



# JBoss Migration Solution (JBMS)

Unisys Corporation

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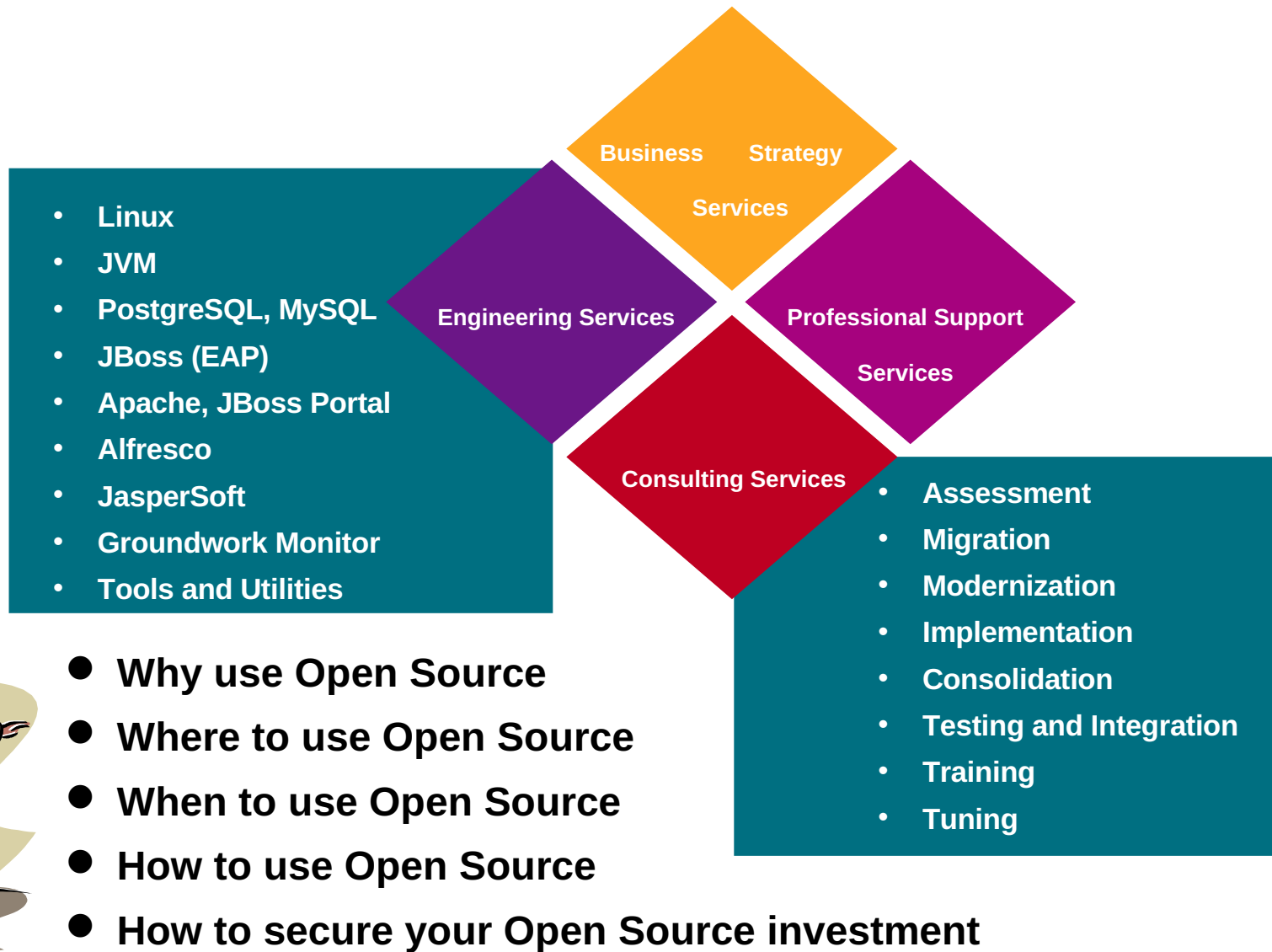
## JBoss Migration Solution (JBMS)

