Best Practice SOA goes Eclipse

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Agenda

- The value of SOA and Open Source
- Past technical inhibitors of SOA
- Eclipse as a leader in Open Source SOA
Key Messages

- SOA and Open Source offer high business value for enterprises
- In the past this value has not been fully captured
- The Eclipse Swordfish project will help enterprises to capture that value
- SOPERA offers the first complete open source SOA Suite, which is based on Eclipse Swordfish
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SOA is a management discipline and offers high business value to enterprises

A set of processes which ensure a coherent business architecture in the long run

A new logical architecture layer independent from IT

SOA Governance

Value of SOA
- SOA is a communication tool between business and IT, which make the business more agile to the future market needs
- A SOA can hardly be justified by IT cost reductions only

SOA Technology

A technical platform which
- Ensures loose coupling of technologies
- Supports the whole SOA lifecycle

Business Architektur
The Open Source approach offers a new option by combining the best of “Make” and “Buy”

Option: *Make* bespoke software

+ Software tailored to the user needs
- Very high total cost and project risks in software development
- Becomes legacy in the future

Option: *Buy* commercial software

+ Reduces project risks in software development
- User with very limited influence in the development
- Total cost still high

Option: *Use* Open Source software

+ User may influence further development
+ Significantly reduced project risks and costs
+ Is a de-facto standard
Mature Open Source software creates high business value in enterprises

**Openness of mature Open Source projects**

- **Higher flexibility**
  - No vendor lock-in due to framework
  - Freedom to adapt the code
  - Standardization

- **Better quality**
  - "Given enough eyeballs, all bugs are shallow"*

- **Lower cost**
  - No license cost
  - Lower cost of support/maintenance due to standard skills

* Linus’s Law according to Eric S. Raymond "The Cathedral and the Bazaar"
The market share of Open Source enterprise software is significant and increasing.

MARKET SHARE OF OPEN SOURCE SOFTWARE

Operating Systems of shipped servers
- Linux: 22.8%
- Windows: 67.1%
- Unix: 7.6%
- Other: 2.5%

Web Servers
- Apache: 51%
- Microsoft: 35%
- Other: 14%

Java Application Servers*
- IBM: 37.2%
- JBoss: 37.0%
- BEA: 27.2%
- Oracle: 27.2%
- SUN: 19.7%

Development Environments
- Eclipse IDE: 24.3%
- Other: 20.4%
- Microsoft: 55.3%

* Including multiple usage within the organization

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- The value of SOA and Open Source
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In the past there were two major technical inhibitors for a coherent SOA platform

<table>
<thead>
<tr>
<th>Technical inhibitor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Split of relevant standards</td>
<td>- JBI and SCA were seen as competing standards</td>
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<tr>
<td></td>
<td>- No platform implementing both was available</td>
</tr>
<tr>
<td>2 Gaps in the component models</td>
<td>- Popular component models (e.g. JEE) were lacking important capabilities</td>
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Eclipse Summit Europe 2007
The SOA community was split due to political reasons.

Past political view:
„JBI and SCA compete“

- JBI
  - Sun
  - IONA
  - TIBCO

- SCA
  - IBM
  - BEA
  - SAP

Industry initiative drivers

Open Source projects

- ServiceMix
- OpenESB

Today’s technical view:
„JBI and SCA are complementary“

- SCA
  - Tuscany
  - Fabric3

- JBI

Assembly and deployment of composite applications
Runtime execution of service components
2. The past component models show gaps for a coherent SOA platform

<table>
<thead>
<tr>
<th>Past component model</th>
<th>Description of gaps</th>
</tr>
</thead>
</table>
| JEE                  | - Too heavy-weight and complex  
                       | - Static deployment descriptors |
| Spring               | - No dynamic deployment or reconfiguration  
                       | - No support for true modularization |
# OSGi is the winning component model for the next innovation cycle

<table>
<thead>
<tr>
<th></th>
<th>Dynamic</th>
<th>Easy-to-use</th>
<th>Small footprint</th>
<th>Mature</th>
</tr>
</thead>
<tbody>
<tr>
<td>JEE</td>
<td><img src="circle.png" alt="Not fulfilled" /></td>
<td><img src="circle.png" alt="Not fulfilled" /></td>
<td><img src="circle.png" alt="Not fulfilled" /></td>
<td><img src="bullet.png" alt="Fully fulfilled" /></td>
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<tr>
<td>Spring</td>
<td><img src="circle.png" alt="Not fulfilled" /></td>
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<td>Enterprise OSGi</td>
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</table>

The vast majority of vendors agree that enterprise OSGi is the winning component model for the next innovation cycle.
A major Open Source SOA initiative is needed to overcome the two major inhibitors

<table>
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<tr>
<th>SOA Runtime platform</th>
<th>Role of the technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCA</td>
<td>common programming model</td>
</tr>
<tr>
<td></td>
<td>common assembly description format</td>
</tr>
<tr>
<td>JBI</td>
<td>common messaging model</td>
</tr>
<tr>
<td>OSGi</td>
<td>common deployment model</td>
</tr>
<tr>
<td></td>
<td>common runtime component model</td>
</tr>
</tbody>
</table>

- Who drives this initiative?
- Who hosts this initiative?
Agenda

- The value of SOA and Open Source
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- Eclipse as a leader in Open Source SOA
Deutsche Post is a thought leader in SOA worldwide and developed its own SOA platform.

