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On device development with Oracle's Mobile Application Framework

Simplifying Mobility

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Principal Product Manager
Oracle Mobility and Development Tools
September 12, 2014

Prepared For



Safe Harbor Statement

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Program Agenda

- 1 The Oracle Mobile Platform
- 2 MAF Overview
- 3 User Interface
- 4 Data Access
- 5 Security

The image shows a close-up, low-angle view of the Oracle logo mounted on a curved glass building facade. The logo is rendered in large, three-dimensional, metallic letters. The building's glass panels reflect the sky and surrounding environment. The overall color palette is dominated by blues and greys, with a red accent in the bottom left corner.

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The Oracle Mobile Platform

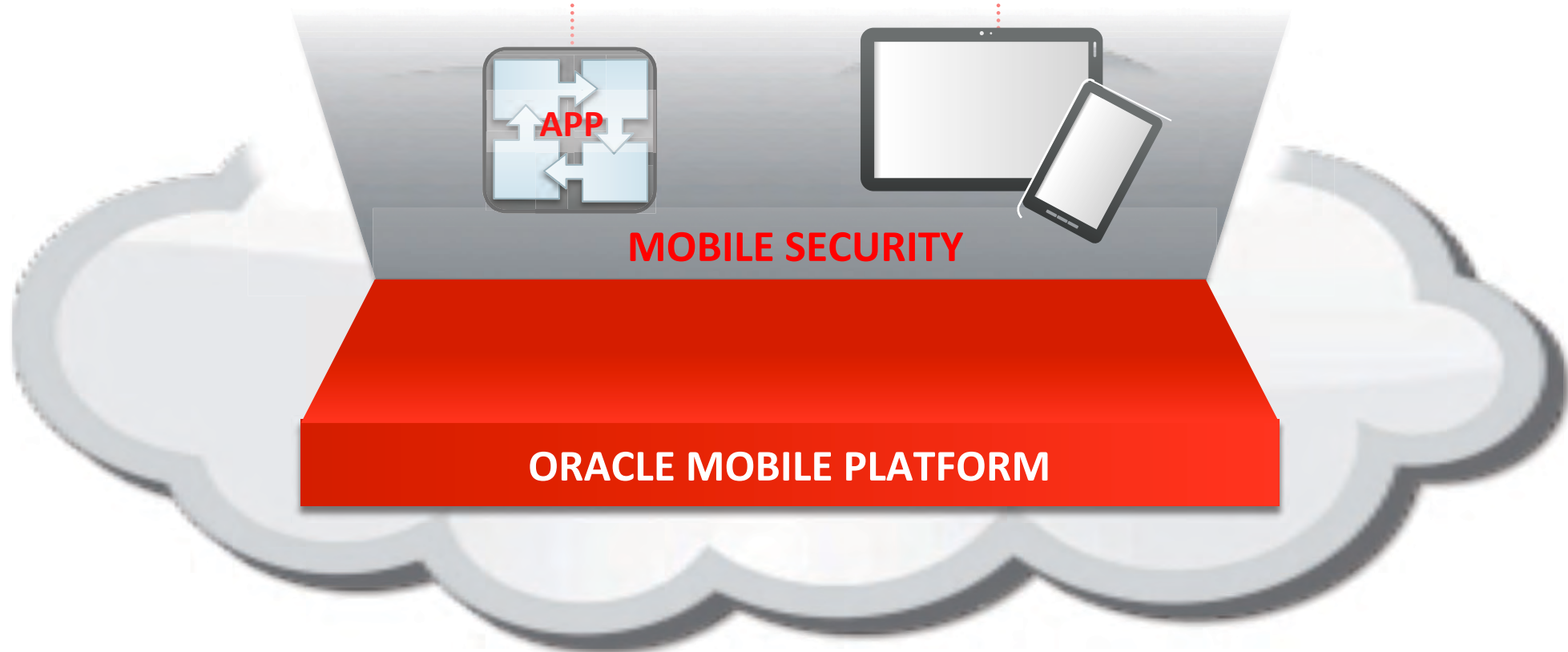
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Oracle's Mobile Strategy

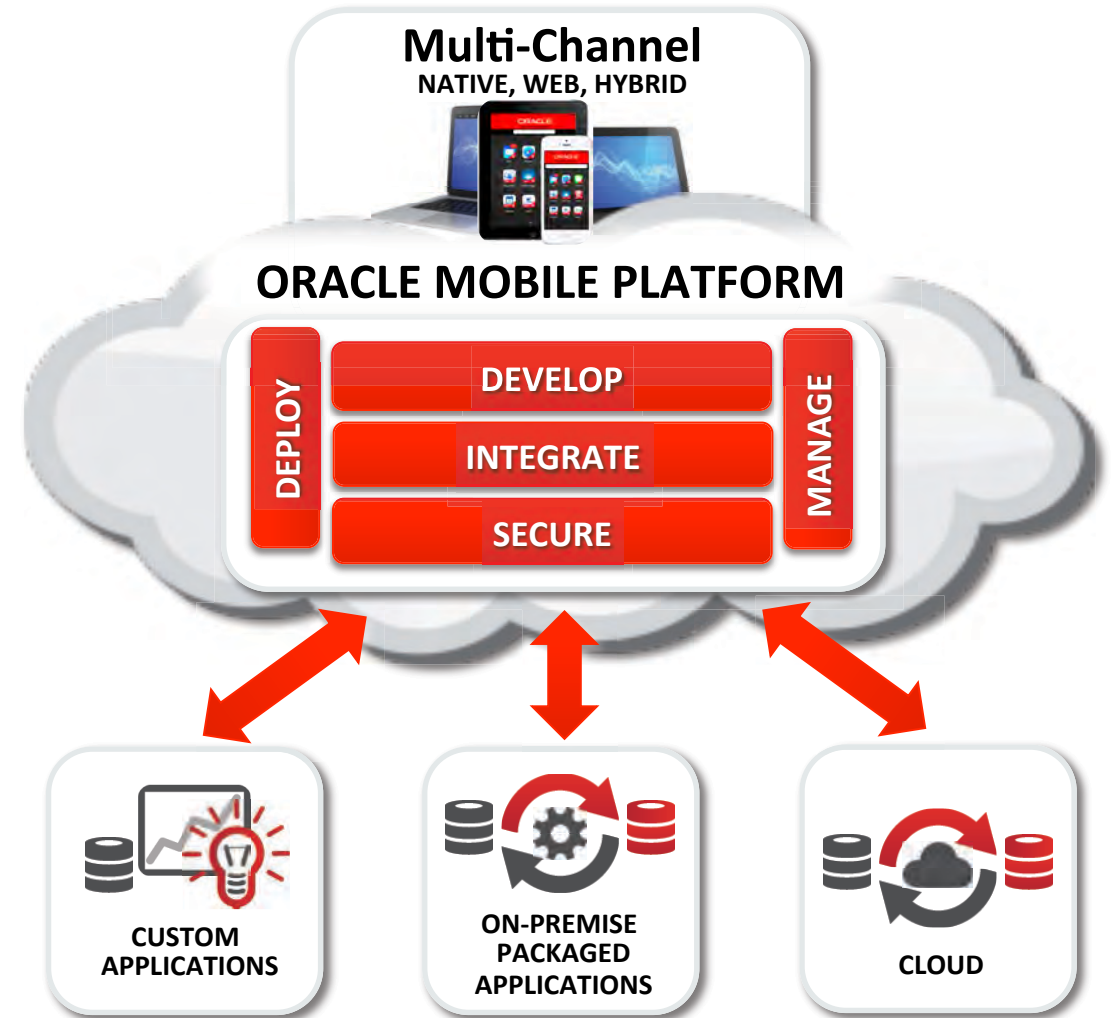
Build Your
Own Apps

Oracle's
Mobile Apps



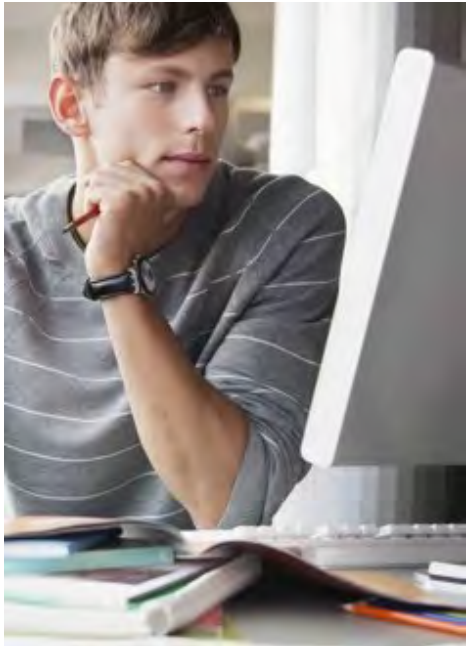
The Oracle Mobile Platform

- **Develop** cross platform, multi channel and multi device applications
- **Integrate** data and services
- **Secure** information uniformly
- **Deploy & Manage** cloud and on-premises for multi-channel delivery



An aerial photograph of a dense urban skyline, likely New York City, featuring numerous skyscrapers of varying heights and architectural styles. The buildings are packed closely together, with some prominent structures like the Empire State Building visible. The sky is clear and blue, and the overall scene is brightly lit.

Overview



"A **guiding principle** for MAF is to **eliminate the barrier of entry** to mobile development for enterprise programmers, making them **productive** as early as possible."

Concept



**Oracle Mobile
Application Framework**

Java

HTML5

Built On Standards

Use Existing Skills Set

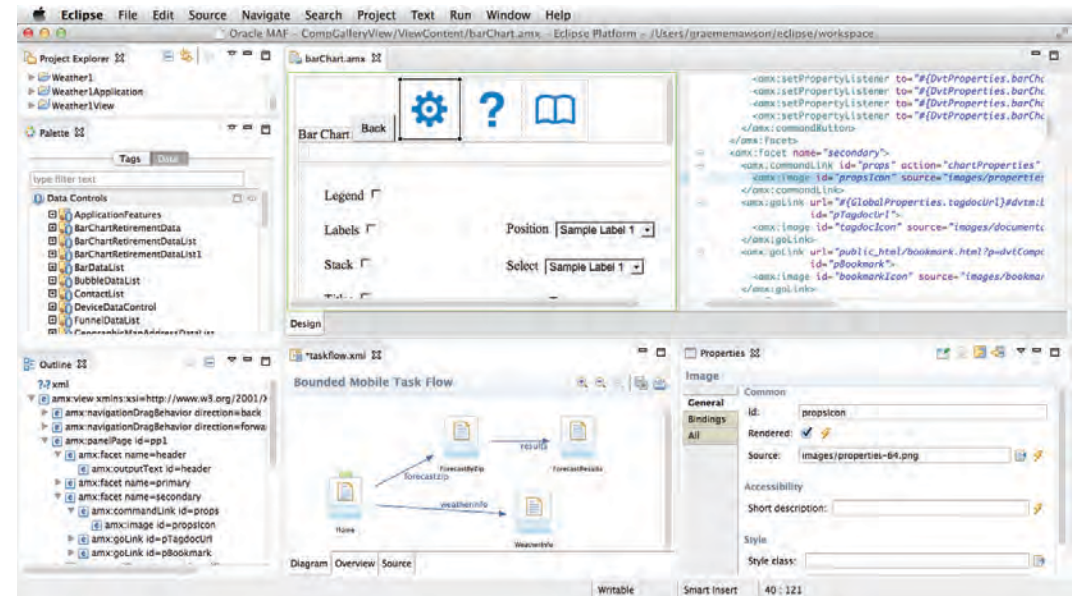
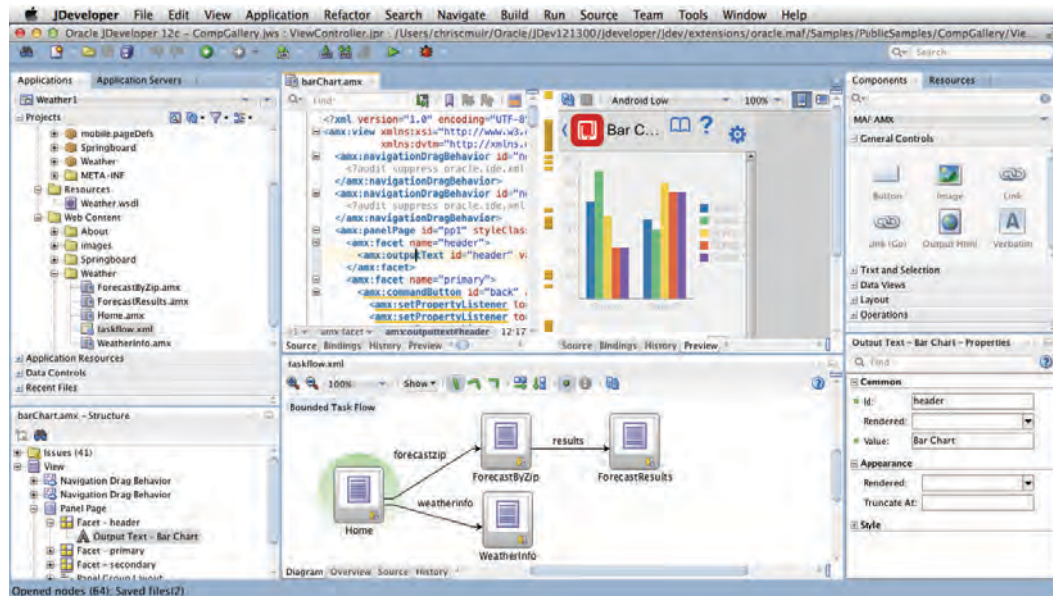


Main Features



- Simple and Extensible UI
 - Components
 - HTML5/JavaScript
- Java for business logic
- Local SQLite database with Encryption
- Integrated Security
- Full Access to Native Device Features