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6/19/2008

# Unisys - Open Source – A Trusted Advisor



# Agenda

**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**

# 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**

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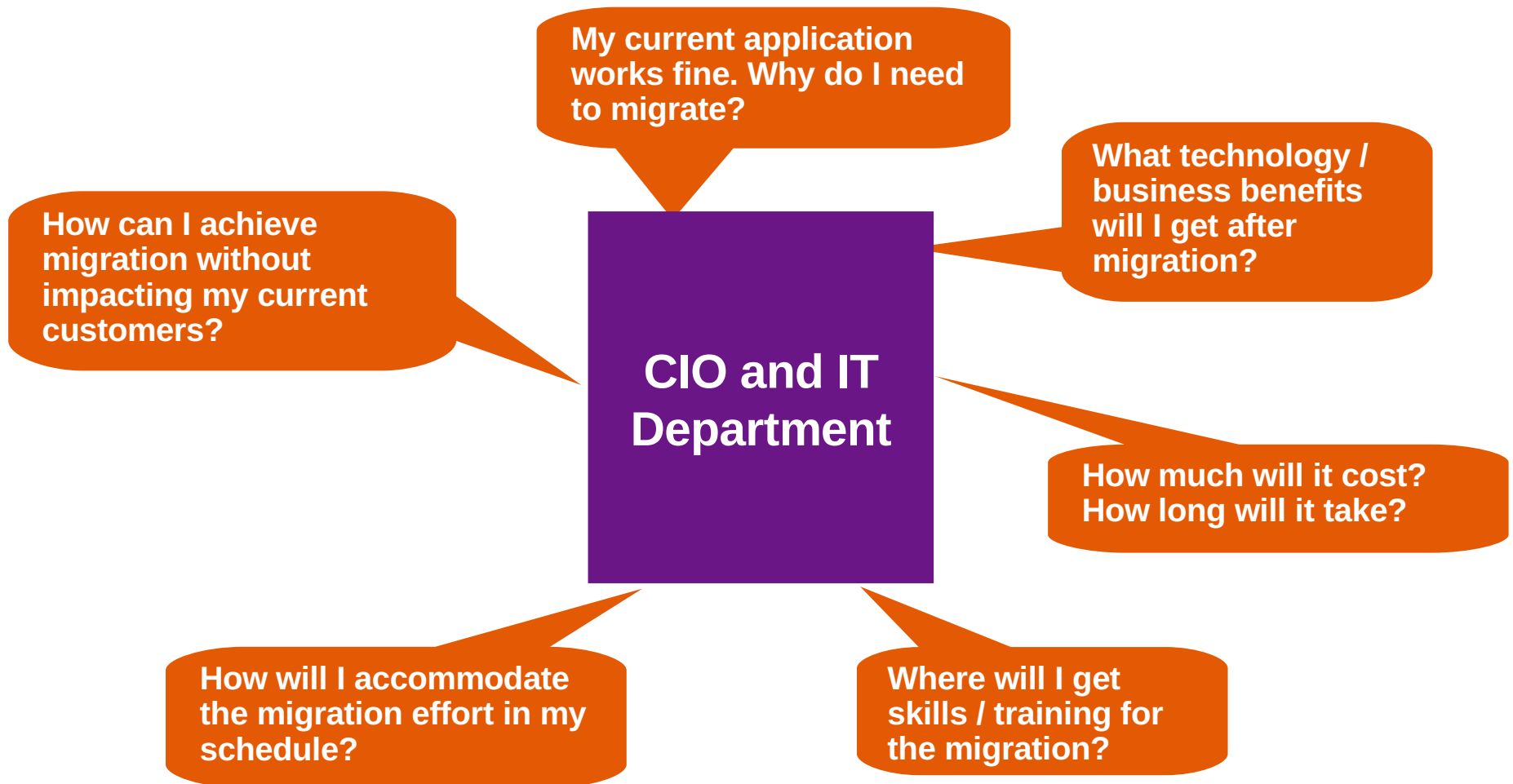
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# Migration is About Managing Change

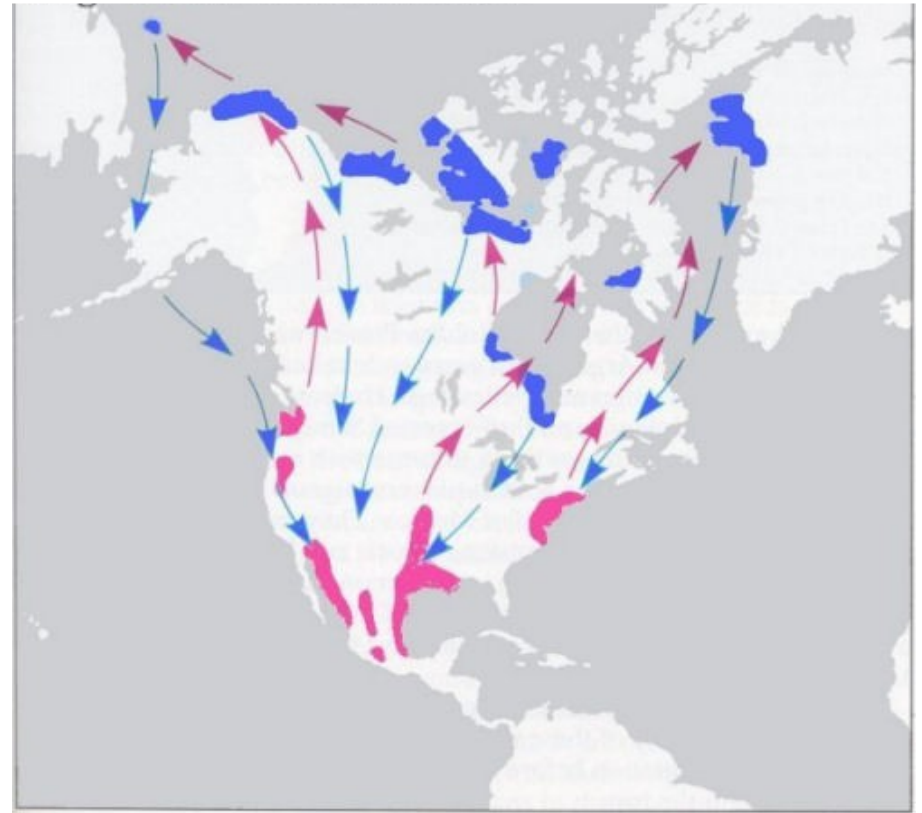
## Typical Migration Concerns and Issues



# 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

**MCHUMOR** by T. McCracken



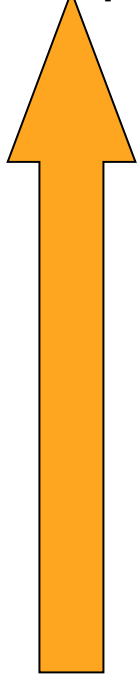
"I'm suffering from a migration headache."

