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Developing On-Device Java Mobile Apps for iOS...and Android To

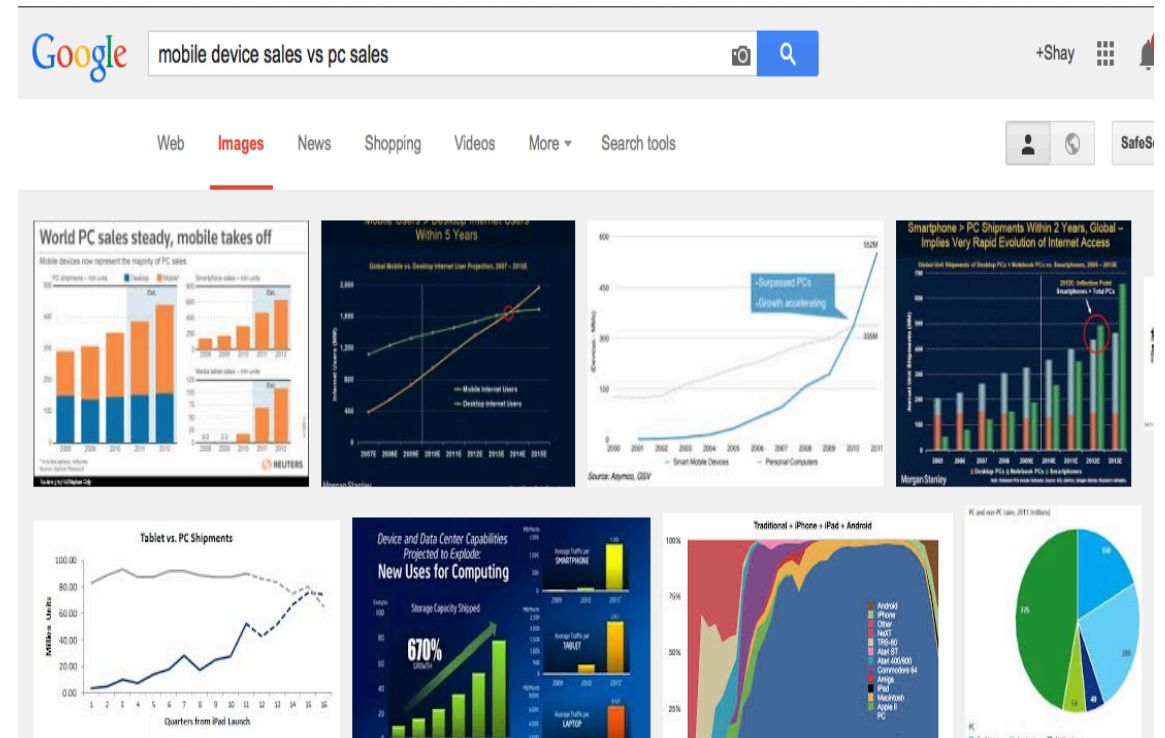
Warning – demo may contain small fonts – sit closer...

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Director of Product Management
Mobile and Development Tools
September, 2014
@jdevshay



You Should Be Developing for Mobile

- Lots of graph can show this
- But you are already here – so I probably don't need to convince you



The Mobile Developer Dilemma

- Native
 - Develop with the platform's specific SDK, language, tools
- Web
 - Develop once – run on many – limited “mobile experience”
- Hybrid
 - Develop once run on many



The Mobile Developer Dilemma – Java Developer Edition

- Native
 - Android – sort of Java
 - iOS – new languages, new tools, new everything
- Web
 - I can do this with Java but functionality is limited
- Hybrid
 - I need to learn new languages and techniques



What If...