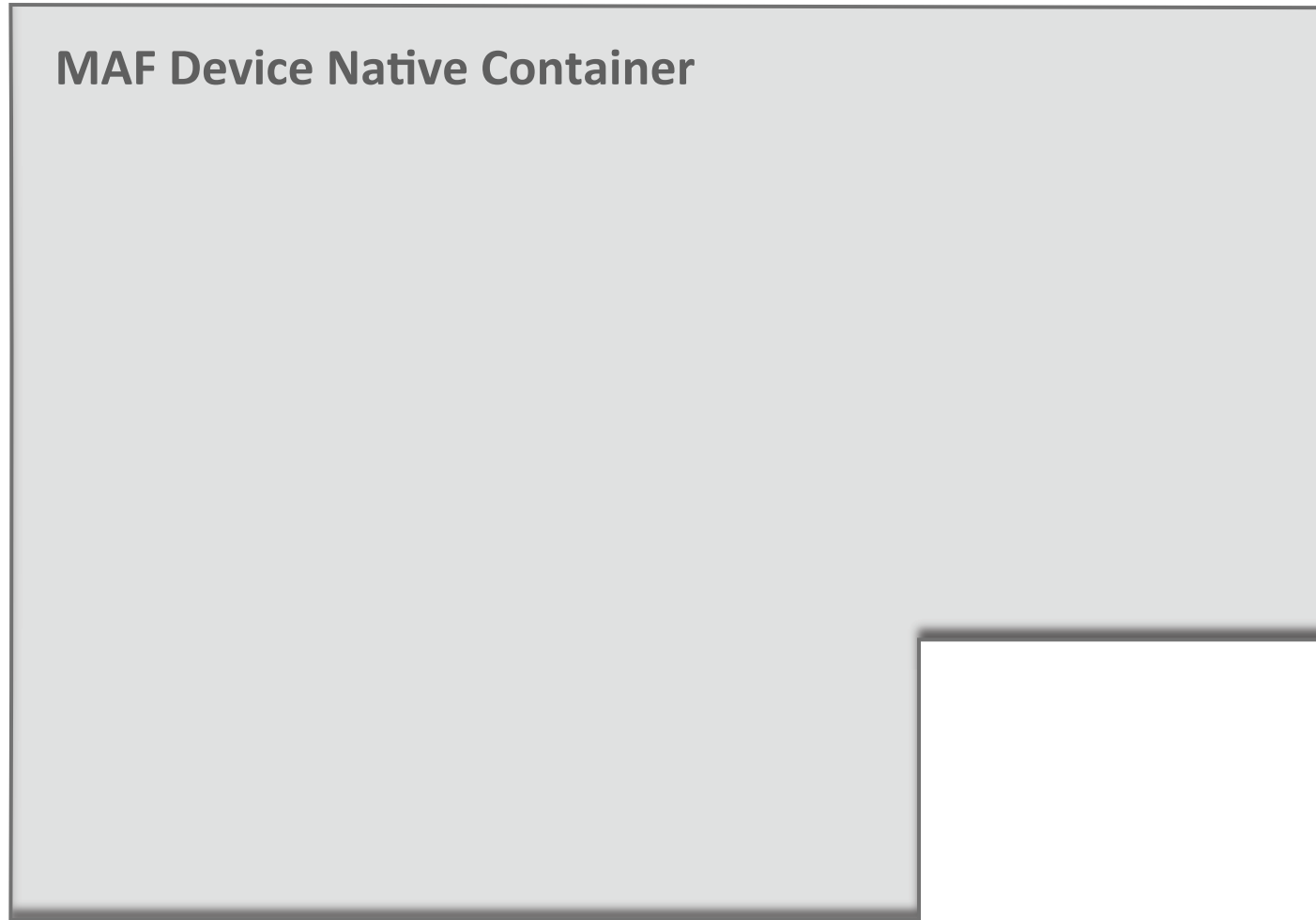
A choice of tools



Oracle MAF Architecture

Oracle MAF Architecture

Mobile
Device

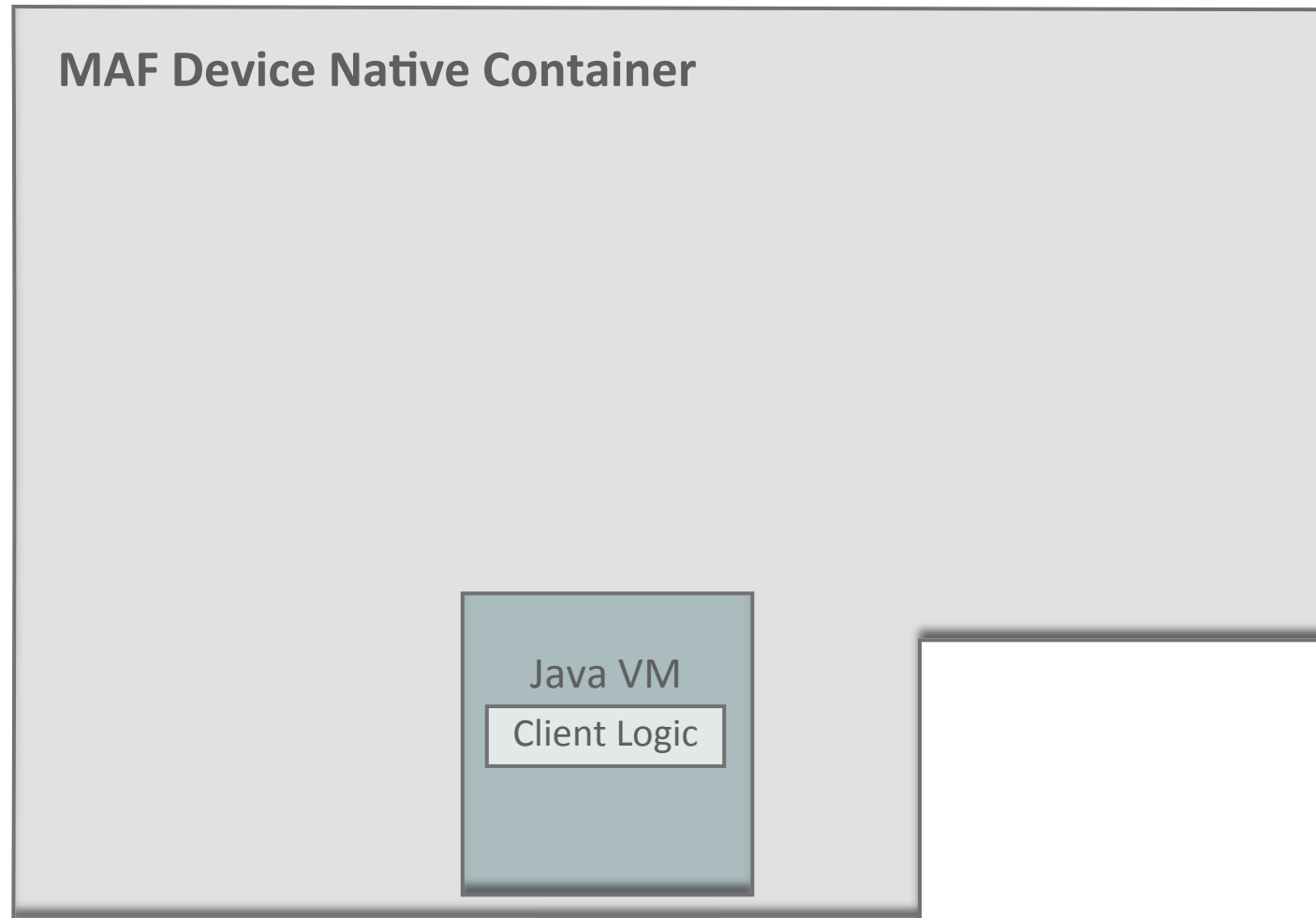


Servers



Oracle MAF Architecture

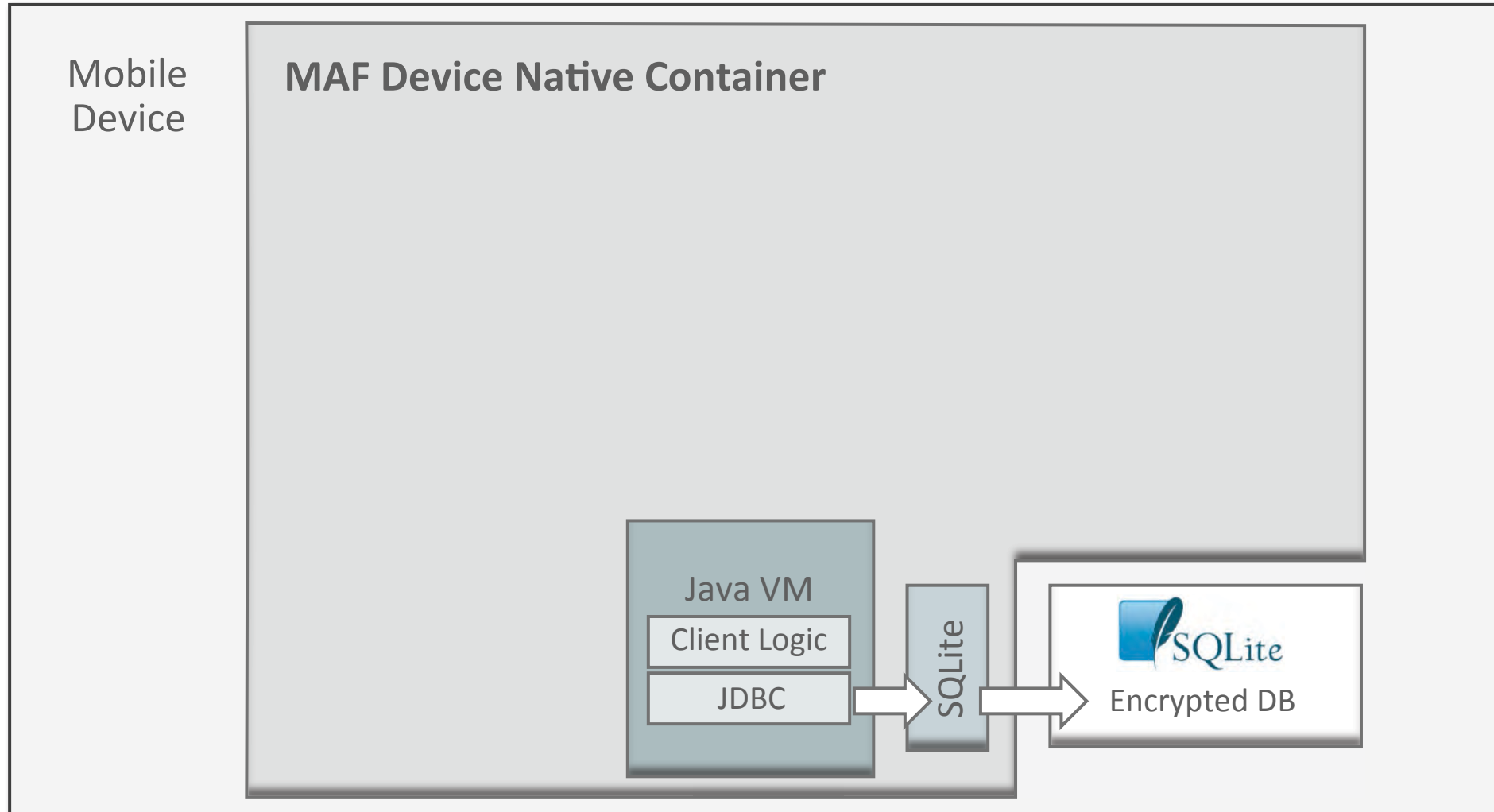
Mobile
Device



Servers

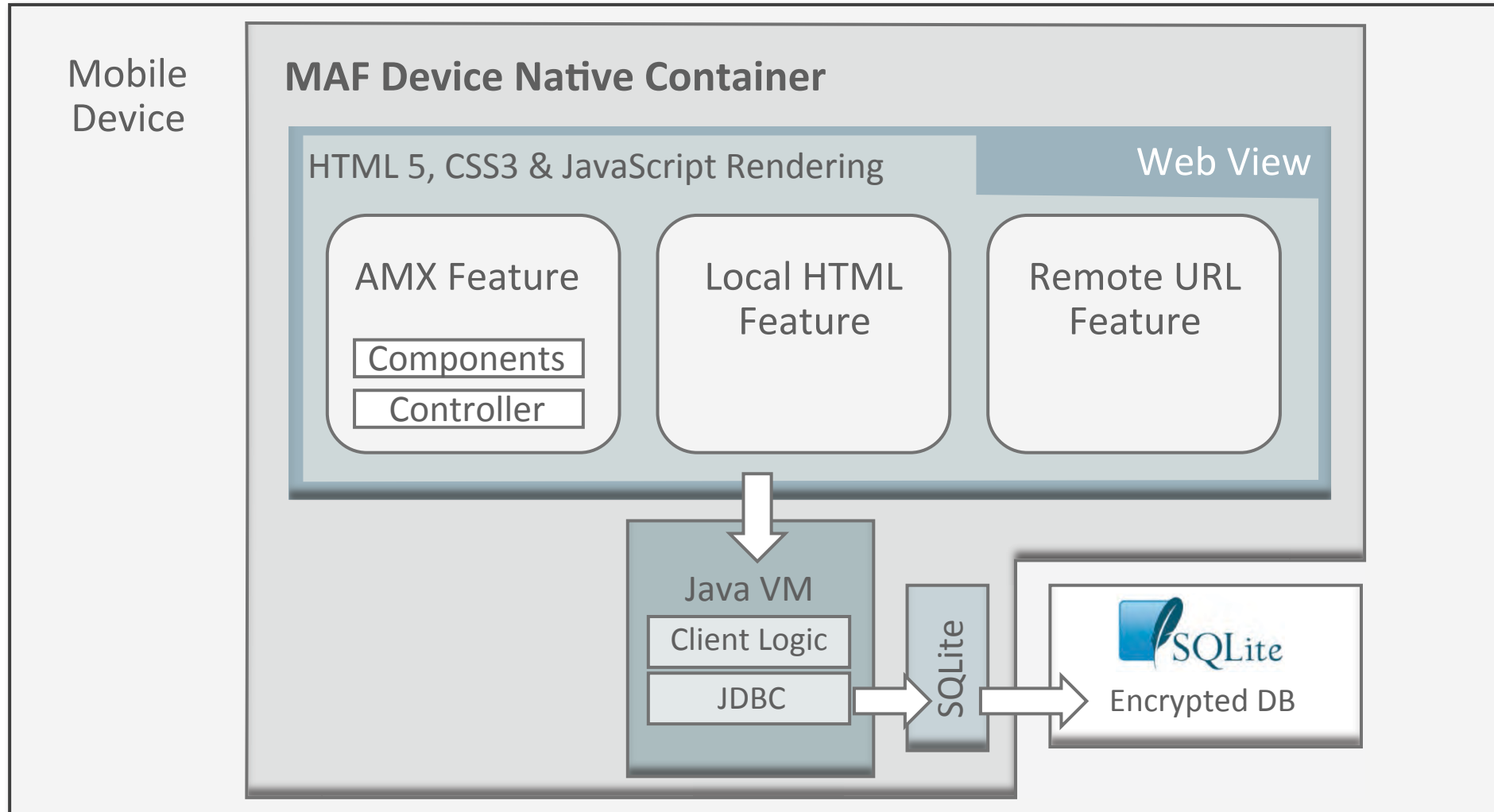
Oracle MAF Architecture

Servers



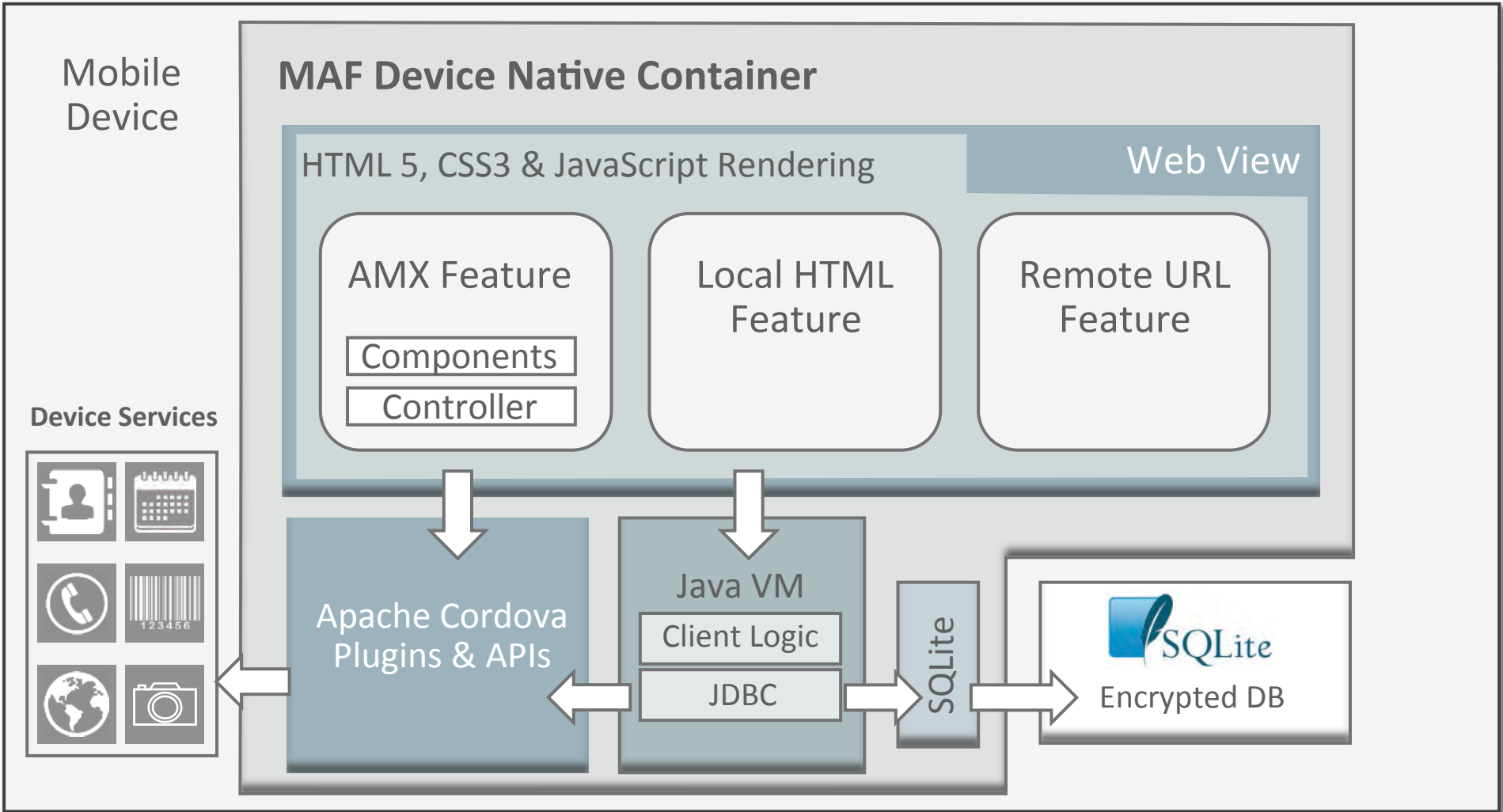
Oracle MAF Architecture

Servers



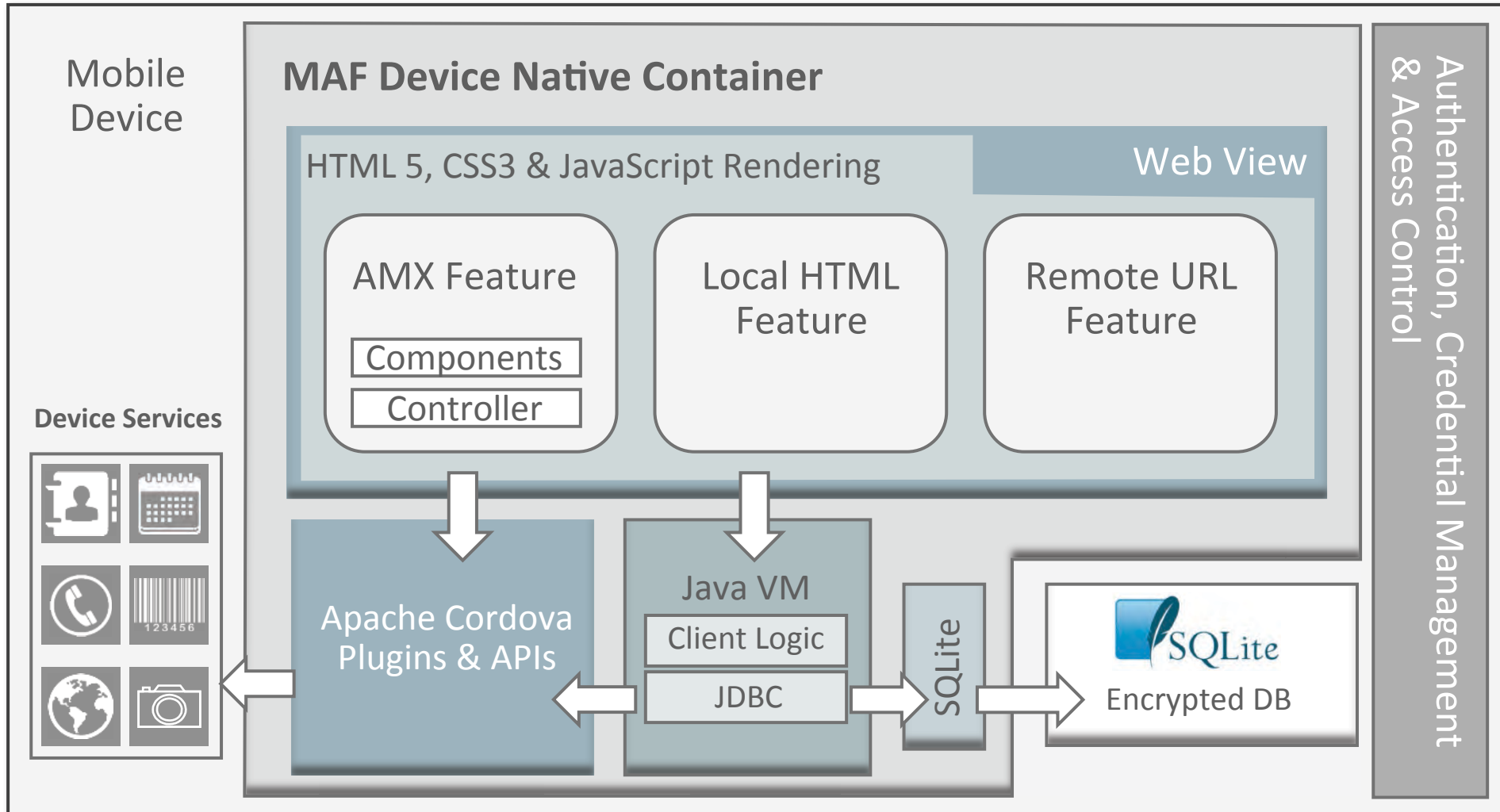
Oracle MAF Architecture

Servers



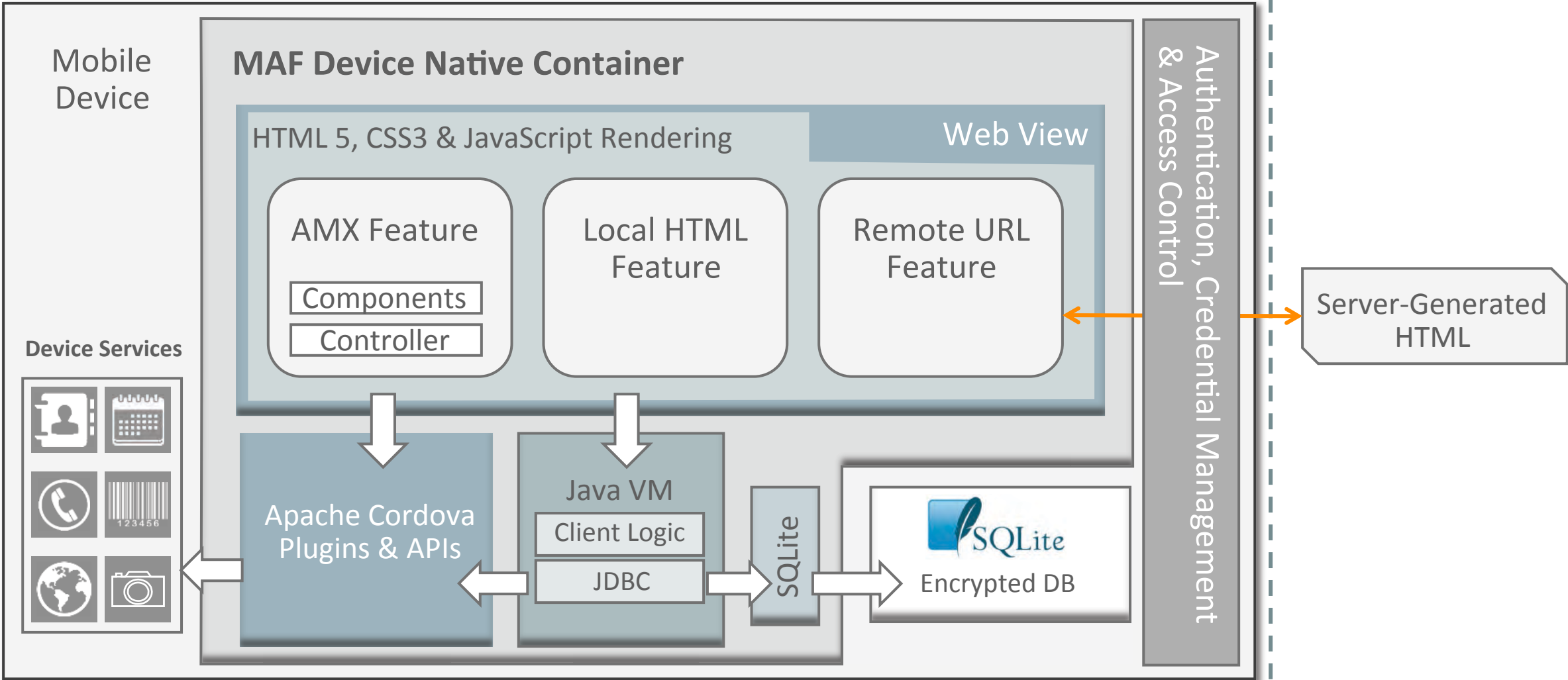
Oracle MAF Architecture

Servers

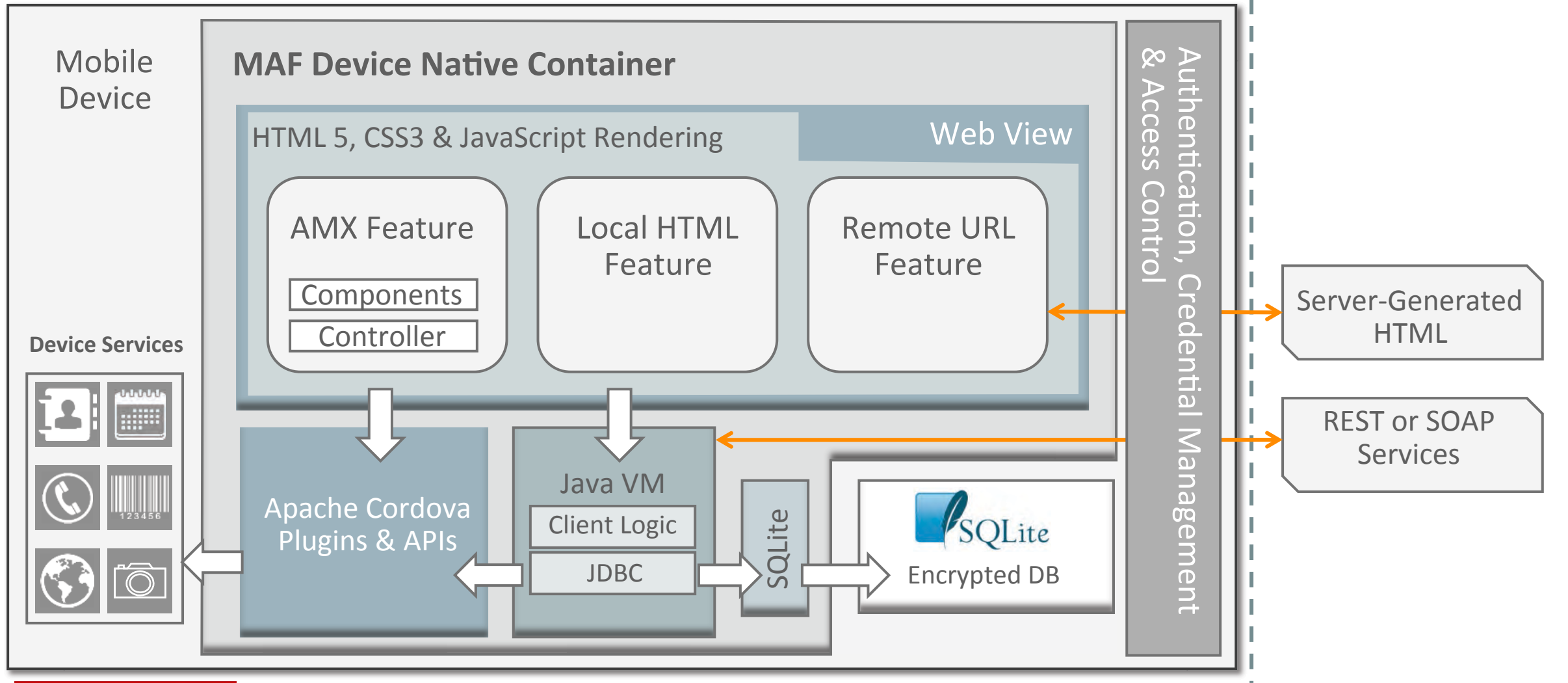


Oracle MAF Architecture

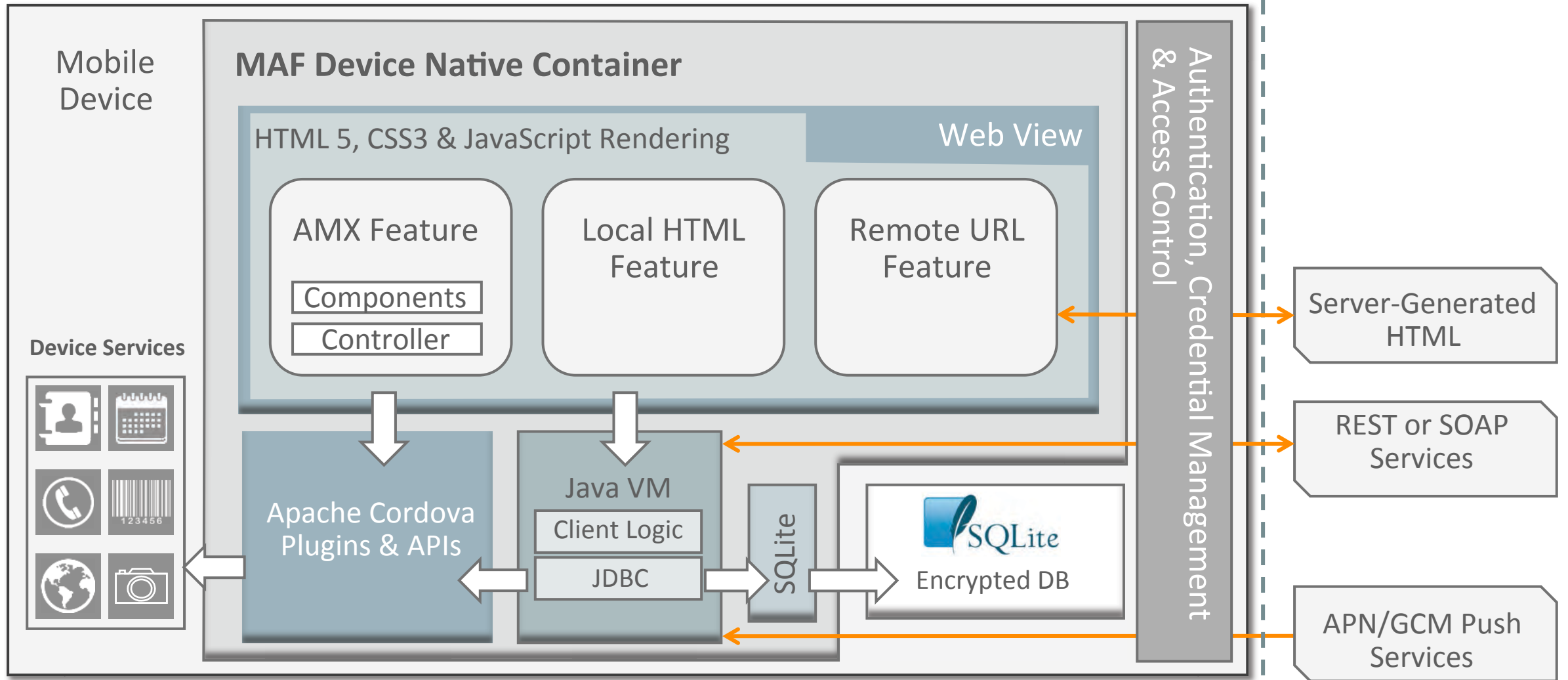
Servers



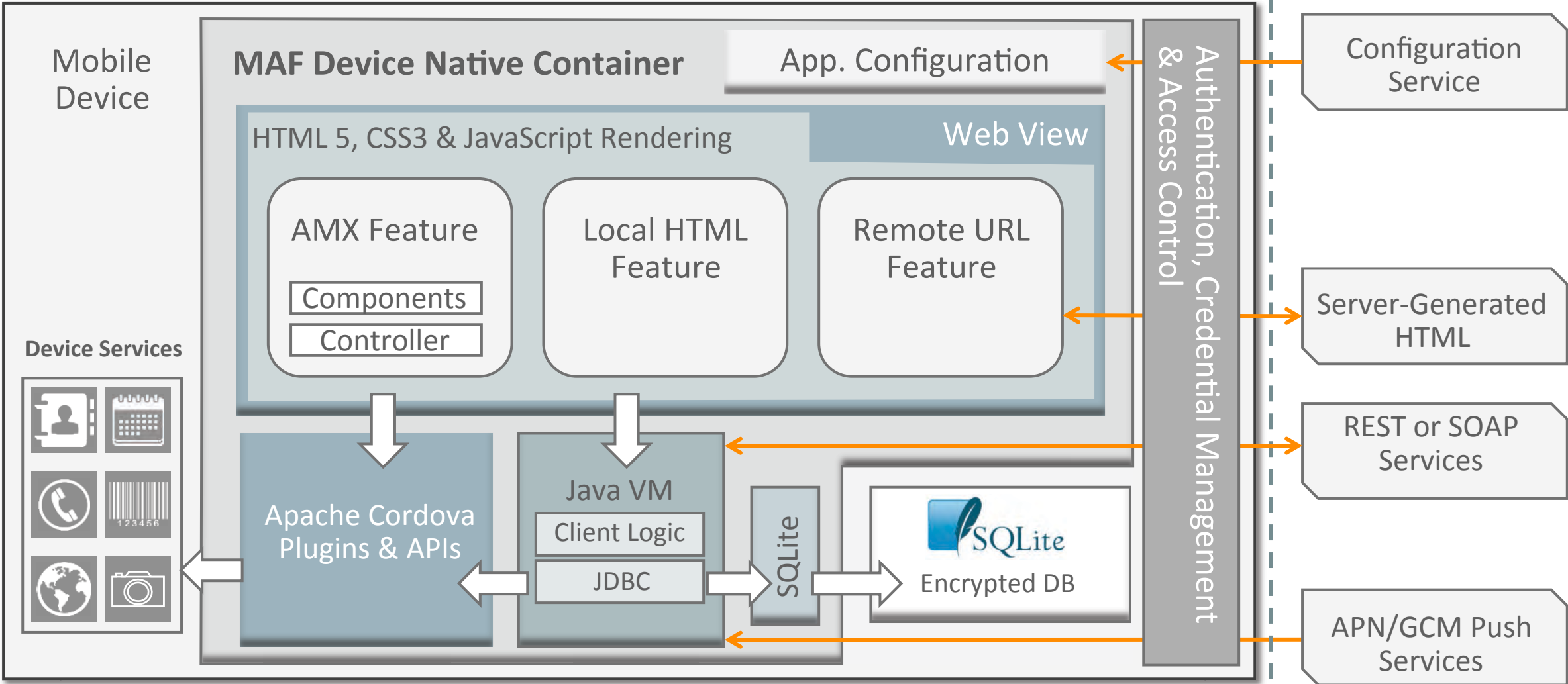
Oracle MAF Architecture



Oracle MAF Architecture



Oracle MAF Architecture

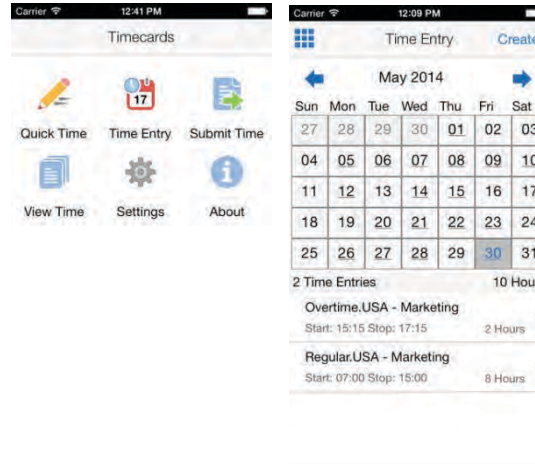


A few our own MAF apps

