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JBoss Seam in Action

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JBoss Seam in Action

We present our experiences getting started with Seam and using it on a commercial project

Not what it is but what it's like

- Peter and Nicolas are software developers at Lunatech Research - www.lunatech.com

- Both are technical authority for commercial software projects

- Peter first started building web applications ten years ago

- Nicolas has been using EJB for four years

- Both have strong opinions about Java frameworks and web technologies

- … and plenty of freedom to make choices

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Struts served us well for many years, but has now outlived its usefulness

JBoss Seam is the new Struts

- **Seam is like Europe - many participants**
  - EJB
  - JAAS
  - JBoss Rules
  - Ajax
  - jBPM

Seam

- **Although each one can work with the others, Seam provides a uniform model model for integration**

- **Not necessarily centralised in Belgium**

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Seam history

2000	2001	2002	2003	2004	2005	2006	2007

Struts is wildly popular for years

Spring gains popularity

Seam 1.0   2.0

other frameworks lack traction - Tapestry, WebWork, Wicket, Shale

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Seam concepts

- Seam component - POJO or EJB
- Dependency injection and bijection
- Conversation scope
- Configuration by exception and annotations

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```
public class MyPojo {
}

@Name("myPojo")
public class MySeamPojo {
  @Logger Log log;
  @In EntityManager entityManager;
  @In FacesMessages facesMessages;
  @In MyDAO myDAO;
}
```

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```
@Name("drinkingAction")
public class DrinkingAction {

  @In BeerDrinkingFacade pub;
  @In(create=true) @Out Glass glass;
  @Begin(join=true)
  public void getBeer() {
    pub.fill(glass);
  }

…
```

- Development environment
- EJB integration
- User-interface integration
- Code
- Testing

- Lunatech builds custom database-backed web applications on an open-source stack
- JSF/Seam selected to replace Struts
  - JSF too verbose by itself - designed for IDE
  - Tapestry, Wicket, Spring MVC: nice but poor EJB3 integration
- Using JBoss Seam since Seam 1.0.0 beta
- Two current projects use Seam 1.2.1
- … and migrating to Seam 2.0 now

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- Excellent documentation
- Easier with a JSF background: documentation scattered between Seam, JSF and Facelets
- More productive very quickly
- Steep learning curve: especially new concepts
- Still improving our use of conversations

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- No new tools required: Seam is just a Java library

- JSF/Seam/EJB3 application deployment is slow - we needed new PCs

- Incremental updates to Facelets (or JSPs) pages helps

- We do not use JavaBean hot-deployment (partly because we are using EJBs)

- Remote debugging works

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EJB integration

- It just works
- We use EJB for transaction management and JMS
- Transparent integration with EJBs

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- Great for prototyping
- Start with a static HTML prototype
- Evolve the HTML into a Facelets view
- Automatic JSF components with jsfc attribute

```
<input type="text"
    jsfc="h:inputText"
    value="#{username}"/>
```

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- Facelets is a great improvement on JSP
- jsfc attributes give more readable code than JSF tags:

```
<input jsfc="h:commandButton"
action="#{action.search}" value="Search"/>
```

- No built-in support for friendly URLs, but UrlRewriteFilter works well:

```
<rule>
 <from>^/view/([a-z0-9]+)</from>
 <to>/details.seam?key=$1</to>
</rule>
```

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- No obvious pattern for Seam components; layering optional
- Confusion between
  - 'action'
  - 'backing-bean'
  - 'component'
- We started simple with one layer, then extracted DAO layer
- Annotations are nice

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- UI testing is possible but hard, manually and automated
- We expect this to be better in Seam 2.0

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Criticisms

- Default application design is stateful JSF
  - web pages are not URL-friendly
  - stateless web applications are simpler
  - lots of heavy generated client-side code
- Scattered version-specific documentation
- Seam is not currently backward-compatible
- Slow application deployment time
- Seam conversations are difficult to learn
- Confusing validation framework

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Future of JBoss Seam

- Is Seam really the next Struts?

- JSR-299 Web Beans attempts to standardise the approach

- Will Resource Oriented Architecture be integrated, perhaps via Restlet?

