Multi-Client Development with JSF and ADF Faces

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Oracle JDeveloper - JSF & ADF Faces
Agenda

- JSF Introduction
  - Why JSF
  - Architecture
  - JSF Technology
- JSF and Oracle
  - JDeveloper
  - ADF Faces
  - Future
What is JavaServer Faces?

- Standard J2EE Web UI framework
- Developed through Java Community Process (JCP) as JSR-127, JSR-252
- Nickname: Faces
- Started: May 2001
- First release: March 2004
- Oracle is a primary contributor
Role of Faces

- Focus on components, not markup
- Automatic event and state handling
- Designed to be leveraged by tools

Goal is to simplify J2EE web application development
Evolution of J2EE web tier

- Each is built on the previous layer
- Progressive levels of abstraction
- Higher level programming
JSF Architecture

• Abstracts away from HTTP
  – Developers don’t need to understand request-response cycle

• Abstracts away from HTML
  – Developers work with components, not markup
  – Developers don’t need to decode requests
Formal Phases – Initial Request

JSF LIFECYCLE

Client / Browser

Restore View

Render Response
Formal Phases - Postback

JSF LIFECYCLE

Client / Browser

- Restore View
- Apply Request Values
- Process Validation
- Render Response
- Invoke Application
- Update Model
Formal Phases (cont.) - JSP

JSP LIFECYCLE

- Servlet URL parsing
- Render JSP Response
- Client / Browser
- Product code (state management, events, etc.)
JavaServer Faces and JSP

- JSF is specified to support JSP
  - But need not always utilize it
  - Can build your own ViewHandler
- JSF JSP support comes with a set of Base UI Component libraries
  - Core – For application tasks
    - Validation, Datatype conversion
  - HTML – For rendering basic HTML
    - Input fields, menus, tables button
## JSF vs. Traditional JSP

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JSF Components

- Basic building blocks of a JSF application
- Simple to complex UI components from a button to a complete page
- Uses Value Binding to associate Model objects
- Fully Extendable
- Components include “Helper objects”
  - Validators, Converters, PhaseListeners…
JSF Components

The term “JSF Component” generally consists of:

- **UIComponent**
  - Functionality, definition, or behavior
- **Renderer**
  - Handle client side markup
  - Bundled in RenderKit
- **UI Component Tag Handler (for JSP)**
  - Allows usage of JSF component in JSP
  - Associates Renderer with UI Component
A typical JSF application consists of:

- **JSP pages**
  - With JSF components wrapped as JSP tags
- **Navigation Model**
  - Defined in the Faces configuration file
- **Managed Beans**
  - Application logic
- **Faces configuration** - *faces-config.xml*
JavaServer Faces - Key Points

- Framework for both Corporate Developers and Component Developers
  - Simple yet fully extendable
- Fundamental unit is the Component
- Built in event and state management
- Component sets can be provided by any vendor
- Closer to Swing or ASP.Net development
- Choice of UI technology
  - Scale up (rich clients)
  - Scale down (mobile devices)
The Top Three

• Component Based model
  - Markup vs. Components

• Consistent Programming Model
  - JSP & Java

• Clear separation of Presentation and Behavior on components
Consistent Programming Model

Browser

Industrial

Phone/PDA

Gateway

Skins

Render Kits

Components

Interface

Bus. Logic

HTML

XML

Java Server Faces / JSP

J2EE

Portal

Faces RI

Custom JSF components

Servlets
Demo: JSF potential
Agenda

- JSF Introduction
  - Why JSF
  - Architecture
  - JSF Technology

- JSF and Oracle
  - JDeveloper
  - ADF Faces
  - Rich Web Clients
Oracle and JSF

- JSF Development in JDeveloper 10.1.3
  - Complete visual development environment for JSF

- Oracle ADF Faces
  - Oracle’s complementary library of JSF Components
JSF and JDeveloper 10.1.3

- JSF Visual Editing
  - JSF UI Component visual editing
  - Provides backend code generation (double-click)
  - Mobile WYSIWYG
JSF and JDeveloper 10.1.3

- Faces Config Editing Console
  - Console for productive editing of faces-config.xml
JSF and JDeveloper 10.1.3

- JSF Page Flow
  - Visually design Faces navigation model
**JSF and JDeveloper 10.1.3**

- Declarative data binding – JSR 227
  - Drag and drop data binding support
Oracle ADF Faces

- A set of standard JSF 1.1 components
- Runs on any compliant implementation of JSF
- Over 100 types of components
- PPR, scrollable and sortable table etc…
- Rich feature set for customizing applications
- ADF model support out-of-the-box
- Look and Feel Customization
ADF Faces Components

- Accessibility and internationalization support across the board
- Framework features e.g. Dialog framework and support for processes
Client-side validation

- A major missing feature of JSF
- ADF Faces supports
  - Server- and client-side validation/conversion from the same code
  - Use standard JSF converters and validators
  - (But you have to use our input components)
ADF Faces RIA

- RIA – Rich Internet Application
- A Rich Client combining:
  - Deployment benefits of a Thin Client application
  - Rich interaction of a desktop application
ADF Faces RIA

- Rich Internet JSF components
- Leveraging “Ajax” technologies
- JSF components with live updates in the Browser
- Popup menus, Trees, Splitters etc…
ADF Faces Mobile: Supported Devices

• Currently certified platforms
  – Windows Mobile 2003 (Pocket PC)
  – Palm Web Browser 3.0
  – Access NetFront 3.0/3.1

• Minimum browser requirements for other platforms
  – HTML 4.0
  – JavaScript 1.1
  – CSS Level 2
PDA Support- Future Direction

- Certification of more device platforms
  - Opera browser
  - Blazer
  - Blackberry
  - iMode
- Mobile Rich Client renderers
- Device Peripheral Integration Framework
  - Magnetic Swipe Cards
  - Barcode readers
  - RFID readers/writers
ADF Faces Mobile Architecture

J2EE Container

ADF Faces Applications

ADF Runtime

- Agent Detection
- Device Repository
- Wireless Renderer Kits
- View Handler Impl

- Ask Server (Resource Adapter)
- Industrial Telnet Server (Resource Adapter)

SMS, IM, Pager, Email

telnet

HTTP

HTTP
ADF Faces Mobile - Telnet Support

- ADF Telnet Render Kit provides:
  - ~ 35 core ADF Faces components
- Configuration
  - ITS configured with an “entry point” URI of the first page of the JSF application.
What is Ask – Ask information

- Interact with your application through e-mail interface, pager, SMS or Instant Messaging
- Asynchronous access not dependent on persistent wireless connectivity
Multi-client development
Mobile development in JDeveloper

- WYSIWYG editing for PDA and telnet applications
- Component filtering based on device classes
- Device-specific view port
- Capability-based content filtering wizard
- Mobile simulator registration and integration
- Deployment packaging wizard
- ASK design-time support in future release
JDeveloper Differentiators

- We are the only J2EE tools vendor with JSF Wireless design time support.
JDeveloper Mobile: Telnet Design-Time Support
JSF Web Resources

- Oracle Technology Network JSF Resources
  - http://otn.oracle.com/jsf
- JSF Reference Implementation
  - http://java.sun.com/j2ee/javaserverfaces/
- JSF Central – Most Popular Online JSF Community
  - http://jsfcentral.com
Summary

- Think components, not markup
- Not just for HTML
- Plenty of opportunities for all skill levels
QUESTIONS & ANSWERS