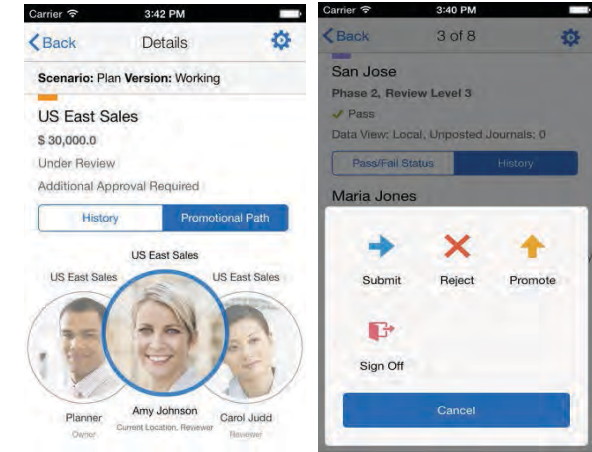
PeopleSoft Campus Solution



EBS Timecards



EPM Mobile



Fusion TAP HCM



Pillar Axiom Anywhere

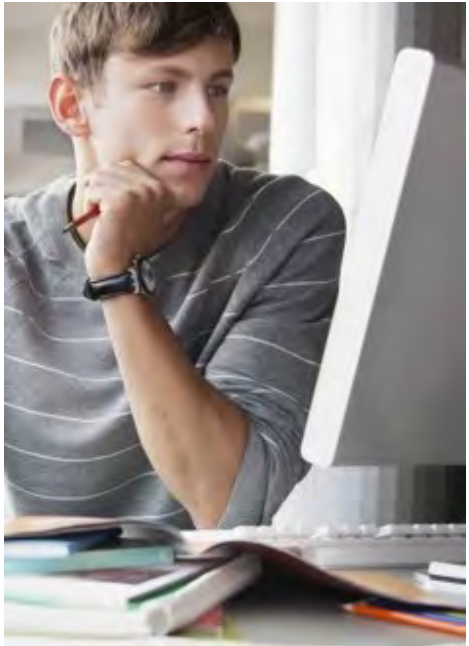


JD Edwards EnterpriseOne



An aerial photograph of a city skyline at dusk. The sky is a mix of deep blue and orange, with scattered clouds. The city is densely packed with buildings, many of which are illuminated with lights. The Empire State Building is the most prominent feature on the right side, standing tall and brightly lit. The overall scene is a vibrant and detailed representation of a major urban center.

User Interface



"MAF by design gives developers the choice to take a **productive declarative** route, or the **flexible programmatic** path. The user interface development is no different, the **choice is yours.**"

User Interface Options

1. Local AMX Page
