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Perfecting the Image: Improving JSF for Rich Internet Application Development

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Agenda

- JavaServer Faces CrashCourse
- Perfecting the Image
  - What's missing in JSF
  - How to solve the issues
  - How to marry Ajax and JSF

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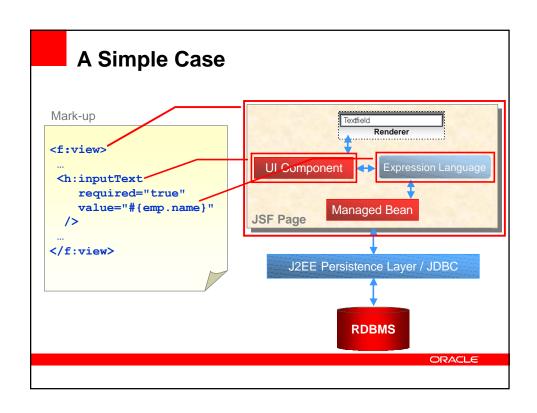
JSF Crash Course

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Key Terms

- UI Component
  - JSF is component based
- Managed Bean
  - Objects maintained by the JSF inversion of control mechanism
- Expression Language
  - The ties that bind
- Navigation Case
  - The rules that govern page flow
- Lifecycle
  - The guts of the thing

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Managed Beans

- Java Objects (empty constructor), Maps, Lists
- Defined in faces-config.xml
- Defined with various scopes
  - application
  - session
  - request
  - none
- Lazy initialisation by JSF as needed

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A Simple Case

Mark-up

```
<f:view>
 …
 <h:inputText
    required="true"
    value="#{emp.name}"
  />
 …
</f:view>
```

Textfield

Renderer

UI Component

Expression Language

Managed Bean

JSF Page

J2EE Persistence Layer / JDBC

RDBMS

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JSF **Perfecting the Image**

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The Good in JSF

- JSF 1.2 – Part of Java EE 5.0
- JSF's original goal was to simplify Java-based Web development, and to a large degree it has done the job
- Today JSF developers have a plethora of components to choose from
  - Free: Apache Trinidad, ICEFaces, and others
  - Commercial: Oracle ADF Faces, Backbase, and others
- On the controller front JSF offers a simple way to define page flows along with state management
- Tools
  - Free: JDeveloper, Netbeans, Eclipse
  - Commercial: BEA, IBM, Codegear, MyEclipse ….

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Limitations You Might Be Hitting

- Templating
- More components
- Ajax
- Simpler component development
- More scopes
- Extended jsf-config.xml
- Bookmarking
- Reusable Flows

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Templating

- Problem: JSF doesn't contain a templating mechanism

- Solutions:
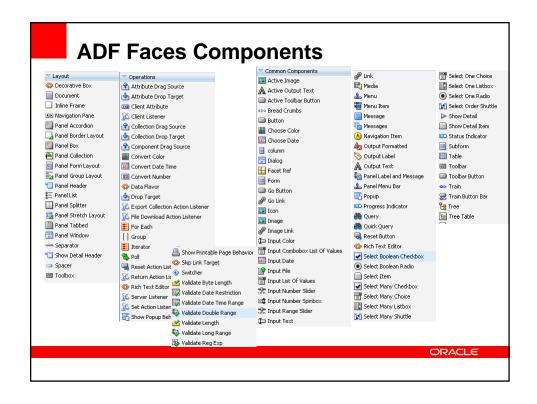- Facelets
- JSFTemplating
- Oracle ADF Faces RC

Product Demonstration

Building Templates

More Components

- The component set of the Reference Implementation is not enough to build sophisticated Uis
- JSF allows developers to mix and match component sets

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ADF Faces Components

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And More…

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And What About Ajax?

- JSF RI Components are not enough

- Solutions:
- Components – Trinidad, Oracle ADF Faces RC, Backbase, ICEFaces, RichFaces, WoodStock and many more

- Watch out for interoperability – especially with Ajax components

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Looking Beyond The Components

- Evaluate component sets on more than just the components

- ADF Faces RC also offers:
  - Drag-and-drop framework
  - Dialog and popup framework
  - Navigation menu framework
  - Partial page rendering
  - Active data framework
  - Advanced data streaming
  - Complete JavaScript API

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Product Demonstration

Ajax enabled JSF Components

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Simpler Component Development

- JSF enables developers to build their own custom components that easily plug into the JSF framework
- In many cases developers don't seek for a new complex component but one that consist of different existing components
  - E.g. a login form
- The JSF specification does not yet have a mechanism that allows developers to declaratively build reusable components from existing components