- You could use the language you already know – Java
- You could use techniques/methodologies you know
 - MVC
 - Component based UI definition
 - POJO beans
- You could use an IDE you already know – Eclipse (or JDeveloper)
- You could leverage device features and notifications
- You could support offline and online



Introducing Oracle Mobile Application Framework

Write Once, Deploy to Many

Oracle Mobile App
Framework



Oracle Mobile Application Framework Overview

Productivity boosting mobile development framework

- Build Once, Run on Multiple-Platforms
- Simpler UI development
- Java, JavaScript, and HTML5-based application development
- Choice of development tools
- Offline-capable: SQLite with Encryption
- Full Access to Native Device Features
- Modular, Reusable Components



Supporting Multiple Development Approaches

	Declarative Framework	HTML5+JavaScript
Logic	Java	JavaScript
UI	Oracle Components	Any HTML5 component
Access to backend services	Declarative data controls	Programmatic
Device features integration	Declarative or Java API	JavaScript API
App/Feature Security	Supported	Supported
Push notification	Supported	Supported

Business Logic Development

Access and Process Application Data

- Code logic with Java
 - Model layer beans
 - Controller layer logic/beans
 - Lifecycle events
- Lightweight JVM
- Native library on device



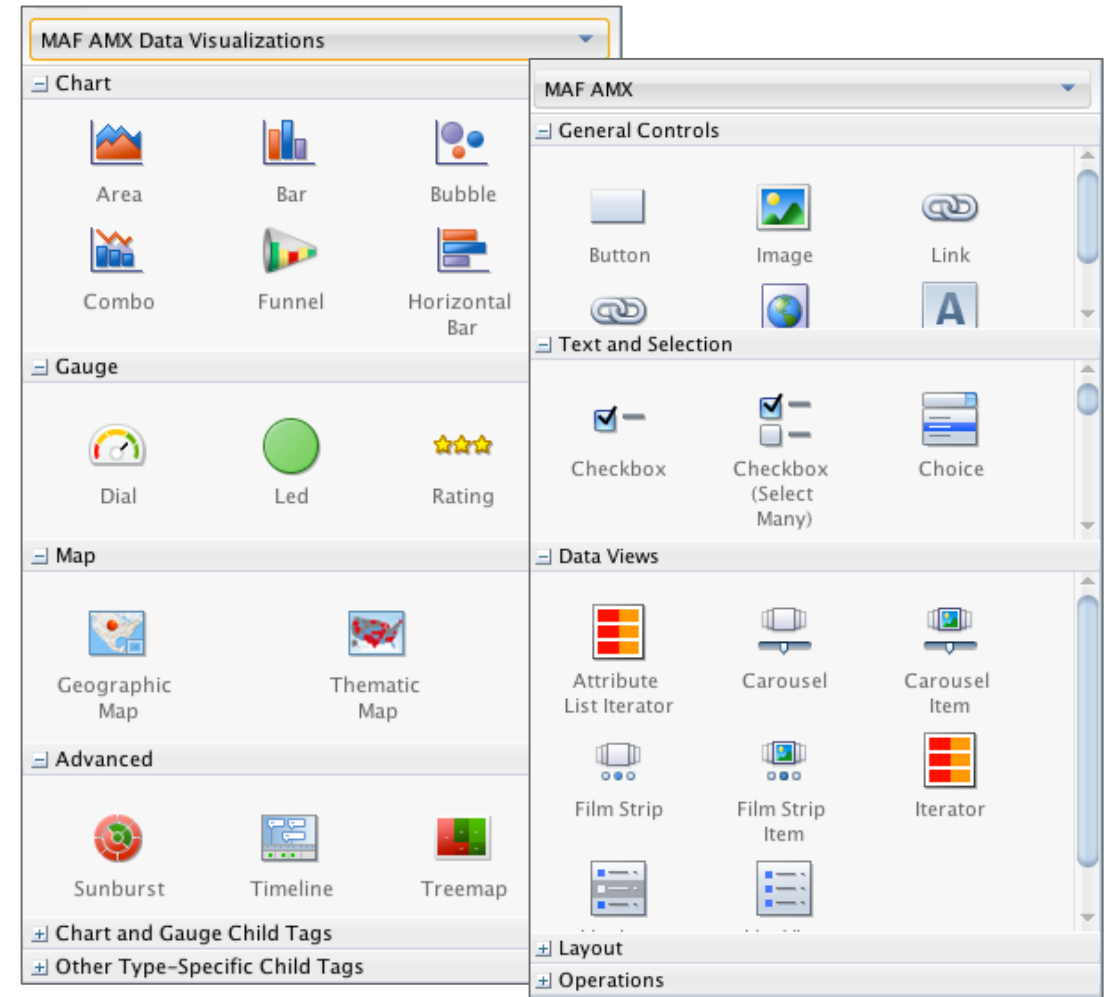
UI Implementation Options in Oracle MAF

- Component based page definition
 - AMX Components
- Programmatic HTML5
 - with any third-party HTML5 frameworks
- Remote URL
 - Any server-side HTML