# Our Migration Experience – The request

- Internal and External Projects
- Common tasks (different scenarios)

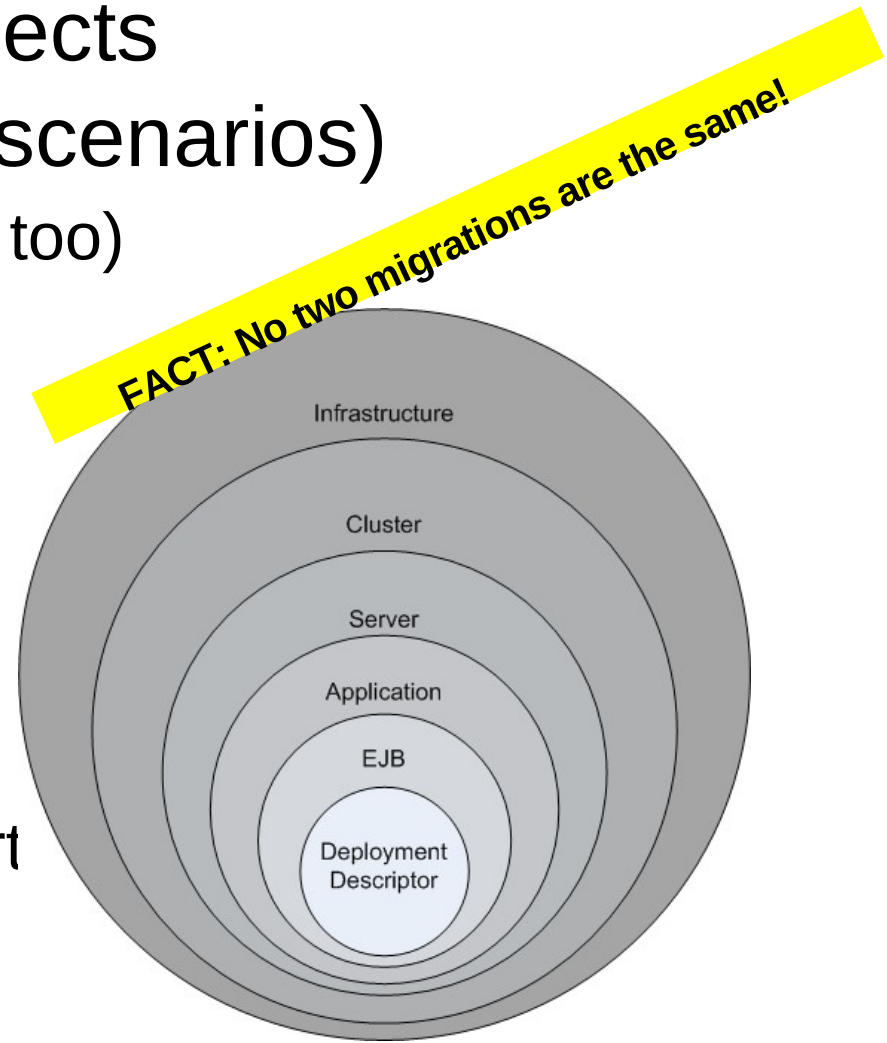
- Enterprise migration (e.g. OS too)
- Operation changes
- Upgrading Skills
- Hybrid production
- Server configuration
- Code not frozen
- Refactoring needs
- No tests/Subject matter expert
- Use of proprietary features
- J2EE compliant application

Complex



Straight

Forward



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# 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

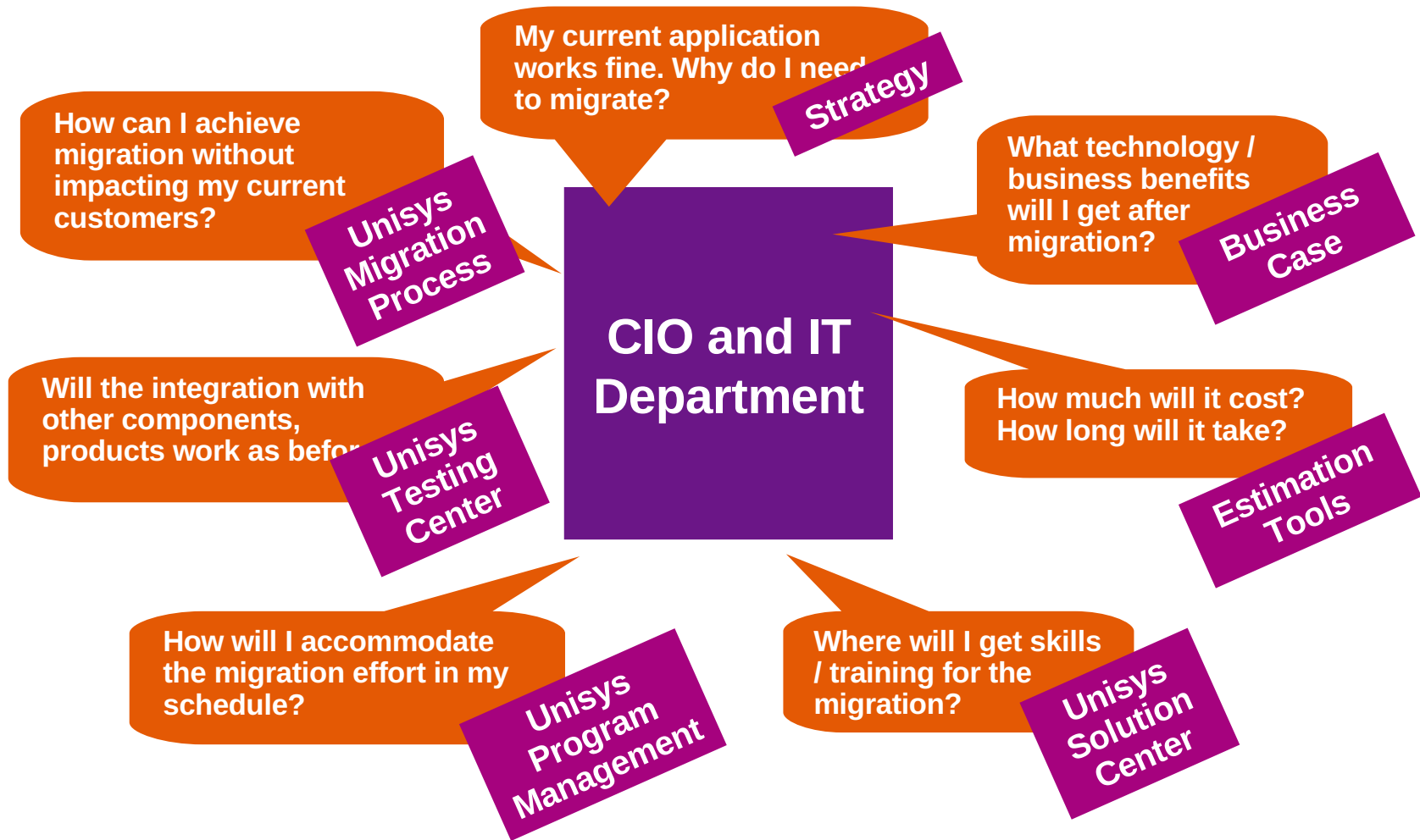
# JBoss Migration Solution (JBMS)

