, etc.
  - Migrate source code (eliminate proprietary dependencies)
  - Find alternative packages to replace incompatible packages. Where no alternatives are found, refactor the code.
  - Document all changes
  - Unit Test all changes
- Deploy Application in Development test bed
- Verify Application – Fine Tune
- Provide Training\TOI to QA\Support as needed
- Support QA Installation, Tuning and Testing Efforts
- Build and Deploy into Production Environment
- Begin refactor opportunities
Case Study – State Courts System

Migrate large Web Service from BEA Weblogic 8.1 to JBoss AS 4.0

**Assets:** a case management system which is the “bread and butter” application for the courts system.

**Challenge:** Web service had extensive use of proprietary hooks and was not WS-I/jax-rpc compliant.

**Objective:** A portable web service compliant with interoperability standards.

**Solution**
- Remove the proprietary hooks and make the web service WS-I/jax-rpc compliant.
- Provide wrappers on the client side to minimize rework to the existing client.

**Results**
- A fully-compliant web service.
Case Study – Health Care Provider

Migrate J2EE applications from BEA Weblogic 8.1 to JBoss AS 4.04

Task:
Move, ACI, RSA and Monitor applications to JBoss

Challenges:
- Solaris to Linux change
- Operations changes
- Domain expert not readily available

Result:
- Migrated ejbgen to more standard
Case Study – Internet/IT provider

Migration Assessment for migrating from BEA 8.1 SP4 to JBoss 4.05

Task:
• Review of the applications
• Pilot of the migration
• Training on how to Migrate
• Roadmap for future migrations

Challenges:
• Extensive use of Weblogic proprietary dependencies
• “Stateful” Web Services

Result:
• Successful Pilot – mitigation of risk
• Customer Architects trained for future migrations
• Migration Assessment Document
• Additional training requested
Case Study – Hospitality/Marketing

Migration of J2EE applications from WAS 6 to JBoss 4

Task:
• Review of the applications
• Roadmap for IT migration

Challenge:
• Straightforward, 7 web applications, little EJB usage
• OS change (prototype)

Result:
• Successful migration
• Microsoft OS to Linux
• MS ISS to Apache SSL
• Refactoring recommendations - Use of Hibernate
• Application Server Clustering
• Future opportunities: JBoss ON, Virtualization
Next Steps – Embarking on the Journey

- If you are a customer of BEA WebLogic or IBM WebSphere, start a pilot JBoss Migration for one application
  - Validate Value Proposition
  - Build the ROI
- If you are an ISV, migrate your solution to JBoss Application Server
  - Cost savings and performance of Open Source JBoss may surprise you

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