Oracle ADF: The technology behind project fusion

Lynn Munsinger
Principal Product Manager
Application Development Tools
Oracle Corporation
Agenda

• Application Development Framework (ADF)
  – Overview
  – Goals
  – Architecture

• Productivity with Choice
  – ADF Business Components
  – ADF Model Options

• Binding data to a UI
  – JSF
  – ADF Faces
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Customer Challenge - Development

- Different architectures
  - J2EE
  - Service Oriented Architecture
  - Event-Driven Architecture

- Different technologies
  - WS, BPM, XML, WSDL, Portal, Wireless, etc.

- Different data sources & access
  - Database, Legacy, Packaged Apps, WS, etc.

- Diverse set of developers
  - Different technical skills
  - Different development styles
  - All need to be productive
Productivity With Choice

- **Oracle ADF & Oracle JDeveloper**
  - Productivity increases for all developers
  - Visual & Declarative
  - Framework advantages w/o lock-in
  - Promotes Metadata Usage
  - Enables Service Oriented Development
  - Enables Event Driven Development

- **Common Framework**
  - J2EE, BPEL, XML, Portal, Wireless, Data, etc.
  - Common Gestures
  - Common Concepts (Data, Visual, etc.)

- **Choice of Technologies**

- **Choice of Development Styles**
Common Architecture

- JDeveloper
- Portal
- Integration
- Wireless
- ADF
- OC4J
- Metadata Services (MDS)
- E-Business Suite
- Enterprise Manager
Fusion Architecture

Rich Client

- ADF Swing
- ADF Data Control
- ADF Bindings
- Struts

Web / Wireless

- JSP
- JSF
- ADF Faces
- Mobile Bindings
- Portlet Bindings
- ADF Data Control

View

Controller

Model (JSR 227)

Business Services

Metadata Services (MDS)

- EJB
- Java Classes
- ADF Business Components
- Web Services
- Portlets (JSR-168 WSRP)

Toplink Data Services

- JDBC
- JCA
- JDBC
- WS
- XML

Relational Data

XML Data

Legacy Data

Packaged Apps

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Oracle ADF

- Increase Productivity & Ease-of-use
  - Visual and declarative development
  - Less coding, more reuse
  - Reduce Learning Curve & Resource Issues
  - XML Metadata

- Promote Service Oriented Development
  - Re-usable Business Services
  - Common architecture

- Standards-Base
  - Uses standard data & code whenever possible
  - Clean separation between design-time & runtime
  - Choice of technology – Not all-or-nothing
What Is Oracle ADF?

*End-to-end J2EE Framework*

- Implements standard J2EE best practices
- Model-View-Controller (MVC) design pattern

- Focus on the application, not the “plumbing”
- Consolidation and evolution of previous frameworks
Oracle ADF
Visual and Declarative Development

- End-to-end Application Development
  - J2EE & Services
- Visual
  - WYSIWYG editors
  - UML modelers
  - Structure pane
- Declarative
  - Structure pane
  - Property inspector
- Code View/Design View Synchronization
  - No separate generation step - always synchronized
  - Underlying code always accessible
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Business Services

- **Manages Persistence**
  - O/R mapping
  - Queries/DML

- **Performs Validation**
  - Data validation
  - Business logic

- **Choices of implementation**
  - ADF Business Components, Toplink, Web Services, Java classes, EJB
Business Services

*Design Time*

- UML Modelers, Wizards, Code Editors
  - ADF Business Components
  - Enterprise JavaBeans
  - TopLink
  - Database Schema
  - Web Services
  - Java Classes

- Integrated J2EE server (OC4J) for accelerating develop-run-debug cycle.
ADF Business Components

- Complete business tier development framework
- Implements J2EE design patterns
- Best practice solutions for:
  - Business logic implementation
  - Scalability and performance
  - Optimized database interaction
- Standard deployment options:
  - EJB, web tier, web services
Demonstration

Developing Business Components with ADF
ADF Model

• Abstract service implementation from clients
  - ADF Business Components, EJB, Web Services, Toplink, Java Classes, etc.
  - Implementation of JSR 227
  - Service Oriented Interface

