

Seam

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Background

- Java Developer for 6 years
- 10 years in software industry.
- JSF Development 1 year
- JBoss Seam Consulting

JBoss Seam

- Improves JSF
- Simplified Configuration
- ROR Style Generation
- Unifies the J2EE Stack
- [Web Beans - JSR 299](#)
- Validation

Getting Started

- Download Seam from <http://jboss.com/products/seam>
- Unzip Distro
- Run “seam.bat setup” in distro root
- Create Project skeleton “seam.bat new-project”
- Create an entity “seam.bat new-entity”

Facelets

- Replacement for JSP
- Pure XHTML
- JSTL works
- HTML tags and JSF tags can be mixed
- Templating
- No more Eaten Exceptions
- Human Readable Error Messages
- Error messages show the problem!

Seam Features

- Conversations
- Bookmarkable pages
- Built in workflow
- Tight integration with persistence layer

Seam Simplifies

- EJB3 Beans are Managed Beans
- Annotation based configuration
- Continues J2EE 1.5 “Intelligent Defaults”

Seam – Best Practice by Default

- Transactions
- Automatic Transaction Rollback on uncaught exception
- Optimistic Locking
- No extra coding to detect locking errors
- Facelets

Seam Components

- EJB 3.0 stateless session beans
- EJB 3.0 stateful session beans
- EJB 3.0 entity beans
- EJB 3.0 message-driven beans
- Java Beans
- Act as JSF Managed Beans

Seam Java Beans

- Allows Seam to run without J2EE 5 container
- Generated Code uses Components
- Requirements
 - JTA Transaction Manager
 - Java 1.5
 - JPA

Seam Annotations

- **@Name**
 - Defines the Seam component name for a class
- **@In** – Specifies a Component to be injected
- **@Out** – Specifies a Component to be outjected

Example

```
@Name("customerAction")
public class CustomerAction
{
    @Logger Log log;

    @Out(required=false) Customer selectedCustomer;
    @In(create=true) EntityManager entityManager;

    public String edit(Customer customer){
        this.selectedCustomer=customer;
        return "/editCustomer.xhtml";
    }
}
```

Example

Please select a customer

	Customer
Edit	Target
Edit	Walmart

```
<div class="dialog">
  <p>Please select a customer</p>
  <h:dataTable value="#{customerService.allCustomers}"
    var="customer">
    <h:column>
      <h:commandButton action="#{customerAction.edit(customer)}"
        value="Edit"/>
    </h:column>
    <h:column>
      <f:facet name="header">
        <h:outputText value="Customer"/>
      </f:facet>
      <h:outputText value="#{customer.name}"/>
    </h:column>
  </h:dataTable>
</div>
```

Seam Enhanced EL

Scope Annotations

- @Scope
 - Stateless
 - Event – JSF Request
 - Page – Page Rendering
 - Conversation – Wizard Scope
 - Session – Http Session
 - Business Process - JBPM/BPEL
 - Application – Http Application

Conversations

- An interaction with the user potentially spanning multiple pages
- Built with JPA in mind
 - No more LazyInitializationExceptions
- Foundation for Seam Workspace Management
-

Conversation Propagation

- @Begin – starts a conversation
- @End – ends a conversation

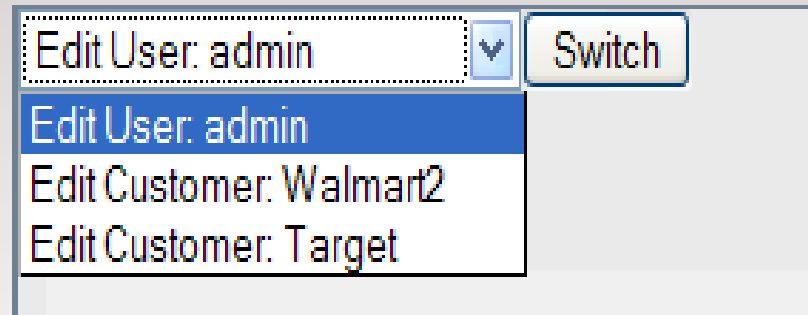
Conv. Prop(Example)

```
@Scope (CONVERSATION)
@Name ("customerAction")
public class CustomerAction{
    ~snip~
    @Begin(nested=true)
    public String createCustomer() {
        Customer c = new Customer();
        return edit(c);
    }
    @Begin(nested=true)
    public String edit(Customer customer) {
        this.selectedCustomer=customer;
        return "/editCustomer.xhtml";
    }

    @End
    public String save(Customer c) {
        entityManager.flush();
        return "/customers.xhtml";
    }
}
```