2. Local HTML Page
3. Remote URLs



Local AMX Pages

- JSF-like file built visually in JDeveloper
 - Component based framework
 - 80+ prebuilt “super” components
 - Rich data binding layer
- Generated into HTML/CSS/JS on device at runtime
 - Cross platform compatible
- Oracle is responsible for:
 - Device compatibility, support, upgrades



Local HTML Pages

- Any HTML5/CSS3/JS
- Total flexibility in design
- Integrates through JavaScript APIs with MAF
- All responsibility lies with the developer including compatibility, support, upgrades



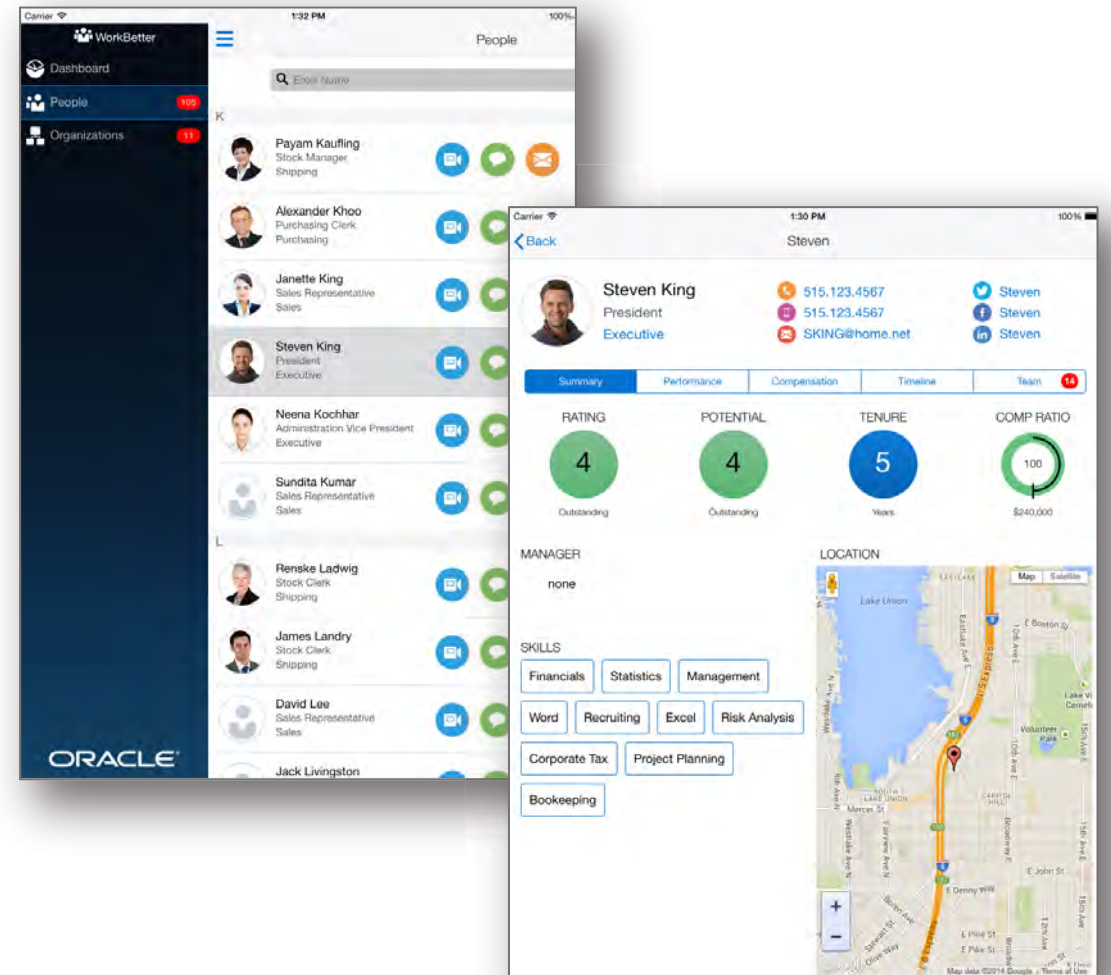
Remote URL

- Call/embed remote websites
- Mix 'n match local & remote content



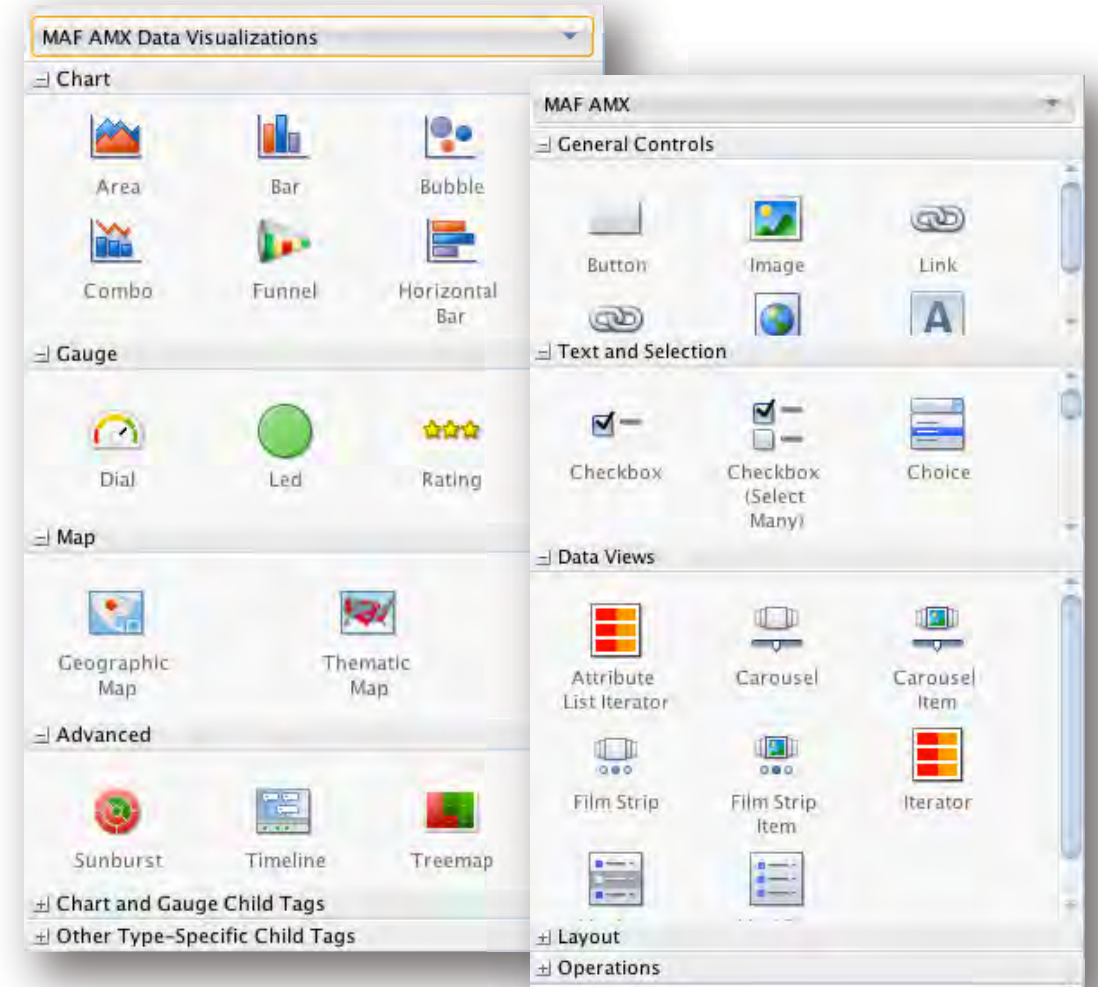
"Application Mobile XML" (AMX) Page

- Define the UI of a single page
- XML format
- Design time support
- Owned by a MAF feature
- Can be bundled in task flows