- 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



New Migrating Patterns.

# The Solution Must Eliminate Migration Concerns



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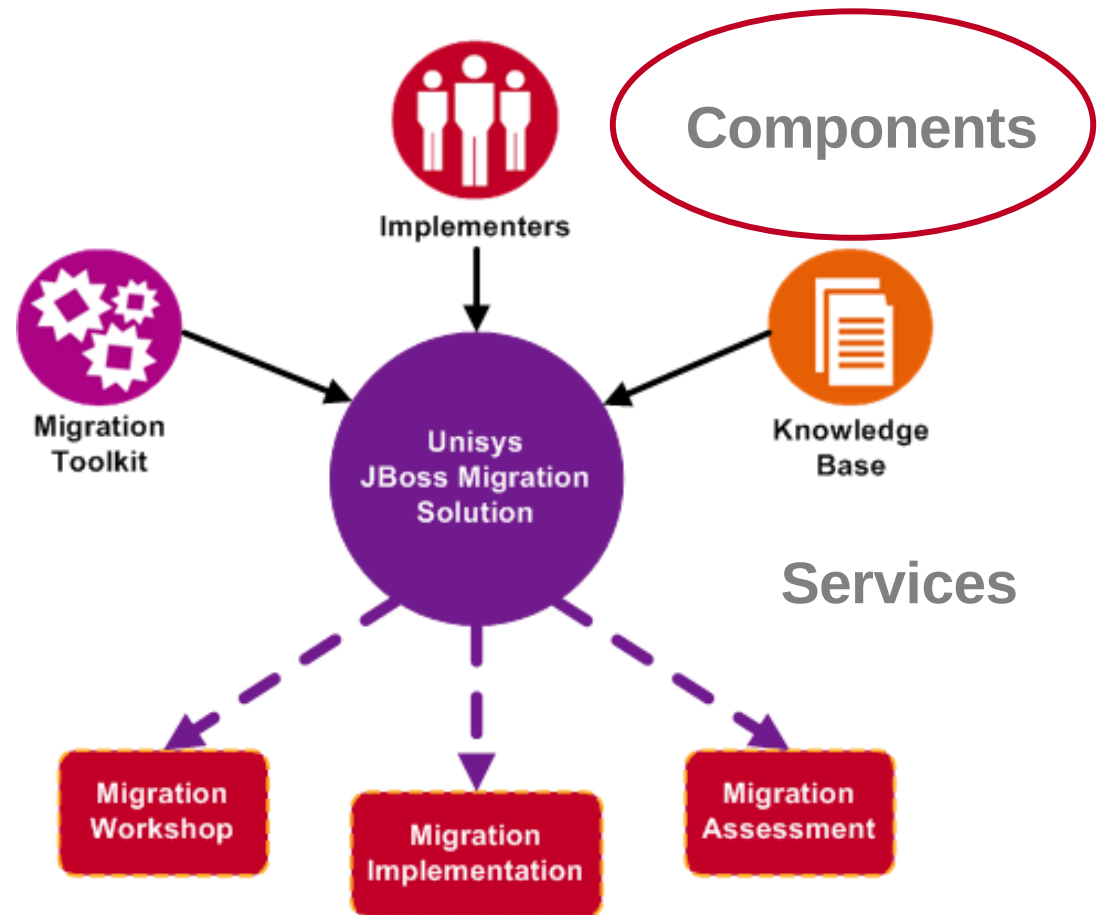