Workspace Management

- Conversations can be suspended
- Allows switching between conversations

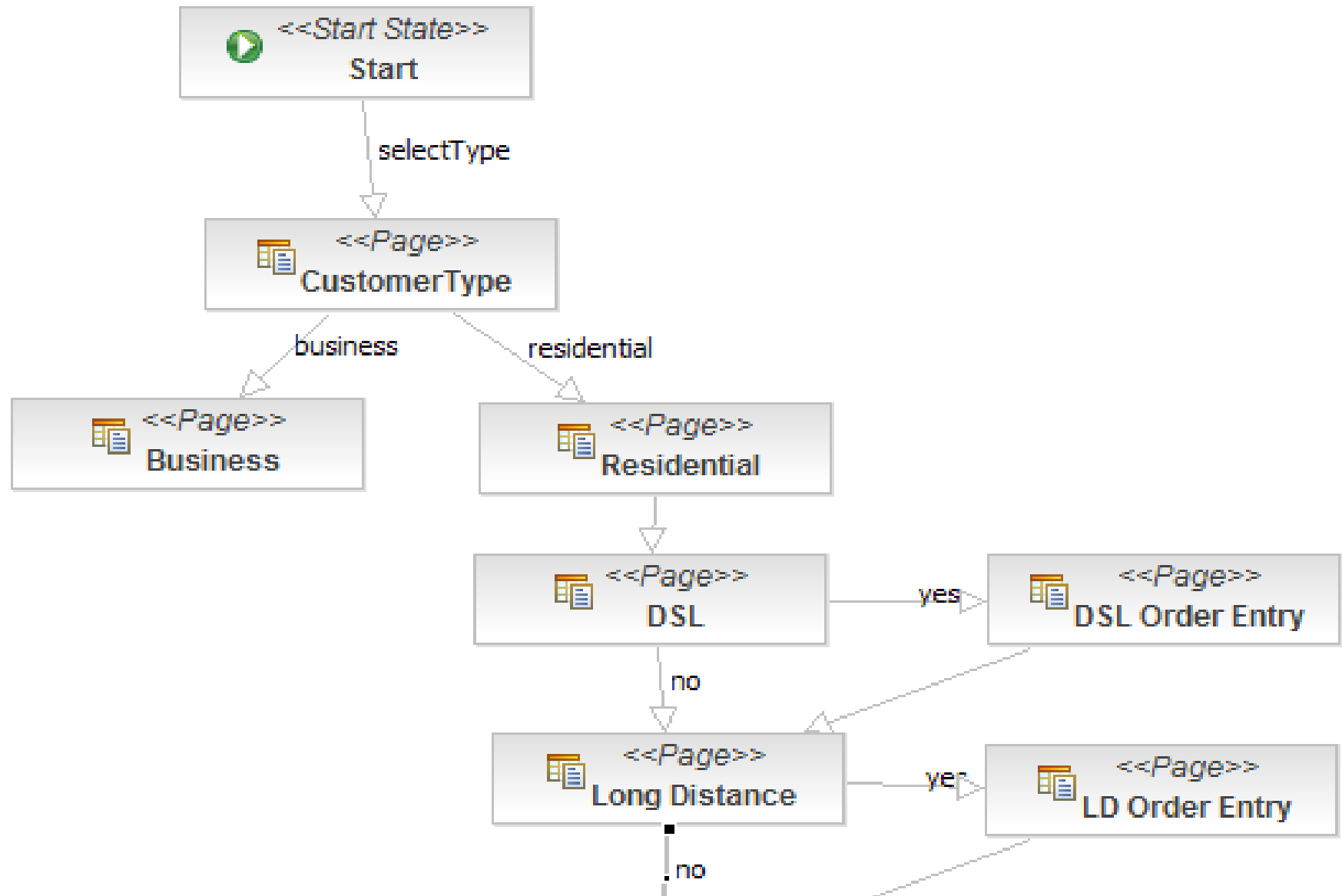


Seam Pageflow

- A complex interaction with the user
- Defined in XML
- Visualize with JBoss Process Designer

```
<pageflow-definition name="Sample">
  <start-state name="Start">
    <transition name="selectType" to="CustomerType"></transition>
  </start-state>
  <page name="CustomerType" view-id="/customerType.xhtml">
    <transition name="business" to="Business"></transition>
    <transition name="residential" to="Residential"></transition>
  </page>
  <page name="Business" view-id="/business.xhtml"></page>
  <page name="Residential" view-id="/residential.xhtml">
    <transition name="" to="DSL"></transition>
  </page>
  <page name="DSL" view-id="/dslOrderEntry.xhtml">
    <transition name="yes" to="DSL Order Entry"></transition>
    <transition name="no" to="Long Distance"></transition>
  </page>
</pageflow-definition>
```

Sample Pageflow



Seam Validation

- Added by Annotation
- Special JSF Tags to display errors

```
public class Location {  
    private String country;  
    private String zip;  
  
    @NotNull  
    @Length(max=30)  
    public String getCountry() { return country; }  
    public void setCountry(String c) { country = c; }
```

Seam Validation

```
<h:form>  
  
  <h:messages/>  
  
  <s:validateAll>  
    <div>  
      Country:  
      <h:inputText value="#{location.country}" required="true"/>  
    </div>  
  
    <div>  
      Zip code:  
      <h:inputText value="#{location.zip}" required="true"/>  
    </div>  
  
    <h:commandButton/>  
  
  </s:validateAll>  
</h:form>
```

Seam w/ EJB3 target platforms

- JBoss with EJB3 option installed
- Tomcat with JBoss Embedded EJB3
- Glassfish
- Oracle AS

Seam w/ POJO

- Websphere 6.1
- Weblogic 9.2
- Tomcat
- Glassfish
- {seam-distro}/examples/jpa contains an ant script to deploy to above platforms.

Weblogic Deployment

- Seam
- {seam-1.2.1 distro}/examples/jpa
-

But It Is Not Standard!

- Web Beans JSR 299
- Validation JSR 303
- JSF 2.0
 - Exception Handling
 - Transaction Management
 - Conversations/Extended Persistence
 - Workflow

References

- <http://docs.jboss.com/seam/1.2.1.GA/reference/en/html/index.html>

Questions?

- E-mail: rpatel@harpoontech.com