AMX UI Component Based Framework

- 80+ prebuilt AMX components
- Mimic device look & feel
 - Oracle ensures cross platform support
- Can be bundled into reusable fragments
- No JavaScript skills required
- Support data binding
 - Can bind to data controls or Java beans



iPad 12:43 pm 76%

[+ Add Employee](#) Adam Fripp [Metrics](#)

Search for Employee Adam Fripp

F

- Daniel Faviet, Accountant
- Pat Fay, Marketing Representative
- Kevin Feeney, Shipping Clerk
- Jean Fleaur, Shipping Clerk
- Taylor Fox, Sales Representative
- Adam Fripp, Stock Manager**

G

- Timothy Gates, Shipping Clerk
- Ki Gee, Stock Clerk
- Girard Geoni, Shipping Clerk
- William Gietz, Public Accountant
- Douglas Grant, Shipping Clerk
- Kimberely Grant, Sales Representative
- Nancy Greenberg, Finance Manager
- Danielle Greene, Sales Representative

Profile

- Phone: 650-123-2234
- Email: AFRIPP@avitek.com
- Manager: Steven King
- Organization: Shipping
- Salary: \$8,200.00
- Commission %: 0%
- Hire Date: 03/03/1997

Compensation

- Salary by Job Role: 8.200K
- Salary by Organization: 8.200K

Direct Reports: 8

- Mozha Arkinson
- Laura Bissot
- Alexis Bull
- Anthony Gabrio
- Julia Dellinger
- James Marlow
- TJ-OJ