# JBMS Components

- Trained Migration Implementers
- Knowledge Base
- Migration Toolkit



- Migration Methodology
  - Migration Processes



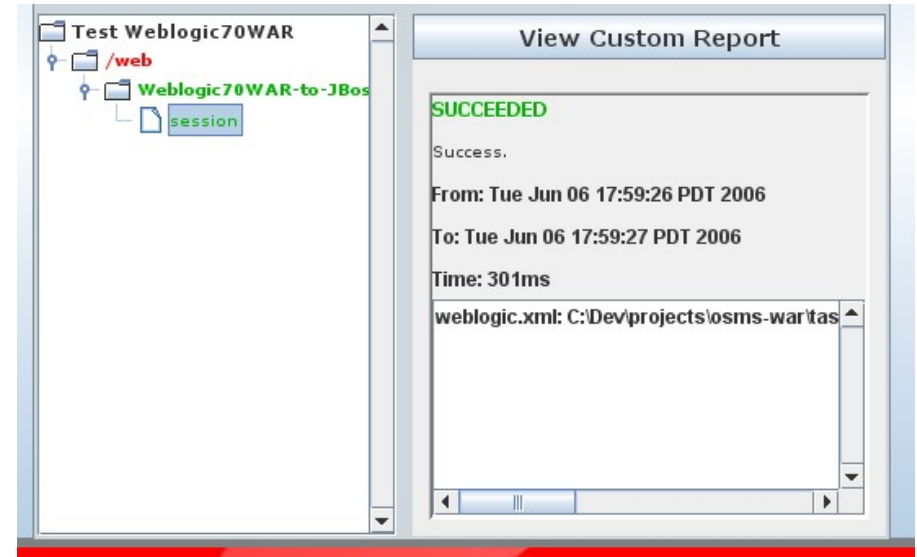
# Migration Implementers

- 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



## Reports for Weblogic/OWAR-to-JBoss4

### Session

**Note:** The weblogic.xml file contains a <verbose> JSP parameter set to false. This is the case in JBoss4.x (bundled with Log4j), add the following section to the \$JBOSS\_HOME/server/4

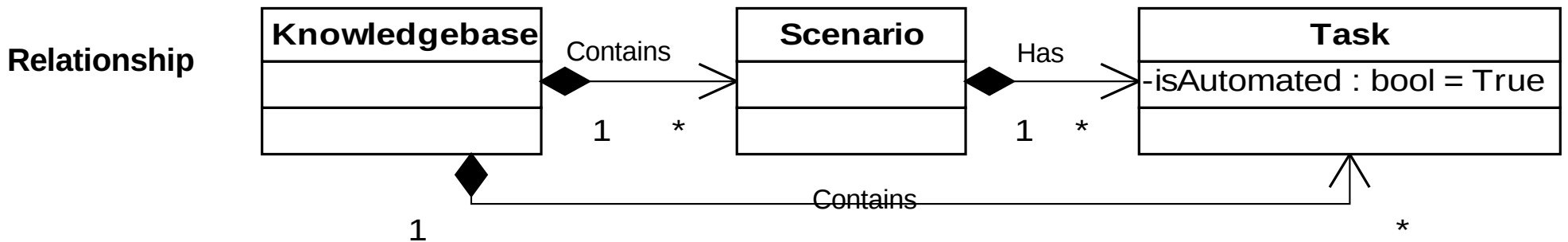
```
<category name="org.apache.catalina">  
  <priority value="INFO" />  
</category>
```

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

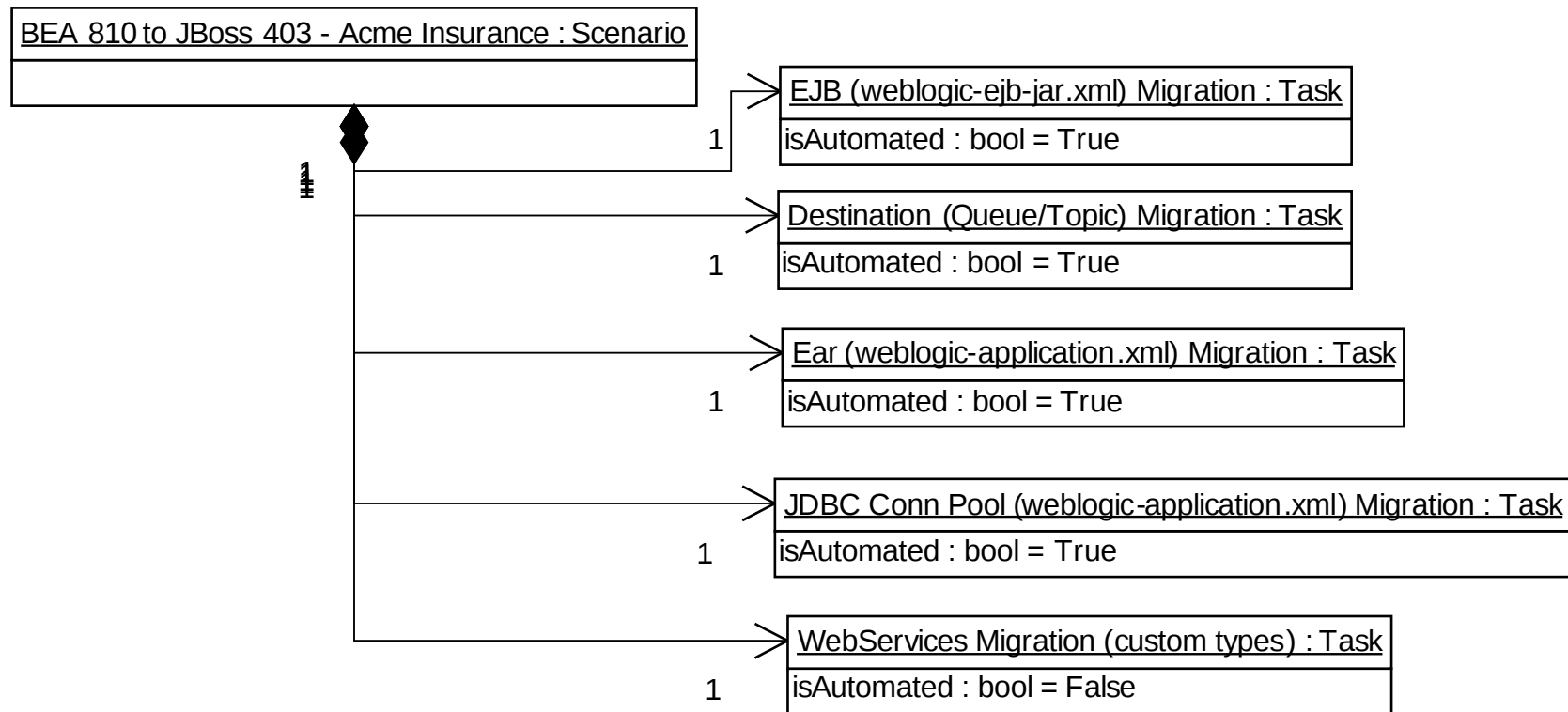
**Note:** The weblogic.xml file contains a session parameter enabling the encoding of session ID of the servlet spec 2.3. If you wish to emulate this in JBoss 4.x (bundled w/ Tomcat 5.5), add session ID to the response as a query parameter named jsessionid.