Application Mobile XML Components (AMX)

- 80+ Components
- XML format
- Visual development
- Declarative data binding
- Rendered into HTML5/JavaScript on device at RT
- Customized look and feel through CSS



Mobile Optimized UI Experience

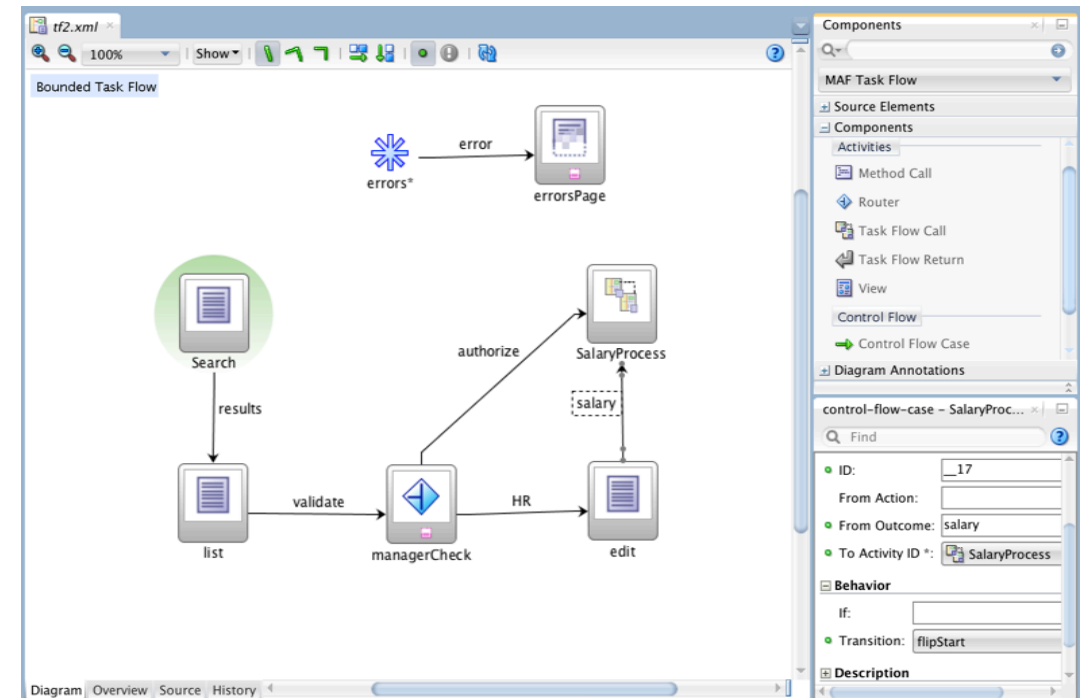
- Native user experience
- Advanced HTML5-based UI
 - Full animation, gesture, and touch interaction support
- Interactive data visualization components
- Optimized performance for mobile



