Build Mobile Cloud Apps Effectively Using Oracle Mobile Cloud Services (MCS)

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Session Objectives

- Understand the need for something like Oracle Mobile Cloud Service (MCS)
- Learn the capabilities of Oracle MCS
- Understand how mobile applications may take advantage of Oracle MCS
- Be aware of the security capabilities enabled by using Oracle MCS

Who Am I?

- John King – Partner, King Training Resources
- Oracle Ace Director 

- Member Oak Table Network 

- I create and provide training to Oracle and IT community – http://www.kingtraining.com - help organizations adopt new technologies & practices
- "Techie" who knows Oracle, ADF, SQL, Java, and PL/SQL pretty well (along with many other topics)
- Member of AZORA, ODTUG, IOUG, and RMOUG

King Training Resources

- Providing customized training solutions since 1988 in the US and internationally
- Oracle topics include: SQL, PL/SQL, Database, Cloud, APEX, ADF, MAF, Forms, Reports, Pro*C/ Pro*COBOL and more
- Non-Oracle topics include: UX, Web Services, IoT, REST, Cloud Foundry, Java, JavaScript, HTML5, CSS, jQuery, COBOL, .NET, SQL Server, DB2, Business Analyst, and more
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Arizona, USA

Who Are You?

- Application Developer
- Mobile Application Developer
- DBA
- Solution Architect or Business Analyst
- Other?

Think Mobile First

- Today, most of us reach for our mobile device to accomplish many daily tasks
- Desktop, laptop, tablet, and phone each provide connections with users
  (not to mention personal devices like Apple Watch, Pebble, Samsung Gear, Basis, Fitbit, Jawbone, GoogleGlass, etc.)
- Your users EXPECT to access information and perform normal tasks when mobile
  (if not using your software, then whose?)

Mobile Environment

- It's easy to create a mobile app; but maybe…
  - We need to be part of the company's SSO
  - We need to differentiate between user roles
  - We need to push messages to all users
  - We'd like to integrate with social media
  - We'd like to synch data after users have been offline

MBaaS/BaaS/MEAP

- MBaaS (Mobile Backend as a Service), BaaS (Backend as a Service) and MEAP (Mobile Enterprise Application Platform) are the titles often given to software stacks providing operations and deployment solutions (backend)
- With MBaaS; developers do not need to create their own custom solutions or frameworks