**Note:** The weblogic.xml file contains an Invalidation Interval session parameter set to 300. In JBoss 4.x (bundled w/ Tomcat 5.5), you can tweak how often invalidated sessions are invalidated. Create a Context to use the following attribute:

# JBMS – Scenarios and Tasks

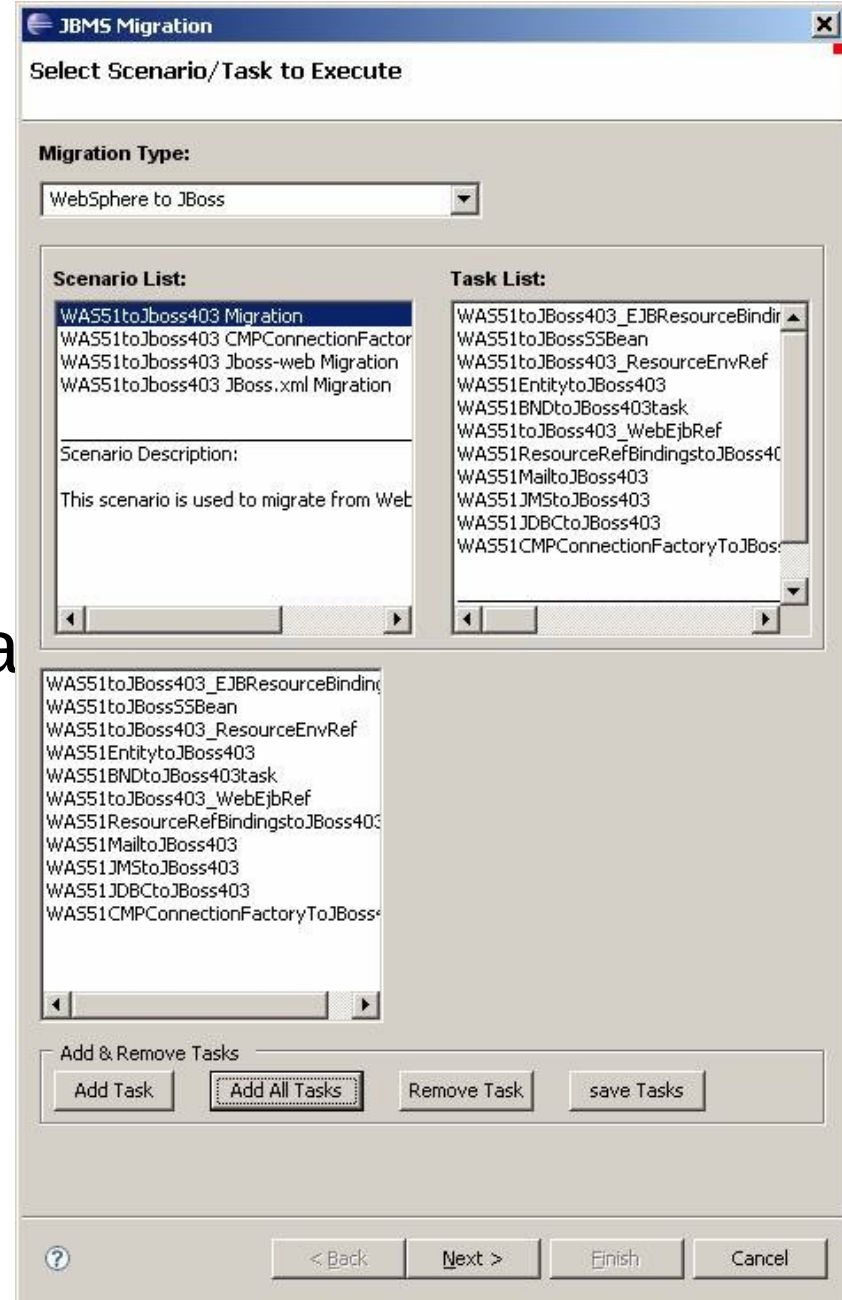


## Example



# 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

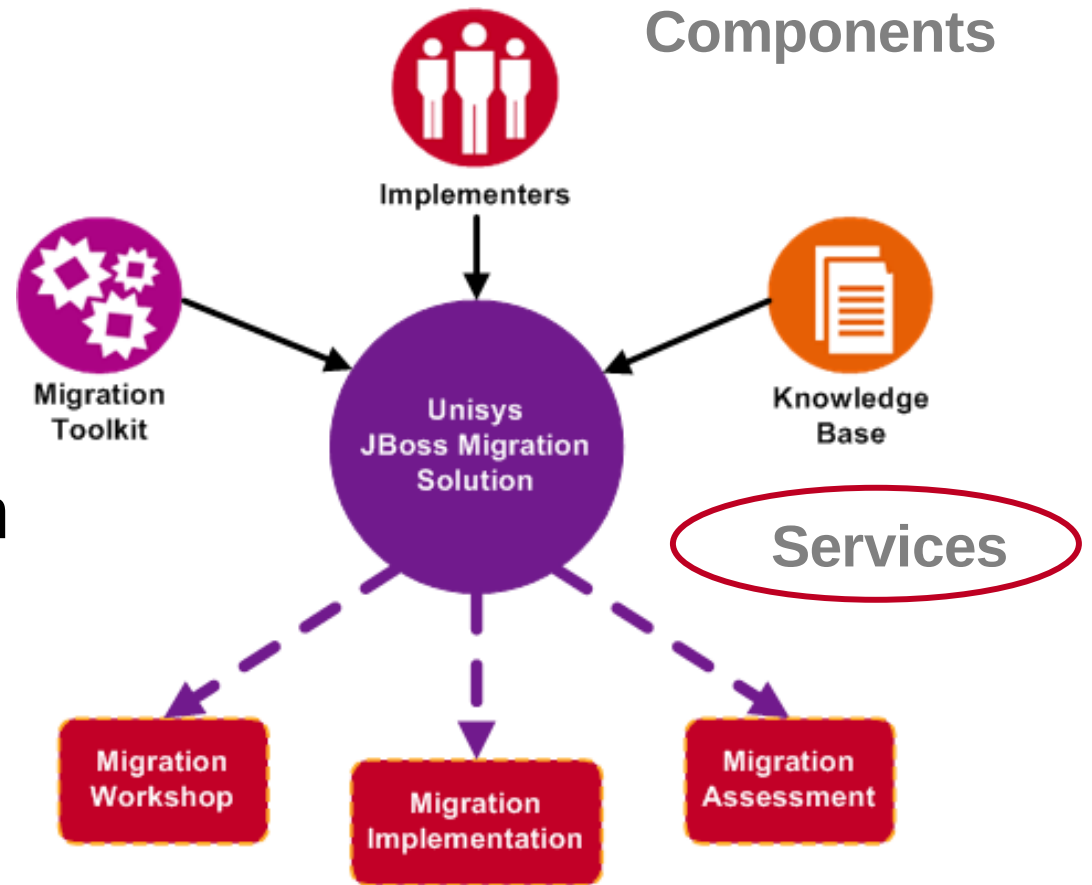
- Estimating the Effort
- Assessing the Environment

## ■ Migration Workshop

- Education & Enablement

## ■ Migration Implementation

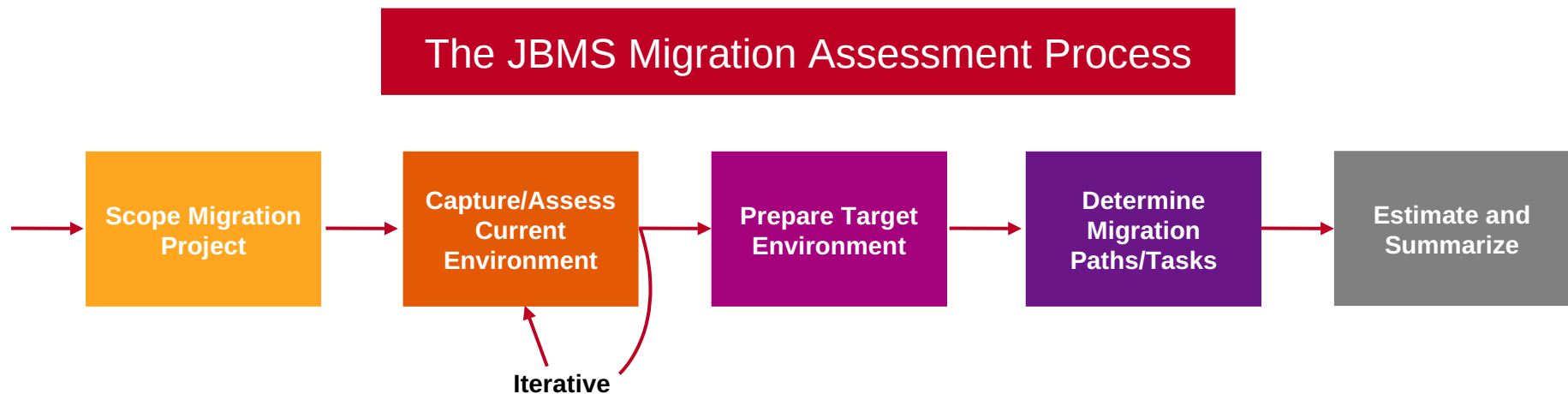
- Optional use of customer resources
- Offshore possibilities (for large projects)
- Reusable tasks



# 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



# 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

## Questionnaire Excerpt

### Software Considerations

Questions	Answers	Comments
How many 3 <sup>rd</sup> party JARs are deployed as part of the application (EAR, WAR, or EJB Jar)? Please list with versions.		
Are you using Log4j and what version in your application?		
Are you using Apache SOAP and what version in your application?		