Mobile Application Controller

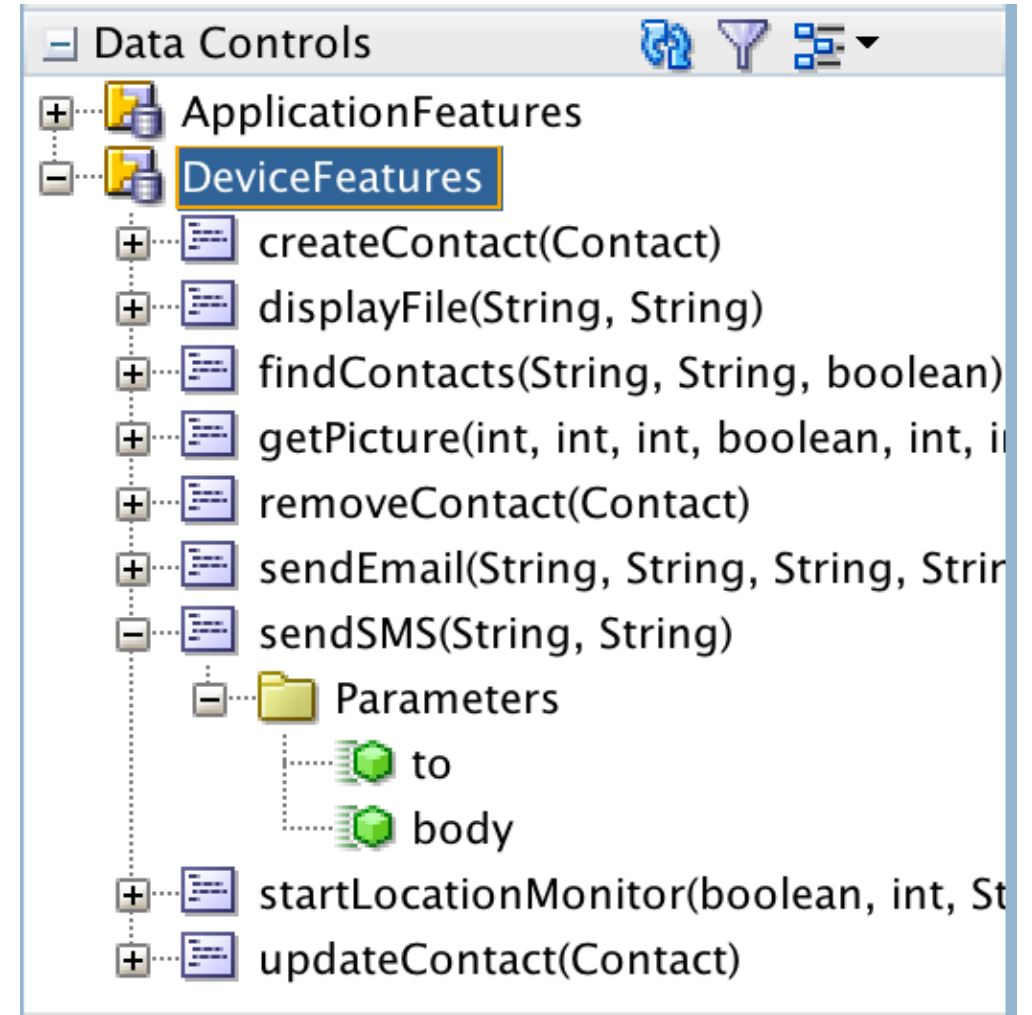
MVC architecture for your mobile application

- Define the flow of your application
- Navigate between pages, methods and decision points
- Java code for UI events and managed beans



Device Features Interaction

- Leverages Apache Cordova
- Drag and drop to use
 - Email
 - SMS
 - Contacts
 - GPS
 - Camera
 - Files
- Or access programmatically
 - Java & JavaScript API



Extend and Expand

Add capabilities to the framework

- Cordova Plug-in Support
 - Add device integration functionality
 - Cross platform
- Custom AMX Component Support
 - Allows developer to add custom UI components to the framework
- Declarative reusable Component Support



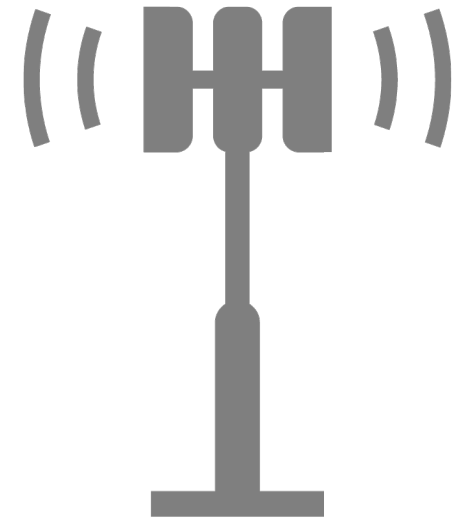
Declarative Customization

- Add customization/personalization in layers
- Customization applied at runtime
- Supports in-app application updates



Native Push Notification Support

- Push notifications to mobile users from a single code base
- Leverage native push notification
 - iOS: Apple Push Notification
 - Android: Google Cloud Messaging Service
- Tightly integrated
 - With the application lifecycle and business logic