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Product Demonstration

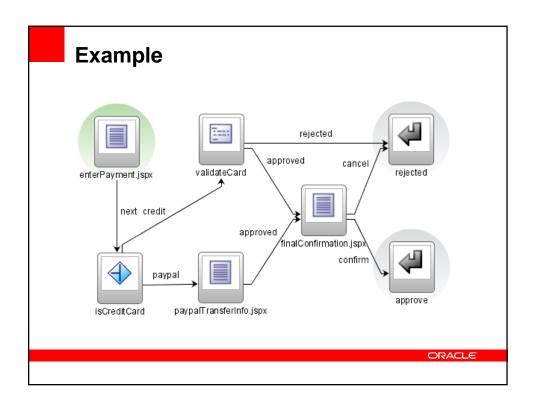## Declarative Component Development

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More Scopes

- JSF uses POJO-based managed beans to maintain values across pages in the application
- Available scopes are
  - None
  - Request
  - Session
  - Application
- Needed additional scopes
  - Task scope
  - View scope
- Shale, SEAM and ADF Faces already implemented additional scopes

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Extend the JSF Navigation Model

- JSF provides a controller layer that takes care of navigation rules between pages in the application
- Custom controller logic is added to
  - Managed Beans
  - PhaseListeners
  - Component Listeners
- The JSF controller doesn't provide a good way to invoke logic as part of the flow between pages
  - Like "action" in Struts
- Conditional navigation should be taken out of the backing bean to a router element
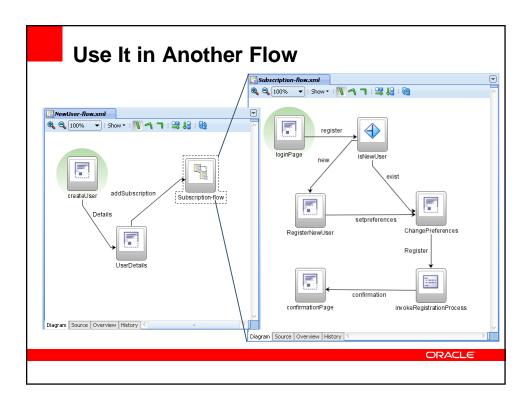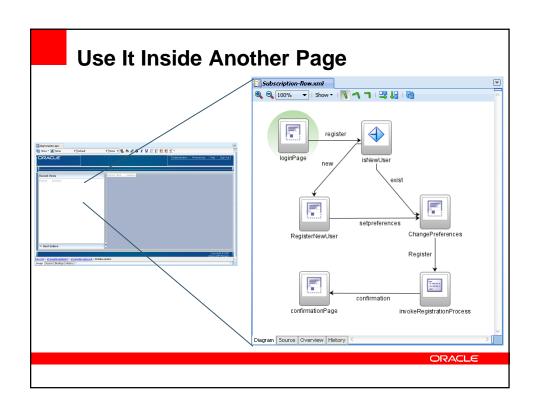
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Example

Task Flows - Reusable Page Flows

- A Task flow represents a reusable block of functionality with a single entry point, defined exit points, and its own memory scope and transaction boundaries
- Task flows can receive parameters from, and return parameters to, a calling task flow

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ADF Task Flows Features

- Trains: a progression of related pages
- Save for later—resume incomplete transactions
- Declarative bookmarking
- Declarative transaction management
- Declarative support for browser back button navigation
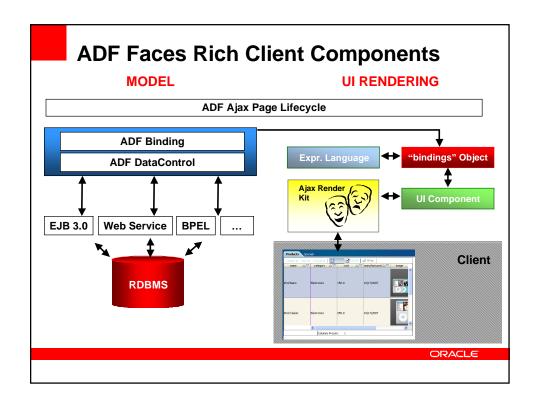- Declarative support for exception handlers
- Declarative security based on JAAS

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Use It in Another Flow

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Use It Inside Another Page

Product Demonstration

Building Reusable Taskflows

Binding

- Connecting UI components to data components
  - Should be done in a declarative way
  - Should provide a consistent API across business services
- JSRs
  - JSR 227 (ADF Binding)
    - Meta data driven
    - Consistent APIs
    - Works with POJO, EJB, WebService, BPEL, ADF BC
  - JSR 299 (Web Beans based on SEAM)
    - Annotations
    - Works with EJB 3.0, Web Services (in the works)
  - JSR 295 (Bean binding with a focus on Swing)

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ADF Faces Rich Client Components

MODEL   **UI RENDERING**

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Q U E S T I O N S
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