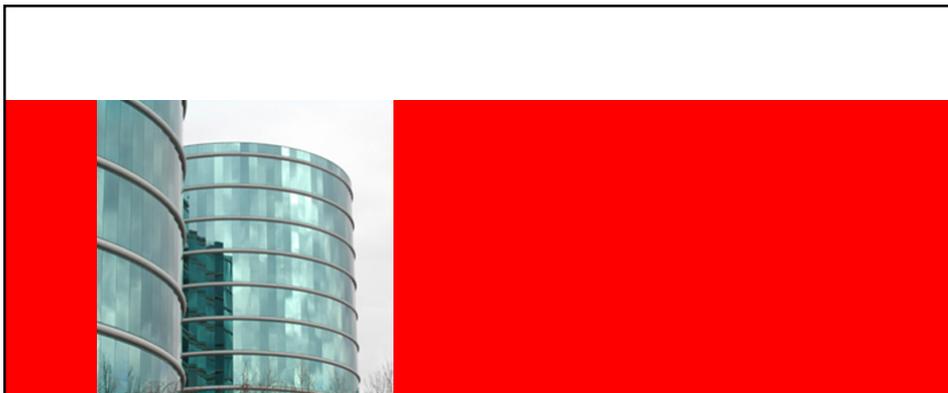


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**Perfecting the Image: Improving JSF for
Rich Internet Application Development**

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Principle Product Manager
Oracle Corporation

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

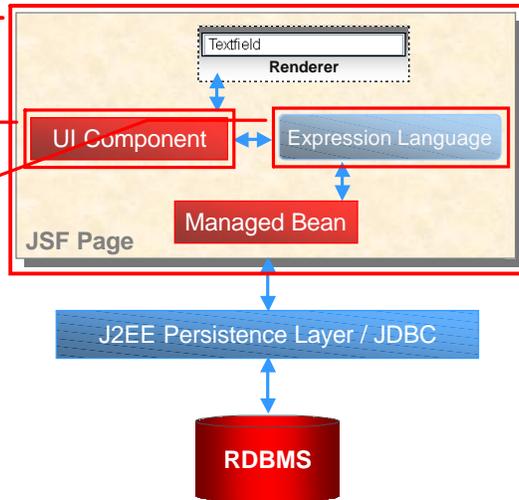
- Java Objects (empty constructor), Maps, Lists
- Defined in faces-config.xml
- Defined with various scopes
 - application
 - session
 - request
 - none
- Lazy initialisation by JSF as needed

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A Simple Case

Mark-up

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



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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

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Product Demonstration

Building Templates

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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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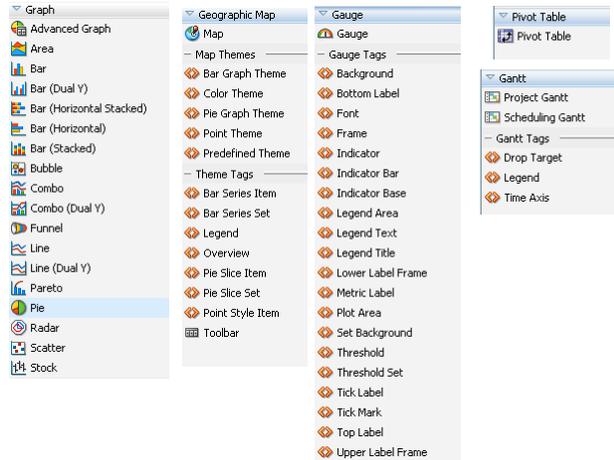
ADF Faces Components

The screenshot displays the ADF Faces Components palette, organized into several categories:

- Layout:** Decorative Box, Document, Inline Frame, Navigation Pane, Panel Accordion, Panel Border Layout, Panel Box, Panel Collection, Panel Form Layout, Panel Group Layout, Panel Header, Panel List, Panel Splitter, Panel Stretch Layout, Panel Tabbed, Panel Window, Separator, Show Detail Header, Spacer, Toolbox.
- Operations:** Attribute Drag Source, Attribute Drop Target, Client Attribute, Client Listener, Collection Drag Source, Collection Drop Target, Component Drag Source, Convert Color, Convert Date Time, Convert Number, Data Flavor, Drop Target, Export Collection Action Listener, File Download Action Listener, For Each, Group, Iterator, Show Printable Page Behavior, Skip Link Target, Switcher, Poll, Reset Action List, Return Action List, Rich Text Editor, Server Listener, Set Action Listener, Show Popup Beh, Validate Byte Length, Validate Date Restriction, Validate Date Time Range, Validate Double Range, Validate Length, Validate Long Range, Validate Reg Exp.
- Common Components:** Active Image, Active Output Text, Active Toolbar Button, Bread Crumbs, Button, Choose Color, Choose Date, column, Dialog, Facet Ref, Form, Go Button, Go Link, Icon, Image, Image Link, Input Color, Input Combobox List Of Values, Input Date, Input File, Input List Of Values, Input Number Slider, Input Number Spinbox, Input Range Slider, Input Text.
- Other Components:** Link, Media, Menu, Menu Item, Message, Messages, Navigation Item, Output Formatted, Output Label, Output Text, Panel Label and Message, Panel Menu Bar, Popup, Progress Indicator, Query, Quick Query, Reset Button, Rich Text Editor, Select Boolean Checkbox, Select Boolean Radio, Select Item, Select Many Checkbox, Select Many Choice, Select Many Listbox, Select Many Shuttle, Select One Choice, Select One Listbox, Select One Radio, Select Order Shuttle, Show Detail, Show Detail Item, Status Indicator, Subform, Table, Toolbar, Toolbar Button, Train, Train Button Bar, Tree, Tree Table.

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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

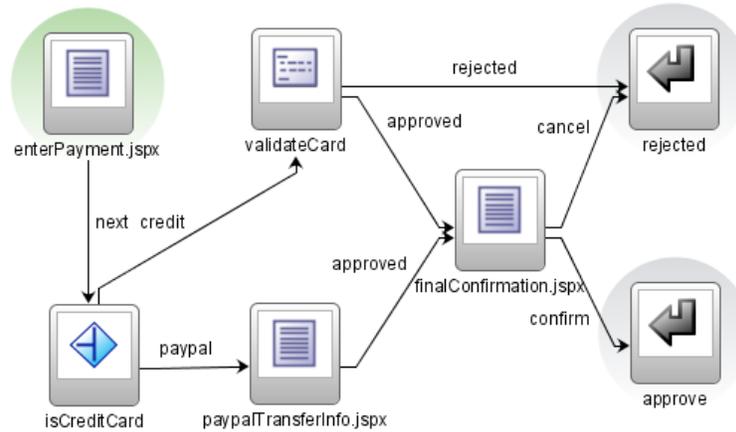
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Extend the JSF Navigation Model

- 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



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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

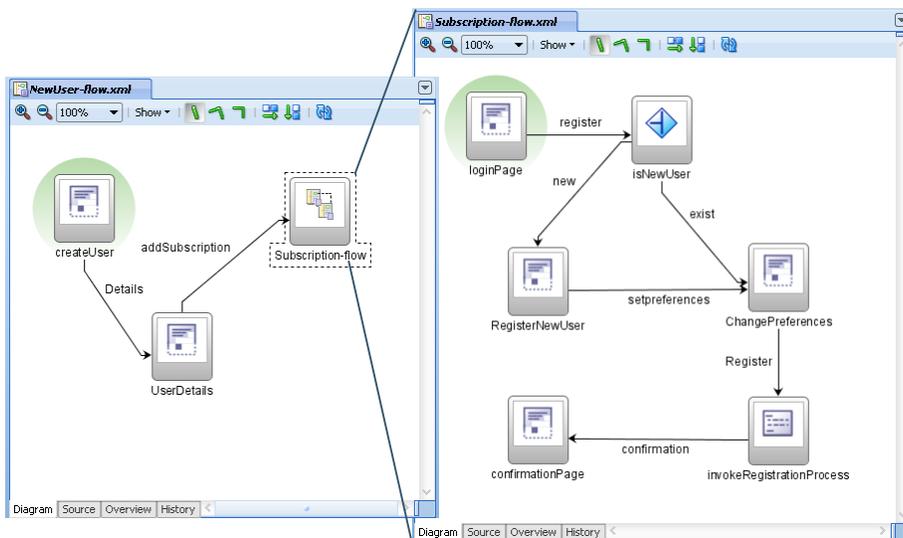
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ADF Task Flows Features