Built-in Security Features

- Authentication
 - Multifactor login
 - Oauth, Web-Form, Basic
- Access Control
 - Roles
- Encryption
 - Local data and in transit
- Oracle Mobile Security Suite Integration
 - Containerization
 - Device access control
 - Single sign on



Development Tools Integration

Increase developer productivity

- Oracle JDeveloper or Oracle Enterprise Pack for Eclipse
- IDEs integrate with mobile SDK seamless development/testing/deploying experience
- Productivity boosting IDE
 - Declarative and visual editors
 - Component palette
 - Data control palette
 - Property inspectors
 - Smart code editors



Oracle JDeveloper

The screenshot displays the Oracle JDeveloper 12c IDE interface. The top menu bar includes File, Edit, View, Application, Refactor, Search, Navigate, Build, Run, Source, Team, Tools, Window, and Help. The title bar indicates the project is 'PhoneHR.jws' and the current view is 'ViewController.jpr'.

The main workspace is divided into several panes:

- Applications:** Shows the project structure for 'PhoneHR', including 'META-INF', 'Web Content', and 'Application Resources'.
- untitled1.amx:** Displays the source code for an AMX page. The code includes a bar chart component and various facets for header, primary, secondary, and footer.
- Components:** A palette on the right showing various MAF AMX Data Visualizations, including Chart, Gauge, and Map.
- untitled1.amx - Structure:** A tree view showing the hierarchical structure of the AMX page, including facets and components.
- search-flow.xml:** A Bounded Task Flow diagram showing the flow of the application. It includes components like Search, List, manager, checkPrivs, and EditEmo, connected by actions like find, select, auth, and edit.
- Bar - Properties:** A panel on the right showing the properties of the selected bar chart component, including its ID, value, and appearance settings.

The status bar at the bottom shows the file path: /Users/sshmeltz/jdeveloper/mywork/PhoneHR/ViewController/public_html/phone.hr.oracle.EmpList/search-flow.xml.