**History**

**1999**
- Deutsche Post takes strategic decision to build an SOA

**2001**
- Introduction of the Service Oriented Platform (SOP), an open, modular and distributed SOA platform

**2006**
- Approx. 160 services are active in business-critical applications

**2007**
- Announcement on open sourcing of the SOA platform, SOPERA founded as an independent service provider

- Deutsche Post was enforced to introduce a SOA in order to stay competitive
- Deutsche Post is an early adaptor and thought leader of SOA worldwide
- Deutsche Post developed its own SOA platform, which is in operations for more than 6 years
Eclipse Swordfish is a new server-side SOA project initiated by Deutsche Post and SOPERA

ARTICLE COMPUTERWOCHE - APRIL 2007

Eclipse mischt den SOA-Markt auf


Datenintegration


Project start: Sep 07
Project lead: SOPERA
Project contributors:
- IONA
- Deutsche Post
- Individuals
The Swordfish Architecture implements JBI and SCA using OSGi

[Diagram showing the Swordfish Architecture with various OSGi bundles and components such as Service Resolver, Configuration, Message Interceptors, Security Manager, Management/Monitoring, OSGi Runtime, JBI NMR, Message Dispatcher, OSGi bundle, Message Processor, OSGi bundle, BPEL Engine, Business Appl. Adapter, OSGi bundle, JBI SE, Business Appl. Adapter, OSGi bundle, JBI BC, Transport Binding, OSGi bundle.]
The Swordfish roadmap

Timeline:

- **2007**
  - Q1: Proposal published
  - Q2: Proposal accepted
  - Q3: Initial submission
  - Q4: Milestone 0.5

- **2008**
  - Q1: Milestone 0.7
  - Q2: 1st production release 1.0

- **2009**
  - Q1: Production release 2.0

**Milestones**:

- **Proposal**
- **Incubation**
- **Maturation**

**Eclipse release train**

**Europa**

- Proposal published
- Proposal accepted
- Initial submission
- Milestone 0.5

**Ganymede**

- Milestone 0.7
- 1st production release 1.0

**SCA support**

**JBI 1.0 runtime based on OSGi**

- Deployment via STP and WTP
- JAX-WS support
- BPEL support

- Service registry integration
- Policy support
- Extensible interceptor architecture

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The Swordfish user community within Eclipse

- Projects that benefit from Swordfish
- Tooling projects that will deploy artifacts to Swordfish
- Projects that produce artifacts Swordfish intends to leverage

Diagram:
- ALF
- OOSE
- EclipseLink
- OHF SODA
- WTP
- STP
- EclipseLink
- Higgins
- ALF

Text:

Projects that benefit from Swordfish:

Projects that produce artifacts Swordfish intends to leverage:

Tooling projects that will deploy artifacts to Swordfish:
SOPERA offers a complete Open Source SOA Suite based on Eclipse Swordfish

SOPERA - the best practice Open Source SOA suite

- Business applications
- Legacy integration
- SAP NetWeaver integration
- Gateway to 3rd party ESB

SOA Runtime Framework (Swordfish) ensures integration and exchangeability of SOA components

- Messaging
  - ActiveMQ
  - JORAM
  - WebSphere MQ
  - TIBCO
- Registry
  - Nsure
  - OpenUDDI
  - Centrasite
- Security
  - Eclipse Higgins
  - Evidian Access Master
  - HP Select View
- BPEL engine
  - Apache ODE
  - ActiveBPEL
  - Oracle BPEL
Conclusions & recommendations

Open Source SOA offers untapped value and will increase its importance and market share as in all other maturing technology market

Users
Always consider open source products in your SOA projects

ISVs
Become contributor to the Eclipse Swordfish project in order to leverage open source components

SIs
Always consider open source products in the SOA projects of your client. Build up know how internally.

Developers
If you want to work with SOA technology, become contributor to the Eclipse Swordfish project
Thank you for your attention
BACKUP
2. OSGi is going server side

### Vendors
- **IBM**
  - Migrates its Application Server product to OSGi

- **BEA**
  - Migrates its Application Server product to OSGi

### Open Source projects
- **Tuscany**
  - Migrates towards OSGi, but still lacks support of JBI due to political reasons

- **ServiceMix**
  - Migrates towards OSGi, but still lacks support of SCA