• Declarative Data Binding
  - Common binding of data to UI components
  - Uses EL (standard expression language) to reduce learning curve
  - Clean separation of view and model

• Declarative Data Validation
  - Consistent interface for common validation
  - Extendable for complex application validation

• Design Tools
ADF Model

- Data Controls
- Data Binding
- JSR-227: “A Standard Data Binding & Data Access Facility for J2EE”

Orders Form

OrderID* 2354
OrderDate* 2001-07-10
OrderTotal 46257

Model

Business Component
Web Service
TopLink
EJB
Java Class
Drag-and-Drop Binding

Data Control Palette
- Expose any business service
- Available to any client
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UI Development

- Visual editors
  - JSP and HTML
  - JavaServer Faces
  - ADF Swing
- Component palette
- Common binding
- Property inspector
- Structure pane
Design and Code Sync

- Design View / Code View
  - Available for all components
  - Full synchronization with the code
JSP Visual Design

- Synchronized JSP Visual Design
  - Code Editor
  - Structure Pane
  - Property Inspector
  - Data Control/Component Palette

- Integrated with JSTL/EL, Struts, and JSF

- Universal ADF Databinding
  - Toplink, EJB, BC4J
  - Web Services
  - Drag and drop UI Components
JavaServer Faces

• Visual development
  - JSF UI Component visual editing
  - “Autobinding” backing code generation option
  - Visual design for mobile clients
  - Synchronized with faces-config.xml
  - Drilldown to pages

• Declarative
  - JSF Editor
  - Structure Pane
  - Property Inspector
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

- Provides complementary set of components to JSF 1.1 base components
- 100% JSF standard compliant
- Deployable on any compliant implementation of JSF
  - Reference Implementation
  - MyFaces
ADF Faces

- Rich set of standard components
  - 100+ components
  - Works with any Faces-compliant IDE
  - Rich browser experience

- Multiple Target Devices
  - Browser – HTML
  - Browser – DHTML/Javascript
  - Mobile/PDA

- Single Programming Model = J2EE/Faces

- Declarative Look and Feel
  - Example: www.orablogs.com

- ADF Integration
  - JSR 227 Data Binding
  - Validation Framework
Consistent Programming Model

- Desktop
  - Swing L&F
  - Swing
  - ADF Swing
- Browser
  - HTML
  - XML
  - Faces RI
  - ADF Faces
  - Java Server Faces / JSP
- Industrial
  - Phone/PDA
  - ITS
- Skins
- Render Kits
- Components
- Interface
- Bus. Logic

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DEMONSTRATION

Binding Data to a UI using ADF Data Binding and ADF Faces
Oracle JDeveloper 10G

- Standards-based IDE
- Single stack for all development
  - J2EE & XML Development
  - Portal, BPEL, BI & Wireless Development
  - Service-Oriented Development
  - Event-Driven Development
- Productivity With Choice
  - Supports choice of technologies
  - Supports choice of development styles
  - Supports choice of Application Servers
- Adapts to Environment
  - Not the other way around
More Choices – Less Complexity

- UML
- Swing, HTML
- JSP
- JSF
- Apache Struts
- BPEL
- Wireless
- EJBs
- Toplink
- Ant, JUnit
- CVS, Clearcase
- Portal
- Oracle 10g
- JBoss, WLS
- Profiling
- Audit/Metrics
- Etc.

Extension Manager

My JDeveloper

- HTML
- JSF
- JSP
- EJBs
- Toplink
- Ant, JUnit
- BPEL
- CVS
- Oracle 10g
- Profiling
- Audit/Metrics

Technology Scopes

UI Project
- HTML
- JSP
- JSF

Data Project
- EJBs
- EDSL

BP Project
- BPEL
- XSL
- XSD

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Choice of Development Styles

- Wizards, Templates, Component Bindings, MDD
- UML Profiles, Visual Editors, BP Diagram, Page Flow Diagram
- Structure Pane, Dialogs, Property Inspector, Component Palette
- Java, JSP, PL/SQL, HTML & XML Editors
- Standard Data

Design-Time
QUESTIONS & ANSWERS