# Migration Assessment Service

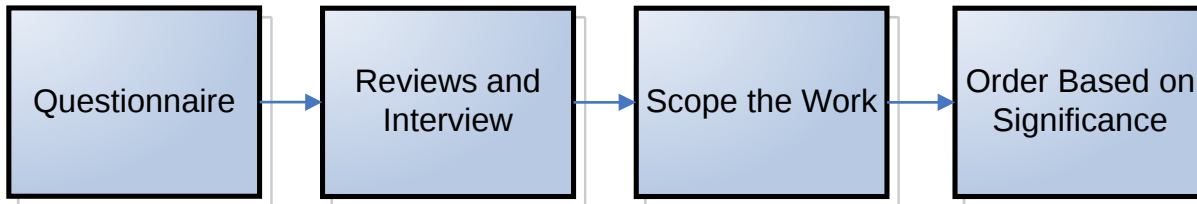
## ■ Service Deliverables

- 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

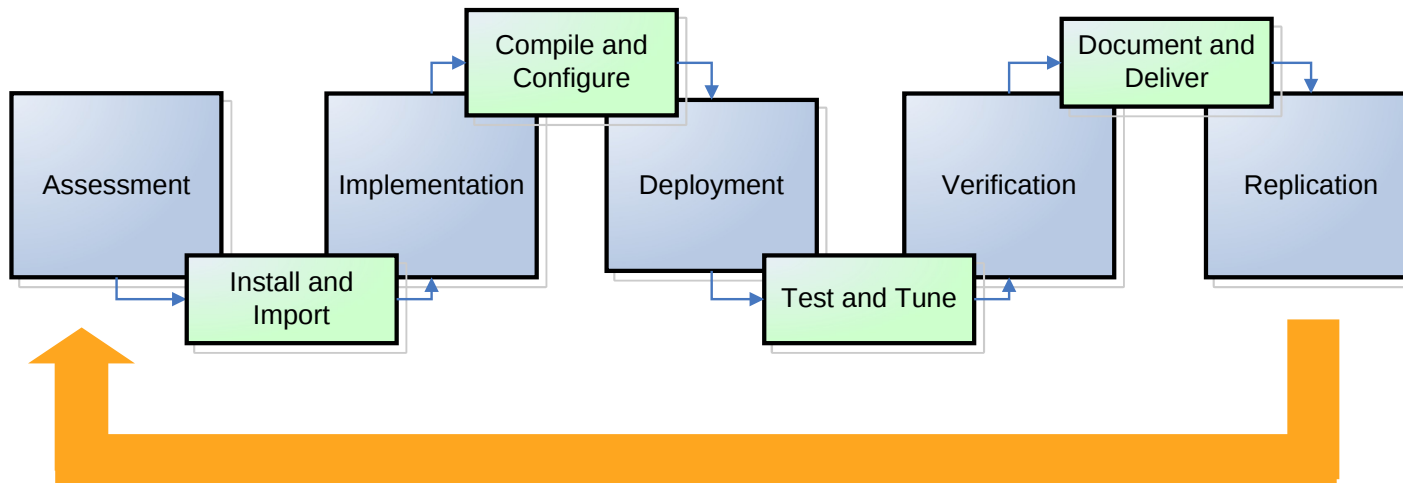
## Project Assessment



## Key Points

- **Guideline - Flexible**
- **Migration Options**
  - Customer
  - Joint
  - Unisys

## For Each Application



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# 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

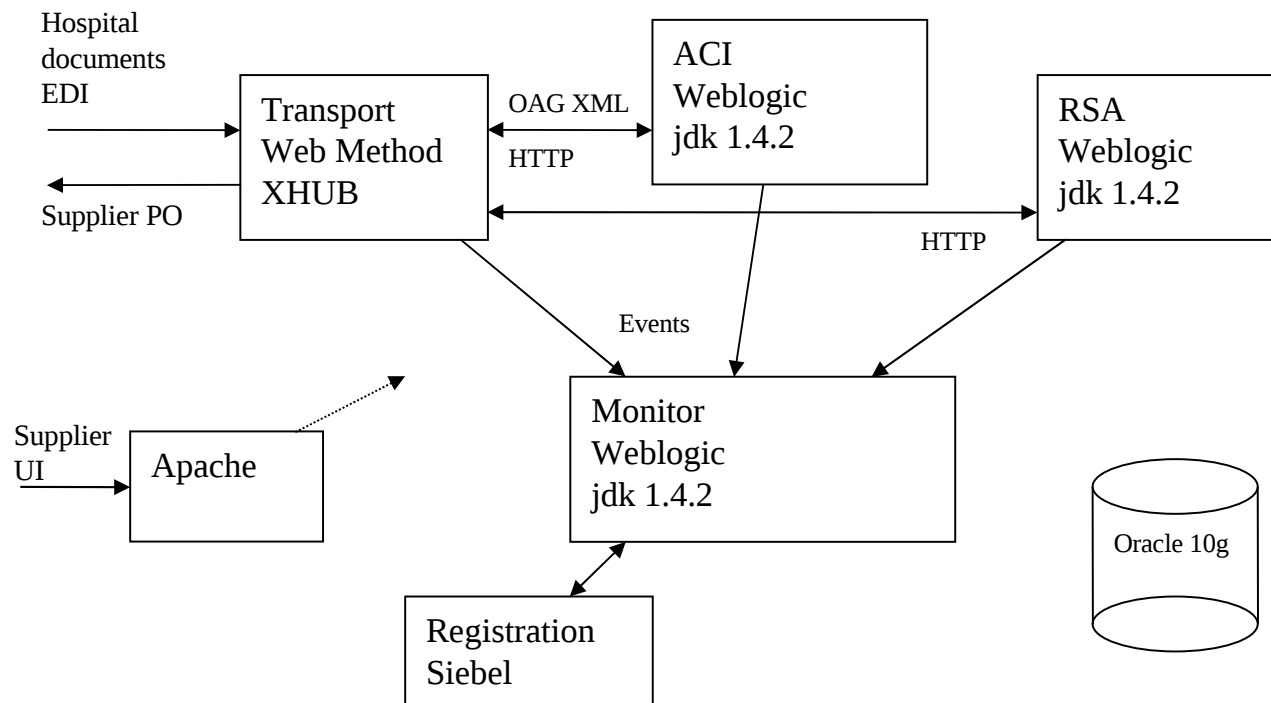
- Remove the proprietary hooks and make the web service WS-I/jax-rpc compliant.
- Provide wrappers on the client side to minimize rework to the existing client.

## 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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- For more information: [open.source@unisys.com](mailto:open.source@unisys.com)
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