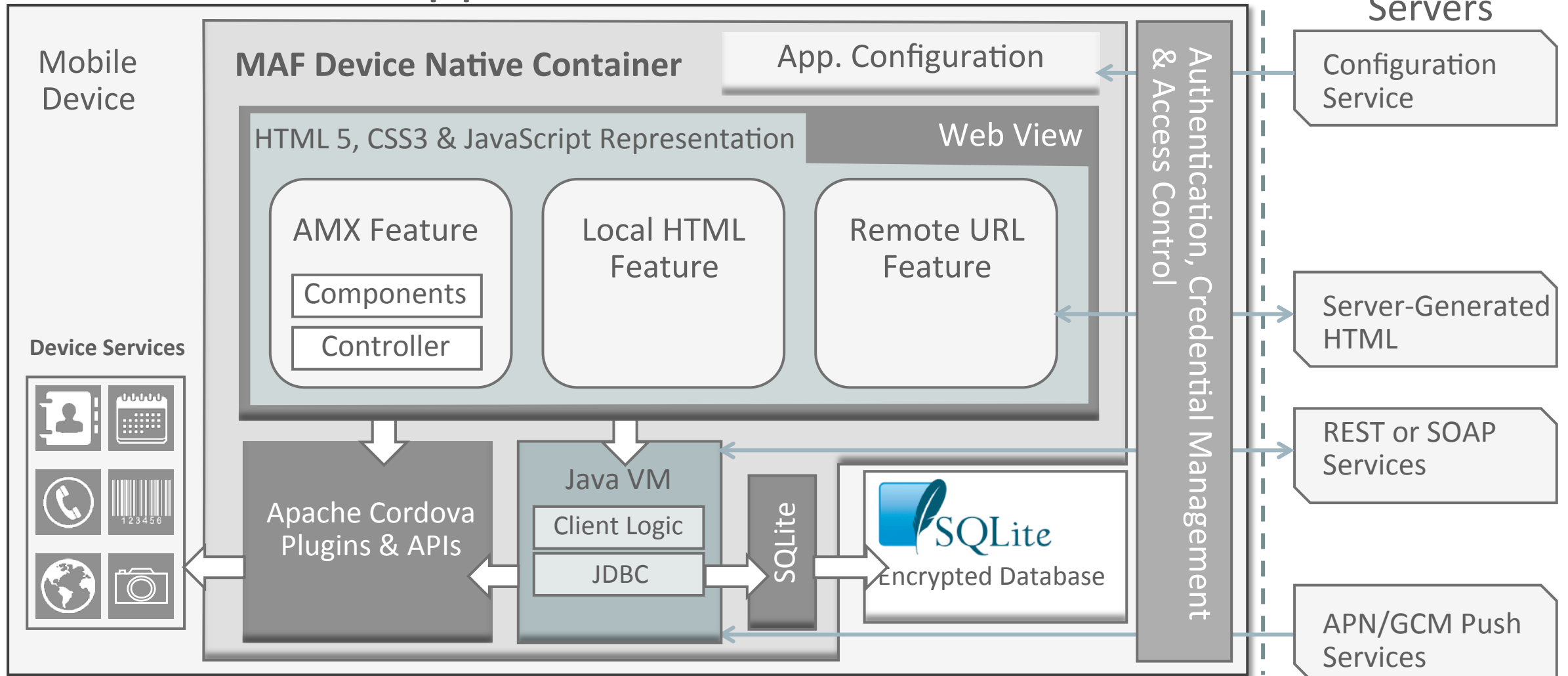
Oracle Enterprise Pack for Eclipse

The screenshot displays the Oracle Enterprise Pack for Eclipse IDE interface, showing a mobile application project named "emp-flow-definition.xml". The interface is divided into several panes:

- Project Explorer:** Shows the project structure, including "MAF", "adfmsrc", "src", "META-INF", and "ViewContent".
- Palette:** Displays a list of components and services, including "ApplicationFeatures", "DeviceFeatures", "Emps", "email", "hireDate", "name", "salary", and "Operations".
- *List.amx:** Shows the XML code for the mobile application. A tooltip for the "amx:carousel" component is visible, stating: "Element : carousel. The carousel component displays a spinning series of items based on rows of a collection model. Content Model : (facet?)".
- emp-flow-definition.xml:** Shows the "Bounded Mobile Task Flow" diagram, which includes a "Camera" component, a "List" component, and a "Chart" component, connected by a "graph" flow.
- AppXaminer:** Shows the "Data" model diagram, which includes a "List.amx" component, a "binding: email" component, a "binding: emps" component, a "binding: hireDate" component, a "binding: name" component, and a "binding: salary" component, all connected to an "Iterator: empsiterator" component.

The status bar at the bottom indicates the current file is "amx:view/amx:panelPage/amx:panelSplitter/amx:facet/amx:listView/amx:listItem/amx:c" and shows the "Writable" and "Smart Insert" modes.

Oracle Mobile Application Framework Architecture



A woman with long dark hair, wearing glasses and a blue denim shirt, is sitting at a desk and looking at a large computer monitor. Her hands are on the keyboard. The background is a blurred office environment with shelves and other equipment.

Demo – Developing with Oracle MAF



The Oracle MAF Developer Challenge

<http://bit.ly/MAFChallenge>

Develop an Oracle MAF Application

Get a chance to win \$\$\$

\$6,000 – First place

\$3,000 – Second place

\$1,000 – Third place

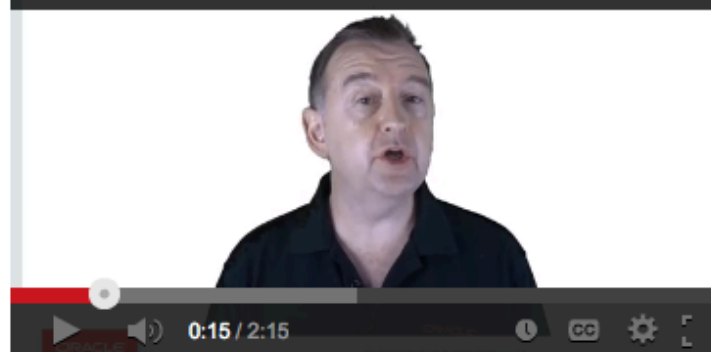
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- JavaOne DemoGround Booth

Oracle Mobile Platform

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00. Oracle Mobile Platform Channel Promotion



Introduction and Overview

This Introduction and Overview playlist sets the scene by introducing mobile development and the Oracle Mobile Application Framework (MAF)



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Hardware and Software **Engineered to Work Together**



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