- Standard Ajax architecture with RichFaces?

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Examples

VisibleLogistics®
Small Supply Chain Management

| account | sign out

Dashboard ▪ **Orders** ▪ Create new order ▪ Contacts ▪ Welcome

LUNA-6 W83964954
Order created 06-Nov-2007 18:46, updated 06-Nov-2007 22:30

Buyer:	Lunatech Research
Seller:	Apple NL
Carrier:	
Order date:	06-Nov-2007 00:00 Europe/Amsterdam
Due date:	15-Nov-2007 00:00 Europe/Amsterdam
Delivery address:	🇳🇱 Heemraadssingel 70, Rotterdam, 3021DD, NL
Shipment terms:	Verzendmethode: Nog niet bekend

Update order status

Edit order details

Delete this order

Last status: 12-Nov-2007 14:33
Order delivered
14:30 < lypanov> a big box came from apple

| **Order lines** | Comments (1) | Status history | Change history |

#	Supplier	Reference	Description	Quantity		
1		Bestelnummer: Z0D8	Mac Pro	1	EDIT	REMOVE

Examples

```
<a jsfc="a4j:commandLink" action="#{action.remove}">Remove</a>

public void remove() {
    orderLineDAO.remove(selectedOrderLine);
    facesMessages.addFromResourceBundle(
        "orderLineAction.delete.success", order.getKey());
}
```

#	Supplier	Reference	Description	Quantity	
1	Raul	R/0017a	1995 Carrizal Gran Reserva, D.O. Rioja, Spain	10	REMOVE
2	Raul	R/0017b	2006 Picaflores Rosé, Rapel Valley, Chili	4	REMOVE
3	New order line...				
	Raul	R/0017c	2005 Señorio de Garcí Grande, Rueda, Spain	6	REMOVE

Done

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Facelets view with Seam integration

Seam component

```java
@Name("emailMessage")
public class EmailMessageBean implements EmailMessage {

   public void sendEmail(Person sender, Person recipient,
    String templatePath) throws Exception {

      final String mailAddress = recipient.getMailAddress();

      Contexts.getEventContext().set("address", address);
      Contexts.getEventContext().set("sender", sender);
      Contexts.getEventContext().set("recipient", recipient);

      final Renderer renderer = Renderer.instance();
      renderer.render(templatePath);
   }
}
```

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```
<m:message xmlns="http://www.w3.org/1999/xhtml"
    xmlns:m="http://jboss.com/products/seam/mail"
    xmlns:f="http://java.sun.com/jsf/core"
    xmlns:h="http://java.sun.com/jsf/html"
    xmlns:vl="http://visiblelogistics.com/vl">

<m:from name="#{sender.name}" address="#{config.from}"/>
<m:to address="#{address}"/>
<m:subject>Invitation to use VisibleLogistics</m:subject>
<m:body>

<p><img src="#{config.baseHref}/img/vl-logo.png"/></p>

<p>#{sender.name} has invited you to sign up for a FREE
VisibleLogistics account.</p>

<p>VisibleLogistics is an on-demand visibility and order
management service that automatically sends order status
notifications to you and your partners via e-mail and SMS.
See <a href="http://www.visiblelogistics.com/">
www.visiblelogistics.com</a></p>
```

```
...

<f:facet name="alternative">

    <h:outputText>
    #{sender.organisationName} has invited you to sign up for a
    FREE VisibleLogistics account.

    VisibleLogistics is an on-demand visibility and order
    management service that automatically sends order status
    notifications to you and your partners via e-mail and SMS.
    See http://www.visiblelogistics.com/

    </h:outputText>

</f:facet>

</m:body>

</m:message>
```

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- **Seam successfully integrates Java EE**
  - JSF and Facelets
  - EJB beans and JPA persistence
- **Provides useful high-level features**
  - component model
  - dependency injection
  - web application state
- **Annotations allow for clean Java code**
- **Facelets allow for clean view code**

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The last two years' innovation in Java EE web frameworks lead to improved web application development productivity.

JBoss Seam is our framework of choice.

Q&A

View JavaPolis talks @ www.parleys.com