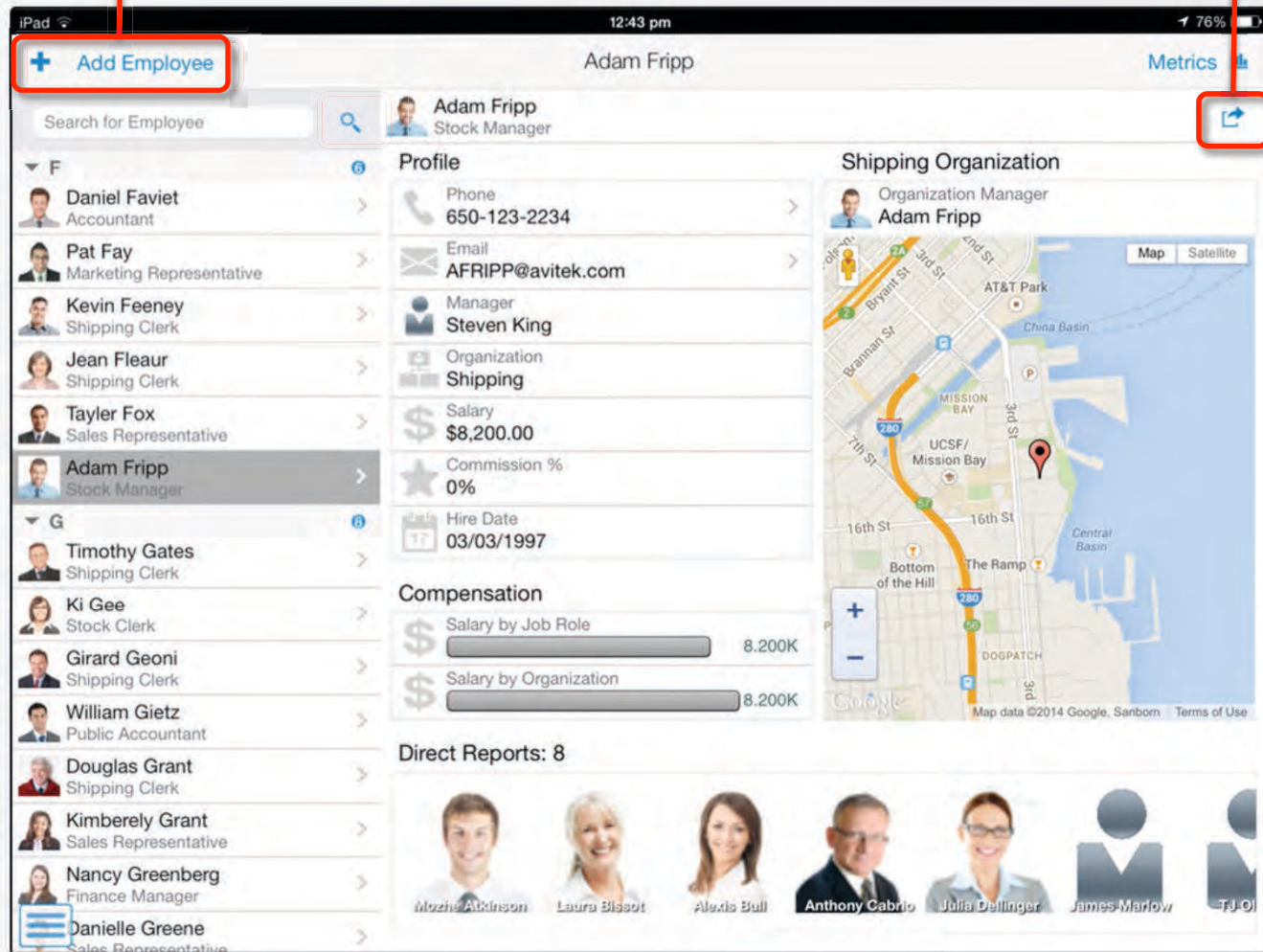
Shipping Organization

Organization Manager: Adam Fripp

Map data ©2014 Google, Sanborn Terms of Use

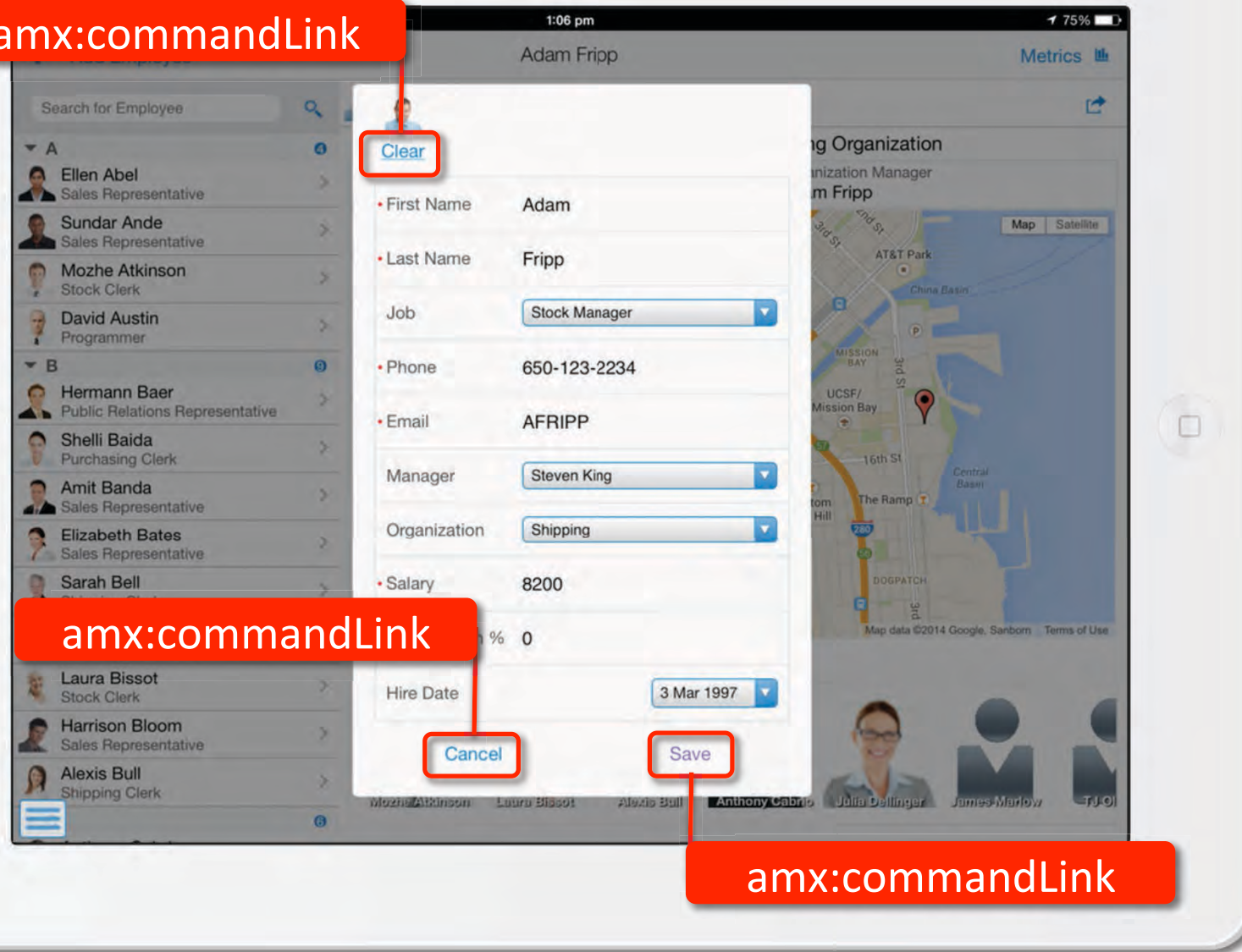
amx:commandButton

amx:commandButton

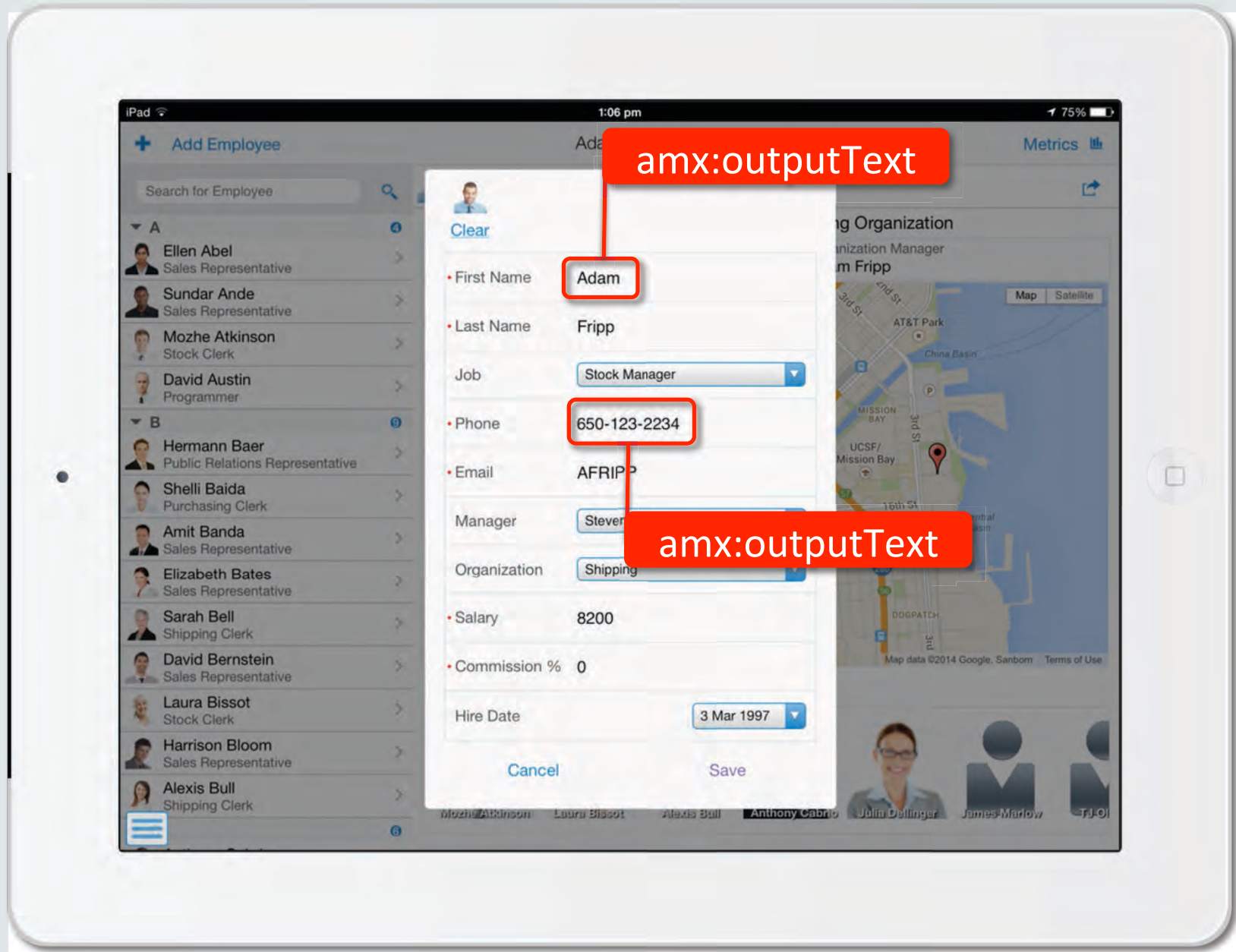


• Buttons

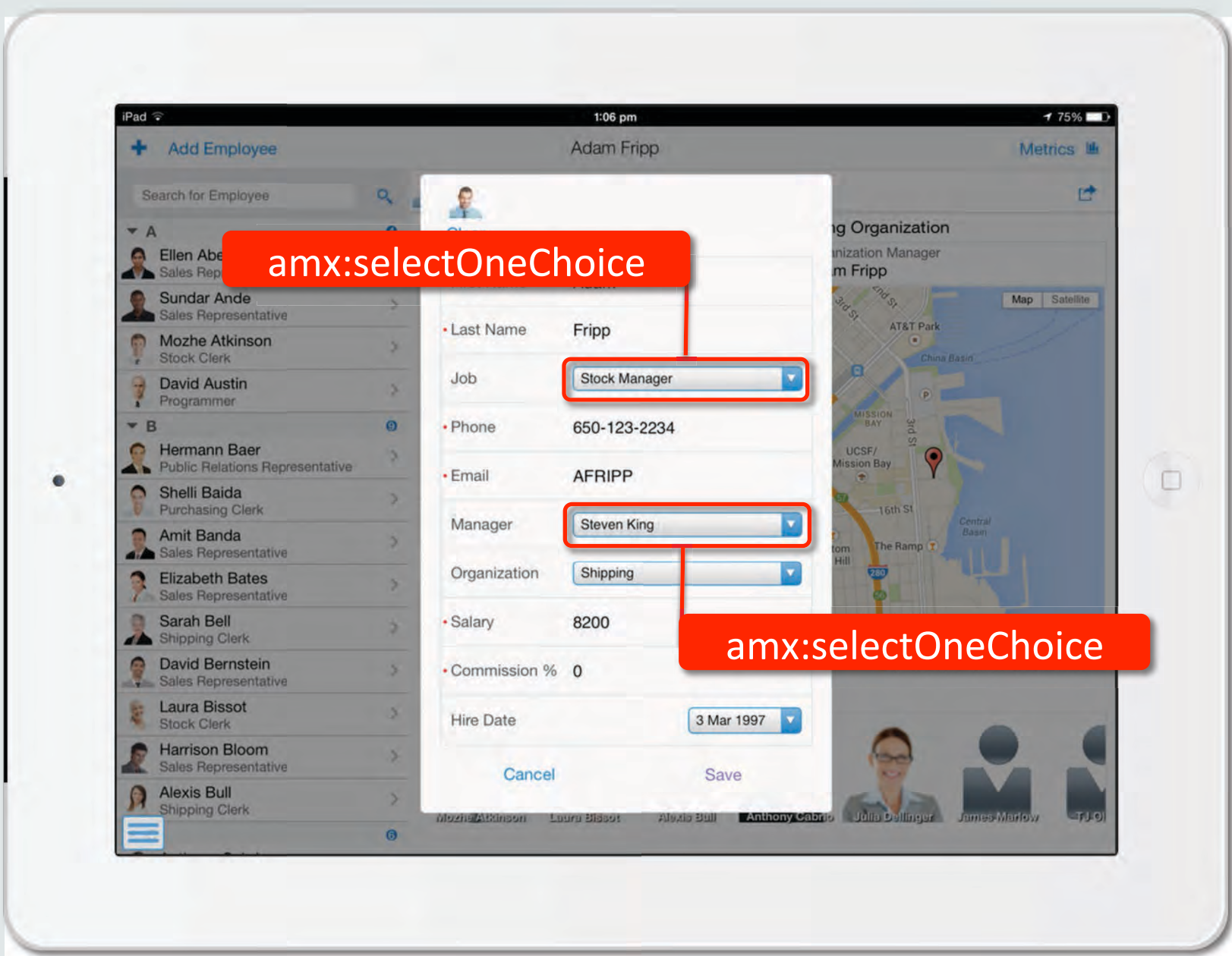
amx:commandLink



- Buttons and Links



- Buttons and Links
- Text



- Buttons and Links
- Text and Selection

amx: listView

amx: listItem

amx: iterator

amx: image

- Buttons and Links
- Text and Selection
- Data Views

amx:panelPage

amx:tableLayout

amx:rowLayout

amx:cellFormat

- Buttons and Links
- Text and Selection
- Data Views
- Layout Components

amx:commandButton

amx:showPopupBehavior



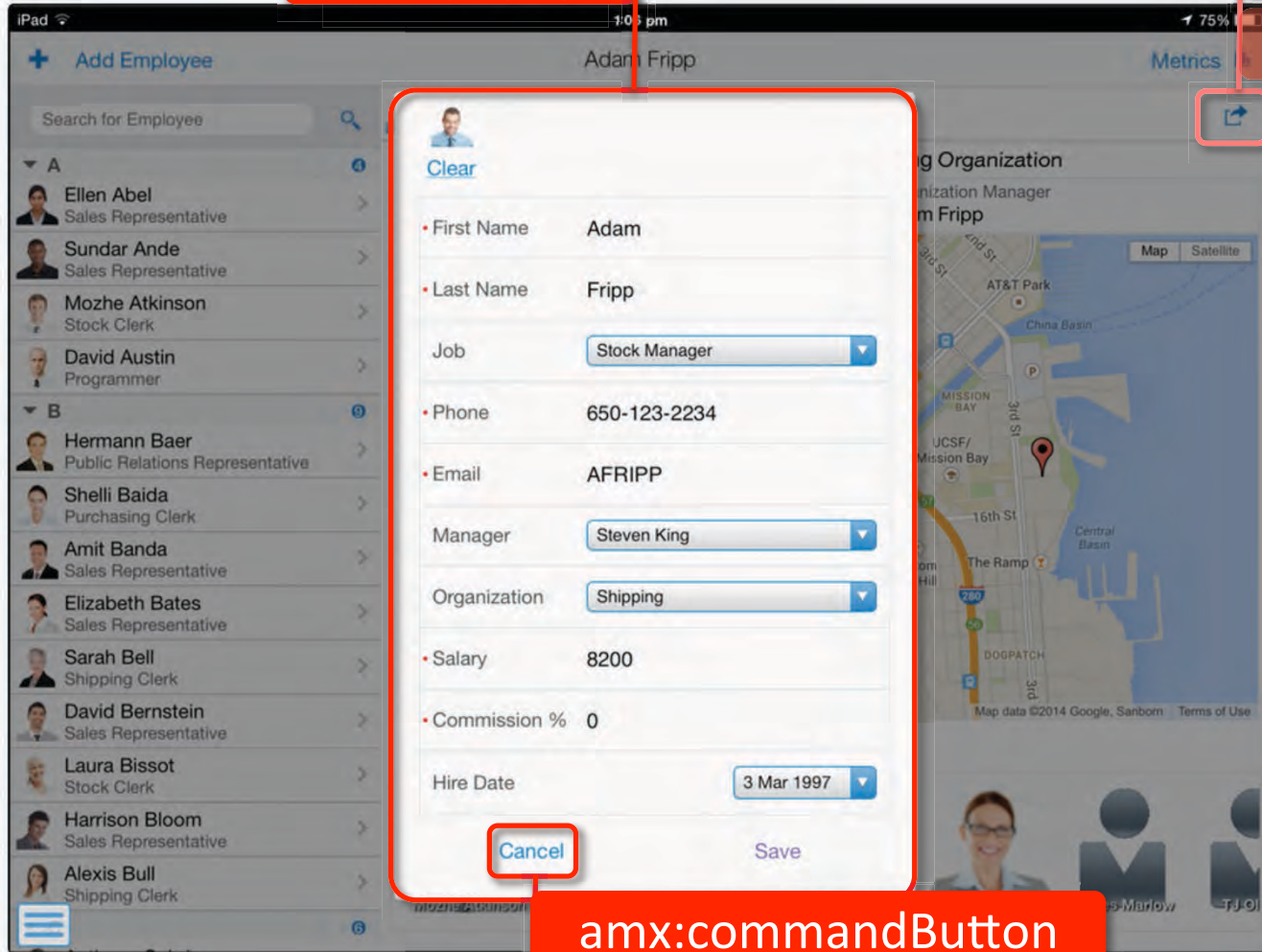
- Buttons and Links
- Text and Selection
- Data Views
- Layout Components
- Operations & Behavior



amx:popup

amx:commandButton

amx:showPopupBehavior



Cancel

Save

amx:commandButton

amx:closePopupBehavior

- Buttons and Links
- Text and Selection
- Data Views
- Layout Components
- Operations & Behavior

iPad 12:43 pm 76%

+ Add Employee Adam Fripp **Metrics**

Search for Employee

F

- Daniel Faviet Accountant
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- Hire Date: 03/03/1997

Shipping Organization

Organization Manager
Adam Fripp

Compensation

- Salary by Job Role: 8.200K
- Salary by Organization: 8.200K

Direct Reports: 8

- Mozha Arkinson
- Laura Bissot
- Alexis Bull
- Anthony Gabrio
- Julia Dellinger
- James Marlow
- TJ-OJ

iPad 12:43 pm 76%

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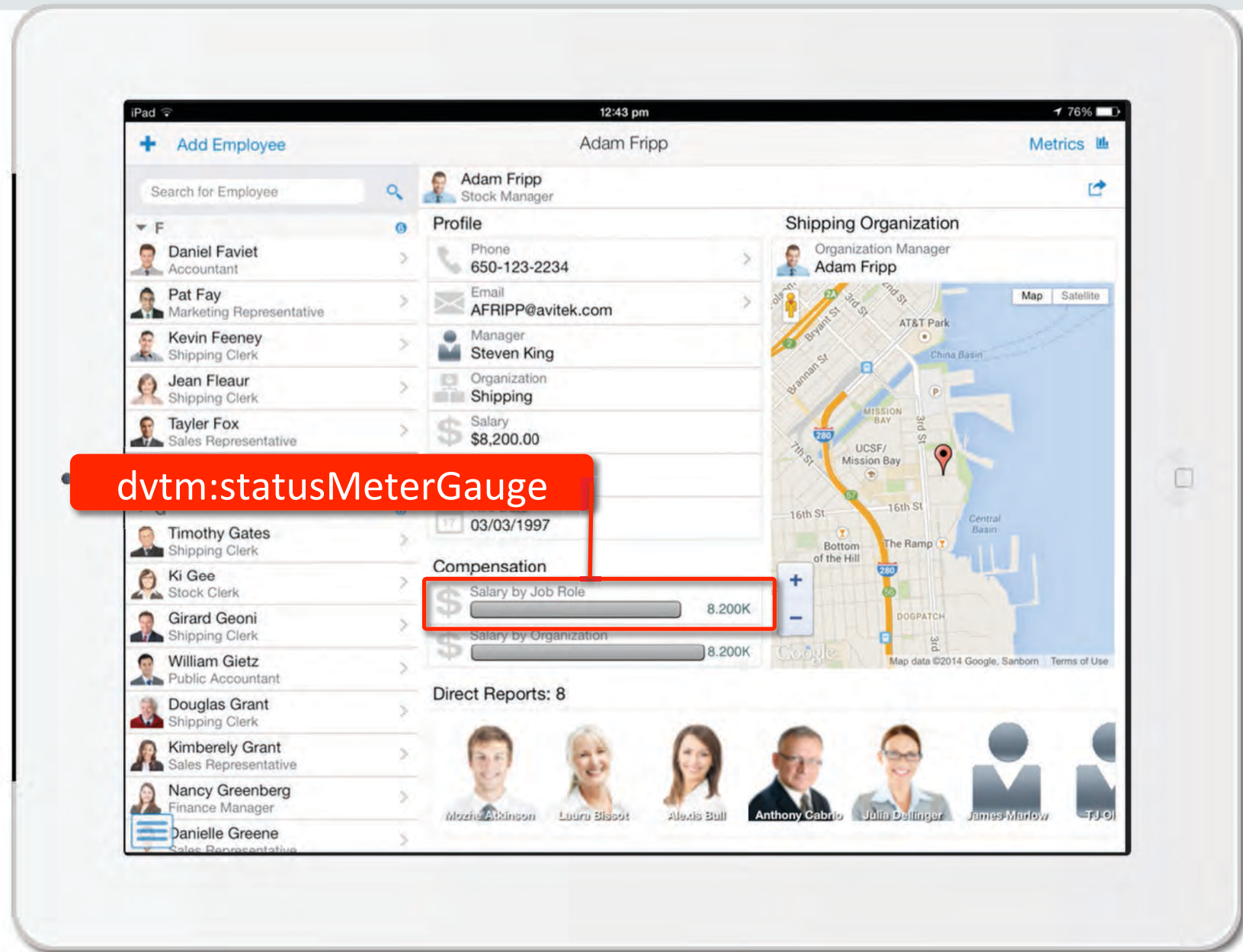
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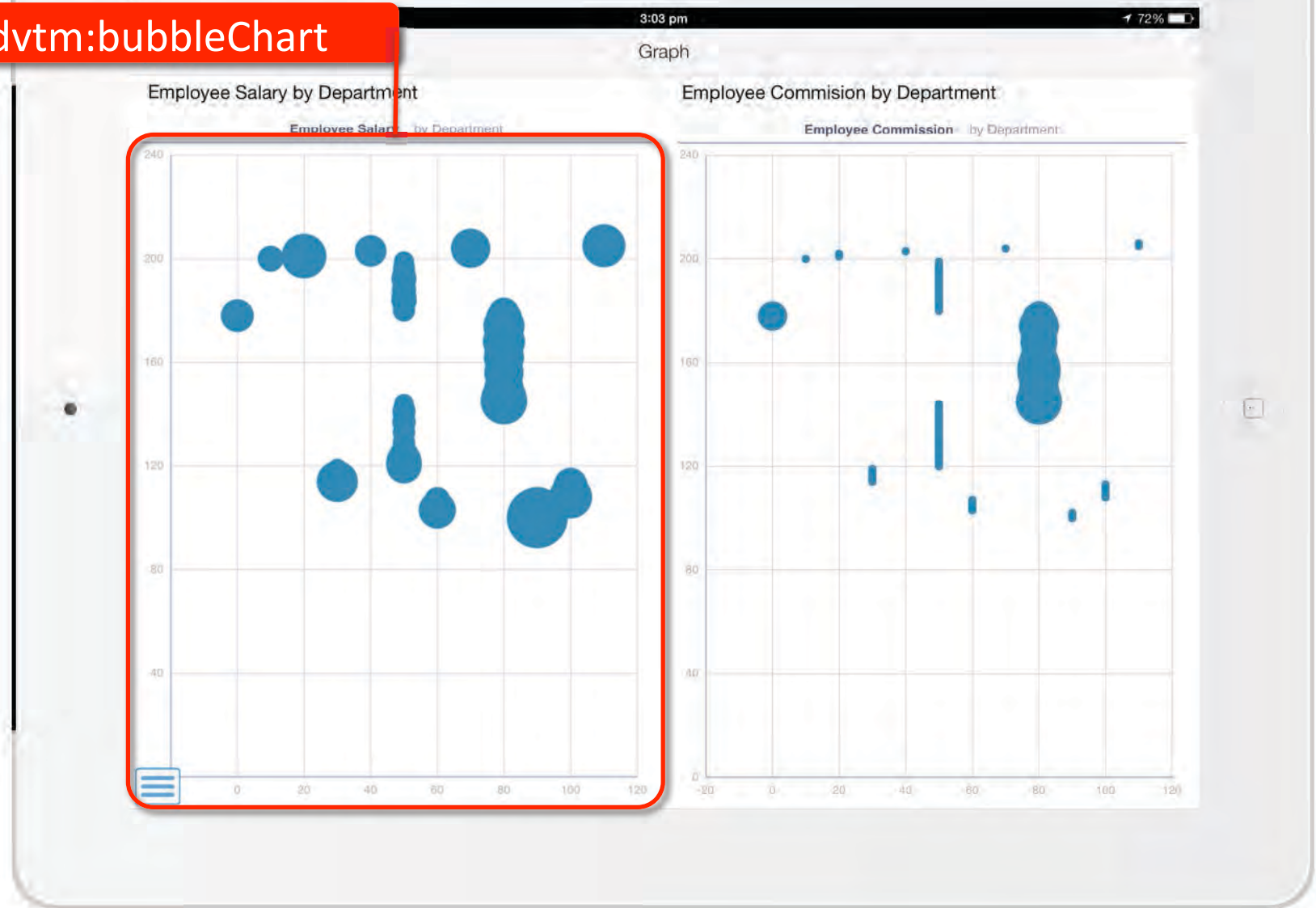
- Mozhe Atkinson
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- Alexis Bull
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- James Marlow
- TJ Oj