- 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

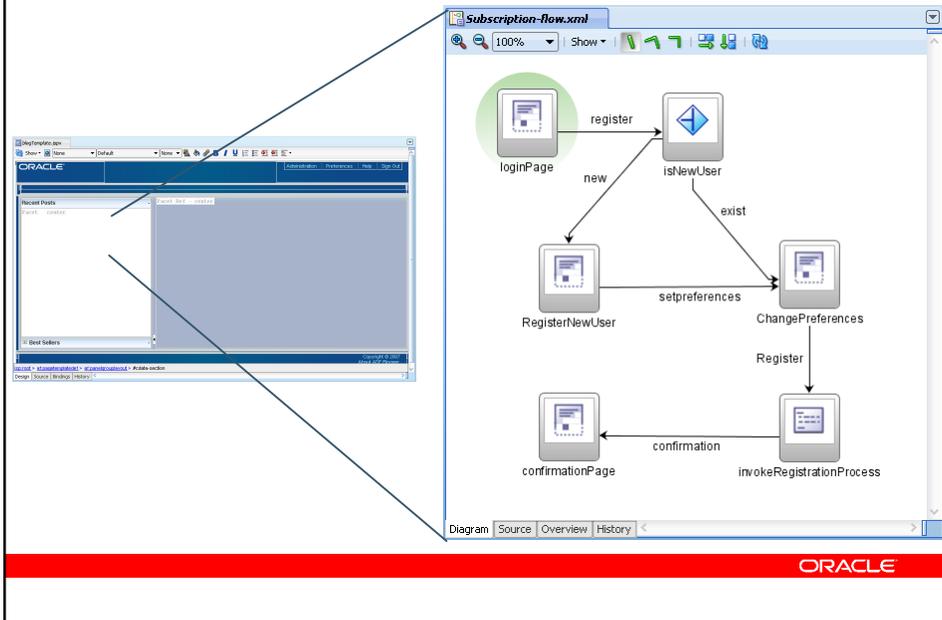
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Use It in Another Flow



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Use It Inside Another Page



Product Demonstration

Building Reusable Taskflows

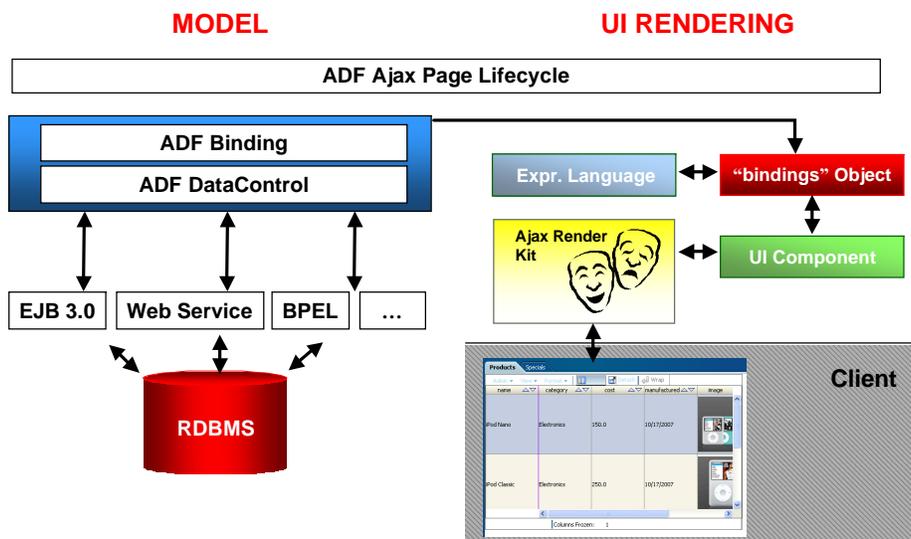
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Binding

- 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



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