- LEDs & Gauges



- LEDs & Gauges
- Charts

dvtm:bubbleChart

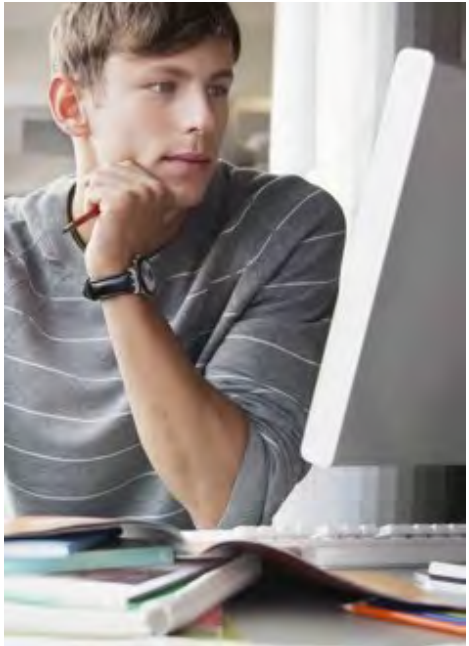


- LEDs & Gauges
- Charts
- Maps





Data Access

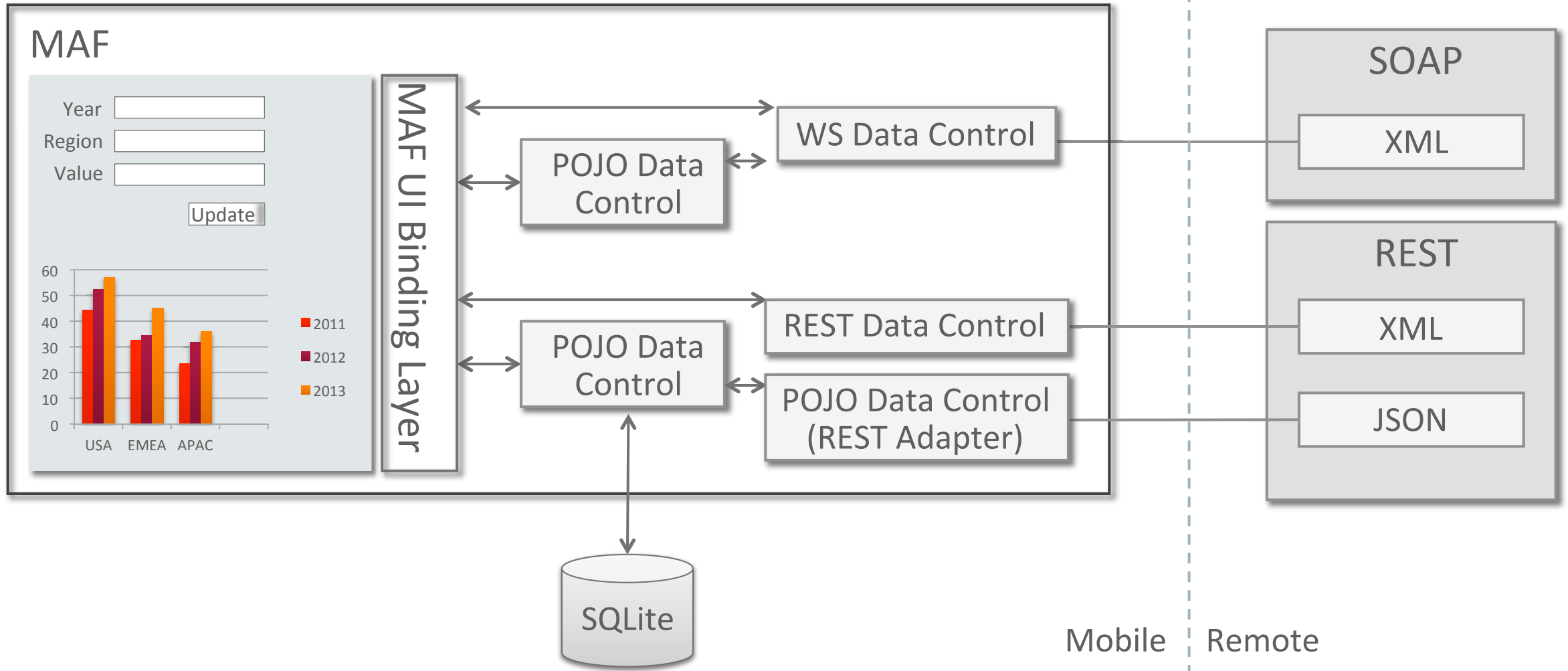


"A **challenge** for mobile developers is integrating the numerous services & APIs to access data. MAF proposes a **simplified approach** through the introduction of **data controls**."

Data Controls

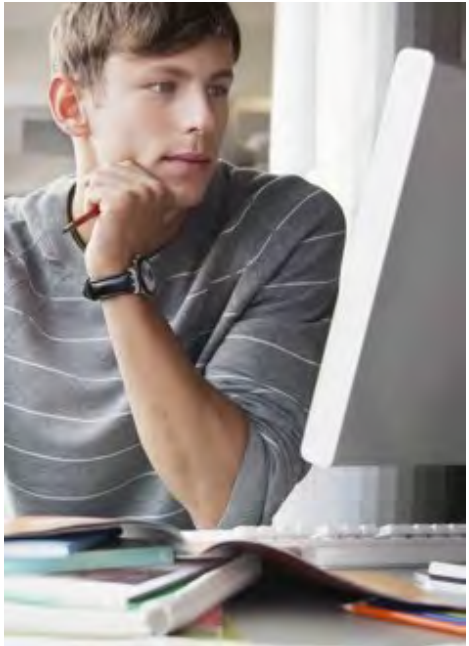
- Data abstraction layer
 - Represent data sources
 - Local Java Beans
 - Remote SOAP/REST web services
 - Expose
 - Collection
 - Attributes
 - Methods & operations
- Created via wizards and declarative editors
 - Metadata via DataControls.dcx
 - Allow easy drag & drop of UI components
 - Data bindings automatically created
 - No/little UI programming intervention required

Data Control Options



MAF Binding Layer

- Declarative UI / Data Binding
 - Available in MAF AMX features
 - Productivity layer in MAF
 - Provides the the actual data control "abstraction layer"
 - Exposes a consistent developer API
- The binding consists of XML at design time and Java objects at runtime
 - Enables declarative and visual UI development
 - Drag and drop from data control panel



"MAF attempts to accommodate **all** types of web services and their different payloads, both **declaratively** and **programmatically**. It's a choice between **productivity** or **flexibility**."

MAF Web Service Support

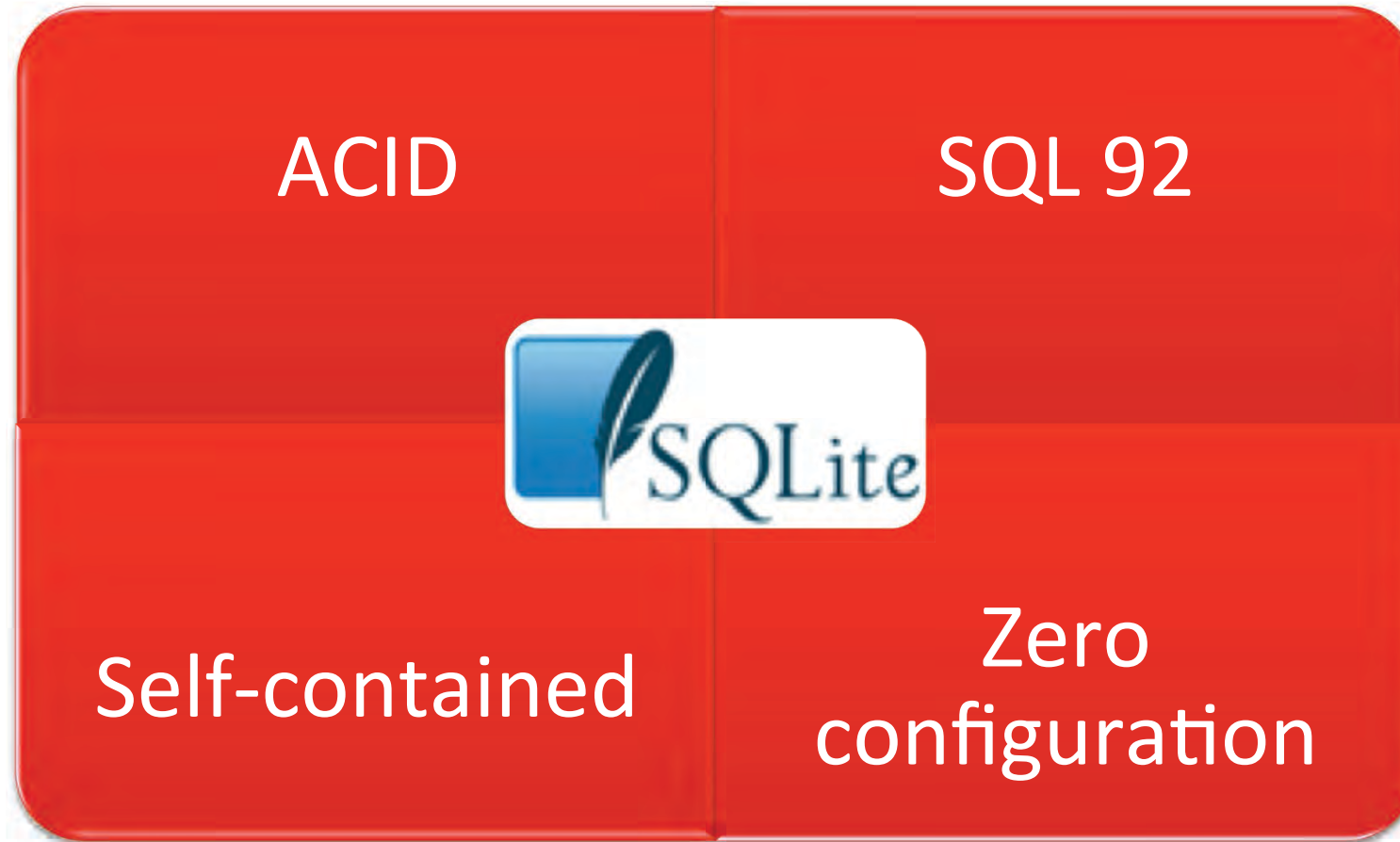
1. SOAP with XML payloads
2. REST with XML payloads
3. REST with JSON payloads

- Best design time support via SOAP
- REST may be your preference, but
 - Mobile developers can't always dictate what service platform they consume
 - Lack of WSDL for REST discounts a declarative solution in some cases
 - Only remaining option is programmatic

The need for a local database



Why SQLite?



Main limitations

Concurrency

- Only a single connection can write
- Connections wait for the write lock

Data types

- Data integrity not checked

Features

- No stored procedures
- No special handling for XML/JSON

Security

- Authentication requires encryption
- No privileges (GRANT & REVOKE)

A close-up photograph of a metal safe door. On the left, a silver handle is visible. To the right, a circular dial with a scale is shown, with the number '40' clearly visible. The background shows the interior of the safe with shelves and some items.

Security

Authentication

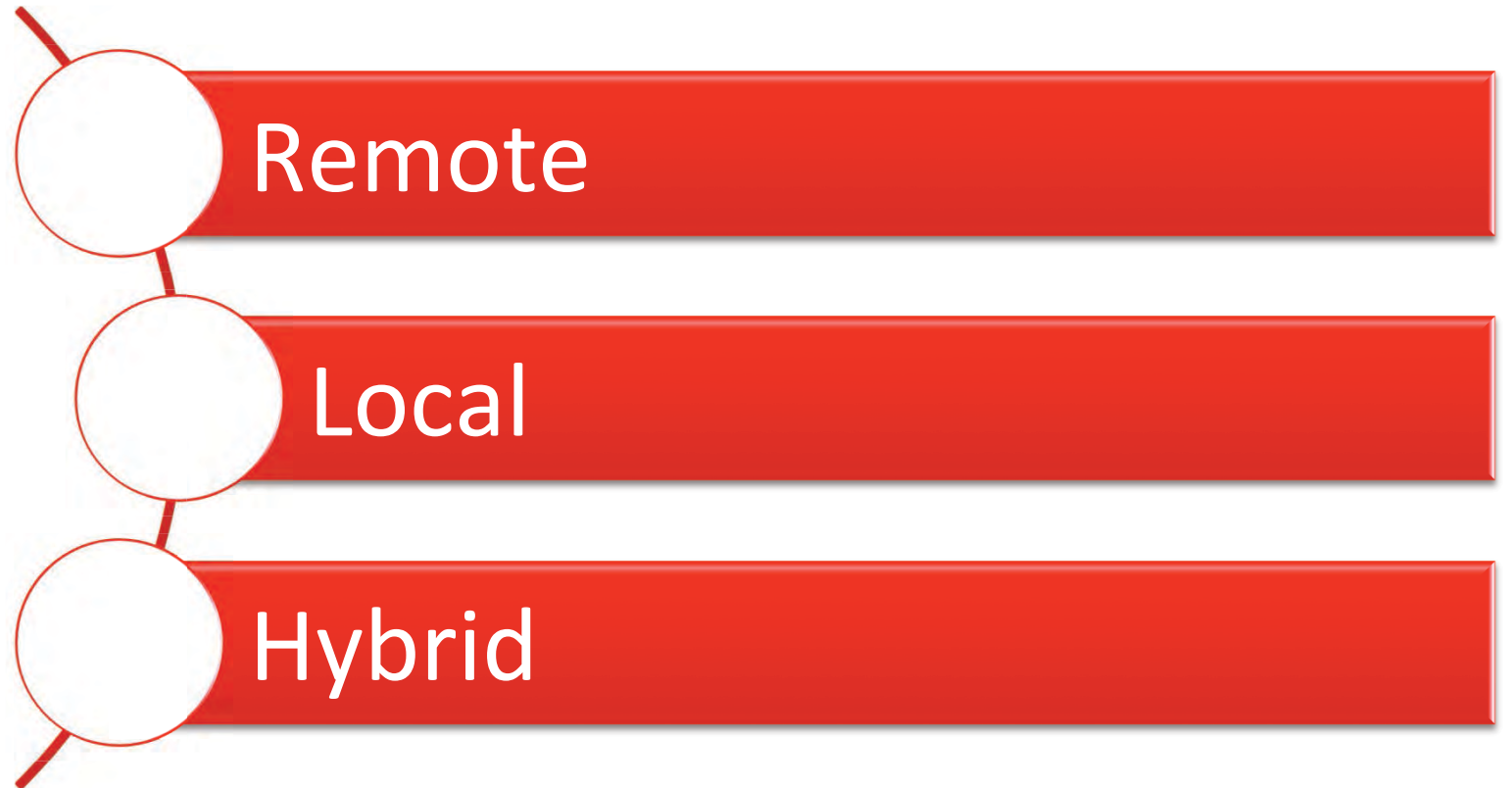
Supported modes



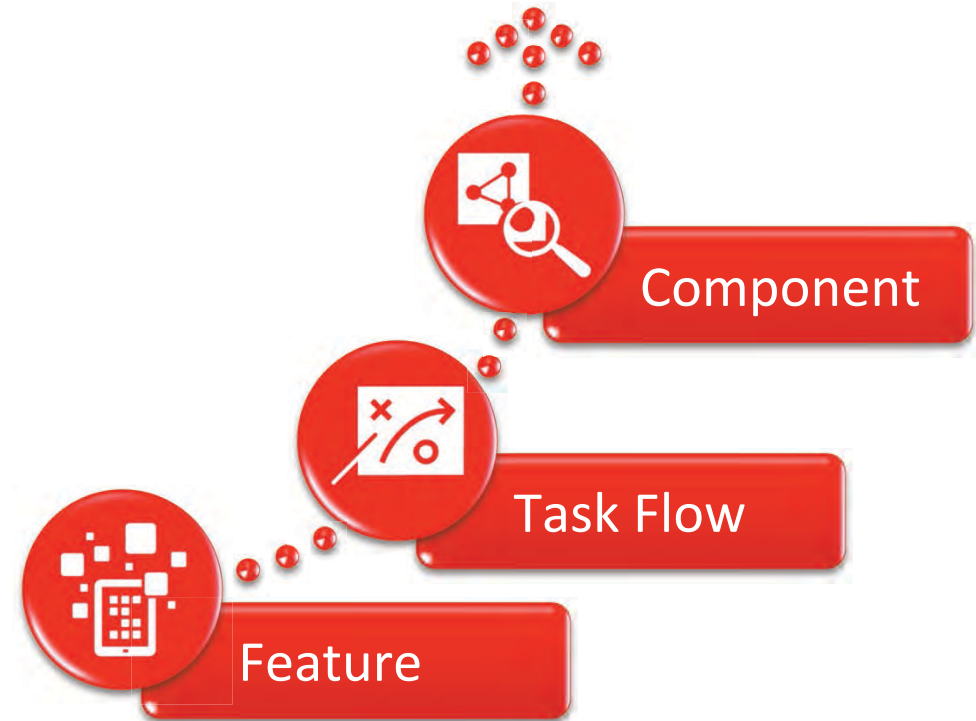
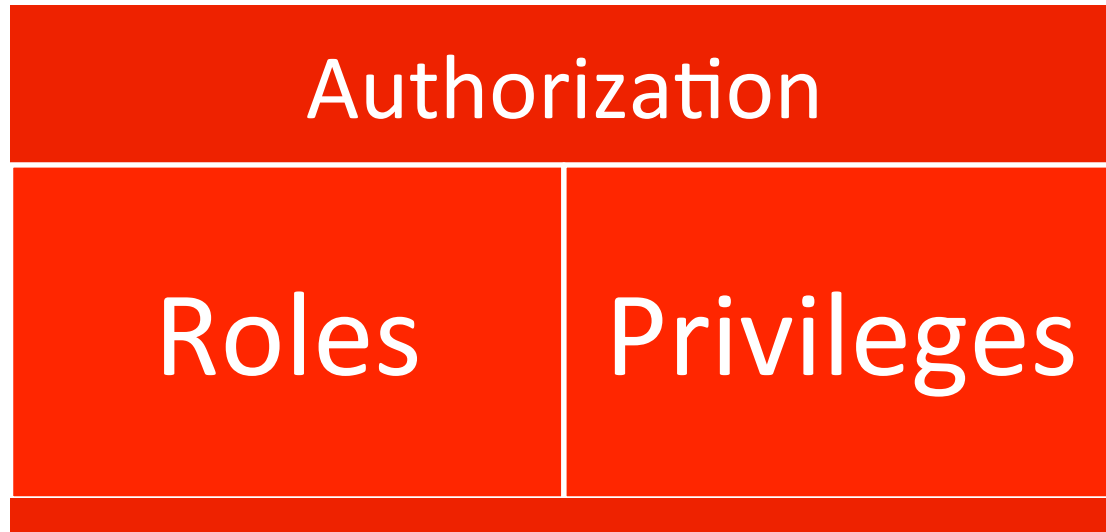
Authentication

Types

**HTTP BASIC
MOBILE AND
SOCIAL**



Authorization



Access Control Service

- A REST web service you implement yourself
- Must process POST requests
- Returns roles and privileges for the user as specified in the requests
- Not needed when using Mobile and Social authentication



Encryption



Oracle's Mobile Security Solution

Securely Separate And Manage Corporate Apps And Data On Devices

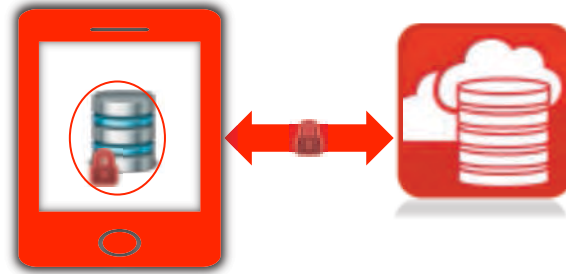


Secure Container for App Security and Control



- Separate, protect and wipe corporate applications and data
- Strict policies to restrict users from viewing/moving data out of container
- Consistent support across multiple mobile platforms

Secure controls and management for enterprise apps



- Secure communication with enterprise application servers
- Corporate app store

Extend IDM services to avoid redundancy and overlaps



- Common users, roles, policies, access request, cert etc.
- SSO for native and browser apps
- Risk/policy based step up and strong authentication

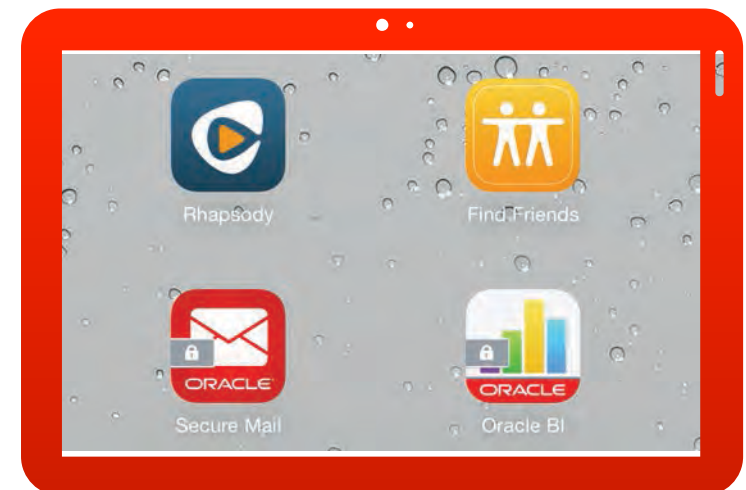
Secure Container/Workspace for App Security and Control



- Separate, protect and wipe corporate applications and data on mobile devices
- Strict policies to restrict users from viewing/moving data out of container
- Consistent support across multiple mobile platforms

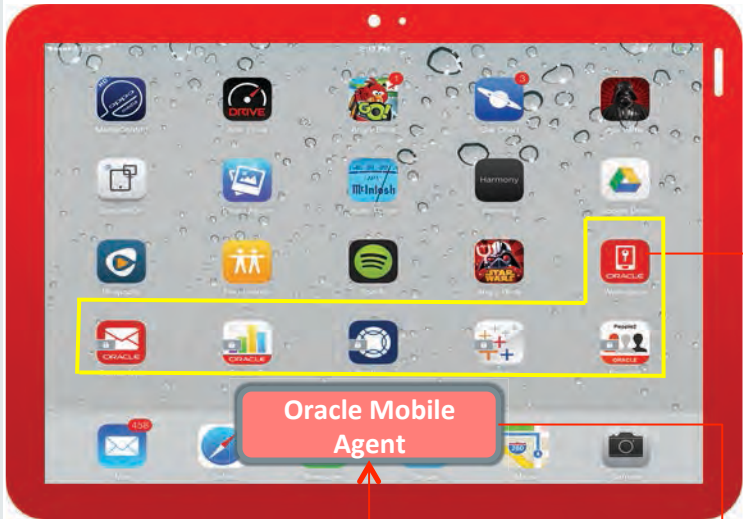
Secure Container/Workspace for App Security and Control

- Easily add new applications without requiring source code access or detailed coding
- Decouple security deployment & app development
 - Injection-based approach. No SDK.
 - Single sign-on and Data Leakage Prevention

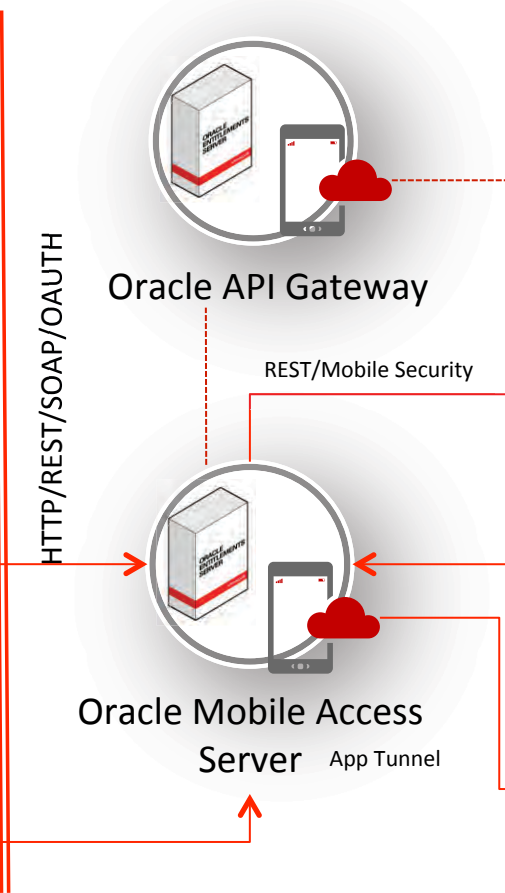


Oracle Mobile Security Suite

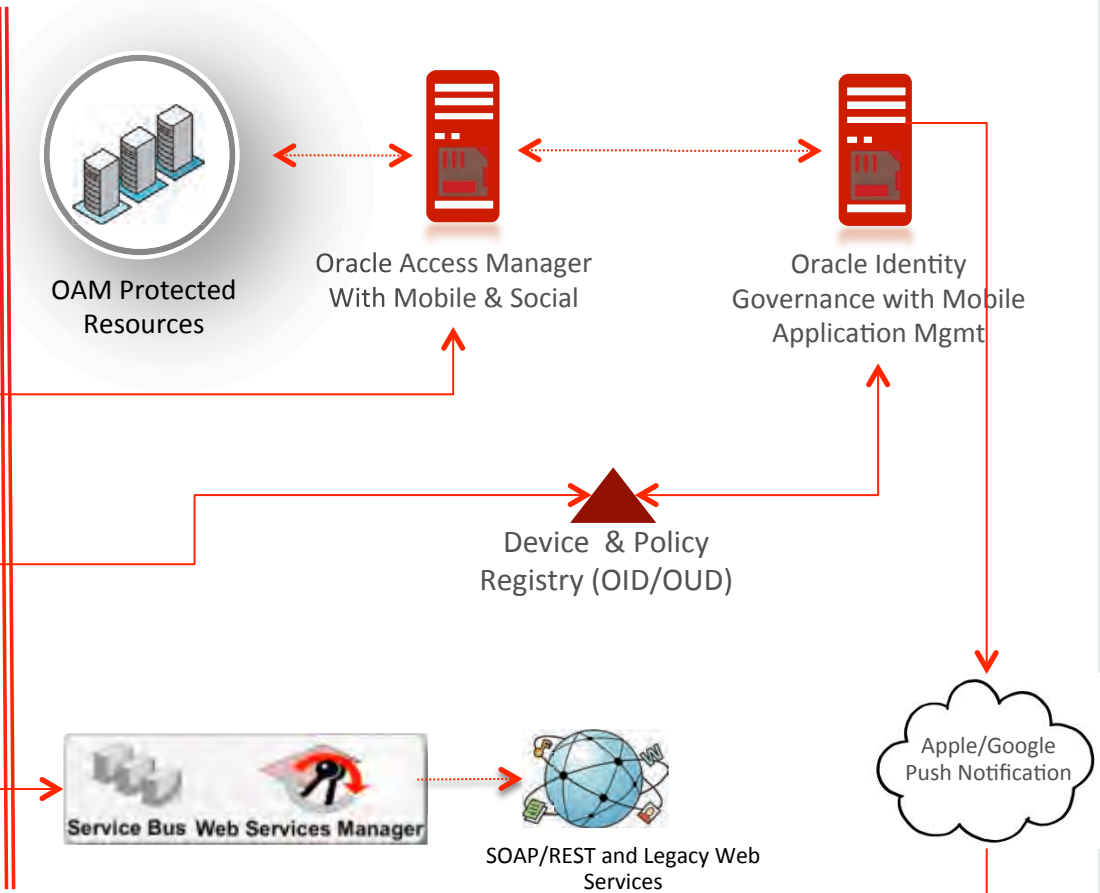
Steady State Architecture



Corporate DMZ



Corporate Network





Conclusion

Summary



- Oracle MAF is a **pillar** of the Oracle Mobile Platform
- Write once, deploy unmodified to **iOS and Android**
- **Productive** UI development
- Flexible data access through **abstraction**
- **Comprehensive** security

Upcoming features

What we aim to deliver in the next 12 months

- New AMX components
- Java 8 JVM
- Integrated data synchronization
- Tighter integration with Oracle ADF
- Support for Windows tablets and the Windows Phone OS



Let's keep in touch!



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Official blog

blogs.oracle.com/blueberry



Oracle Mobile Platform channel

www.youtube.com/user/OracleMobilePlatform

Hardware and Software Engineered to Work Together

ORACLE®