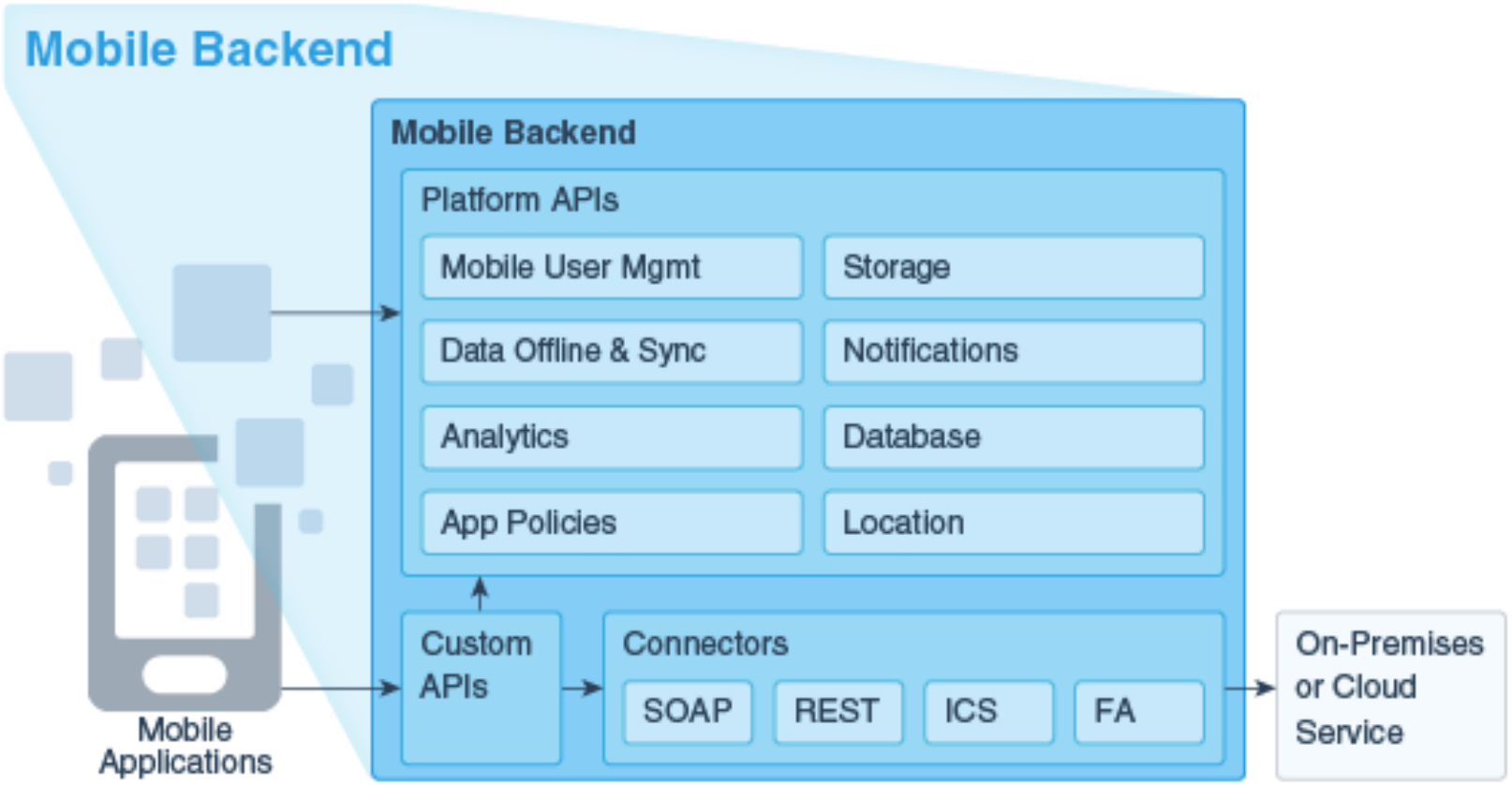
Wikipedia on MBaaS

- Here's what Wikipedia says about MBaaS

Mobile backend as a service (MBaaS), also known as "backend as a service" (BaaS), is **a model for providing web app and mobile app developers with a way to link their applications to backend cloud storage and APIs exposed by back end applications while also providing features such as user management, push notifications, and integration with social networking services.** These services are provided via the use of custom software development kits (SDKs) and application programming interfaces (APIs). BaaS is a relatively recent development in cloud computing, with most BaaS startups dating from 2011 or later. Although a fairly nascent industry, trends indicate that these services are gaining mainstream traction with enterprise consumers.

https://en.wikipedia.org/wiki/Mobile_backend_as_a_service

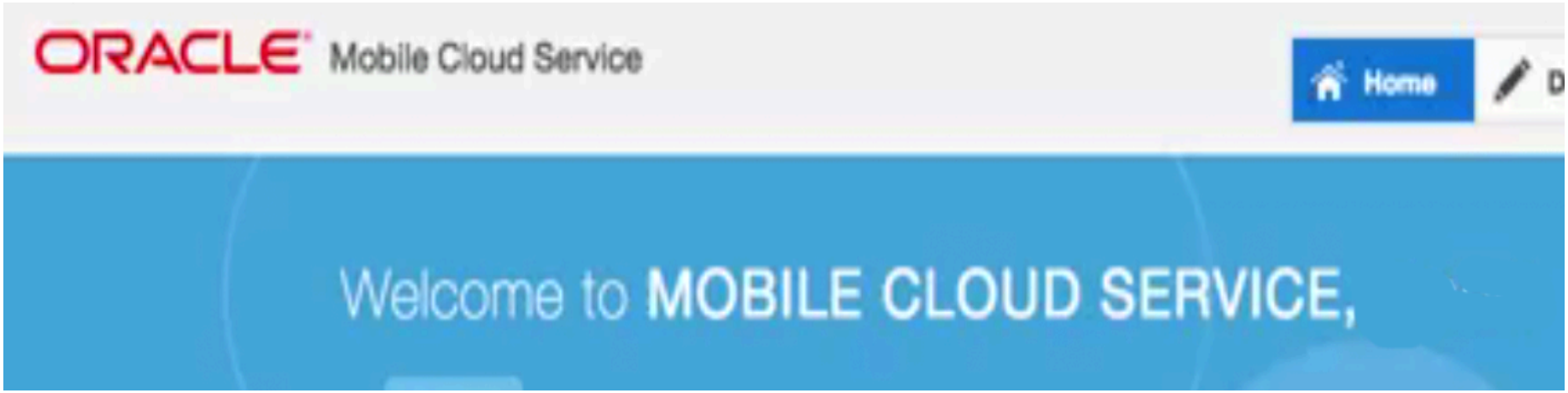
Mobile Backend



What is Oracle MCS?

- What is Oracle Mobile Cloud Service (MCS)?
  - MCS is Oracle's take on MBaaS/BaaS/MEAP
  - Oracle MCS (Oracle Mobile Cloud Service) makes application development easier and quicker taking away the approximately 50% of development time developing backend code
  - Developers focus on coding; not operations or deployment
  - Administrators can oversee operations, control deployments, and learn from analytics

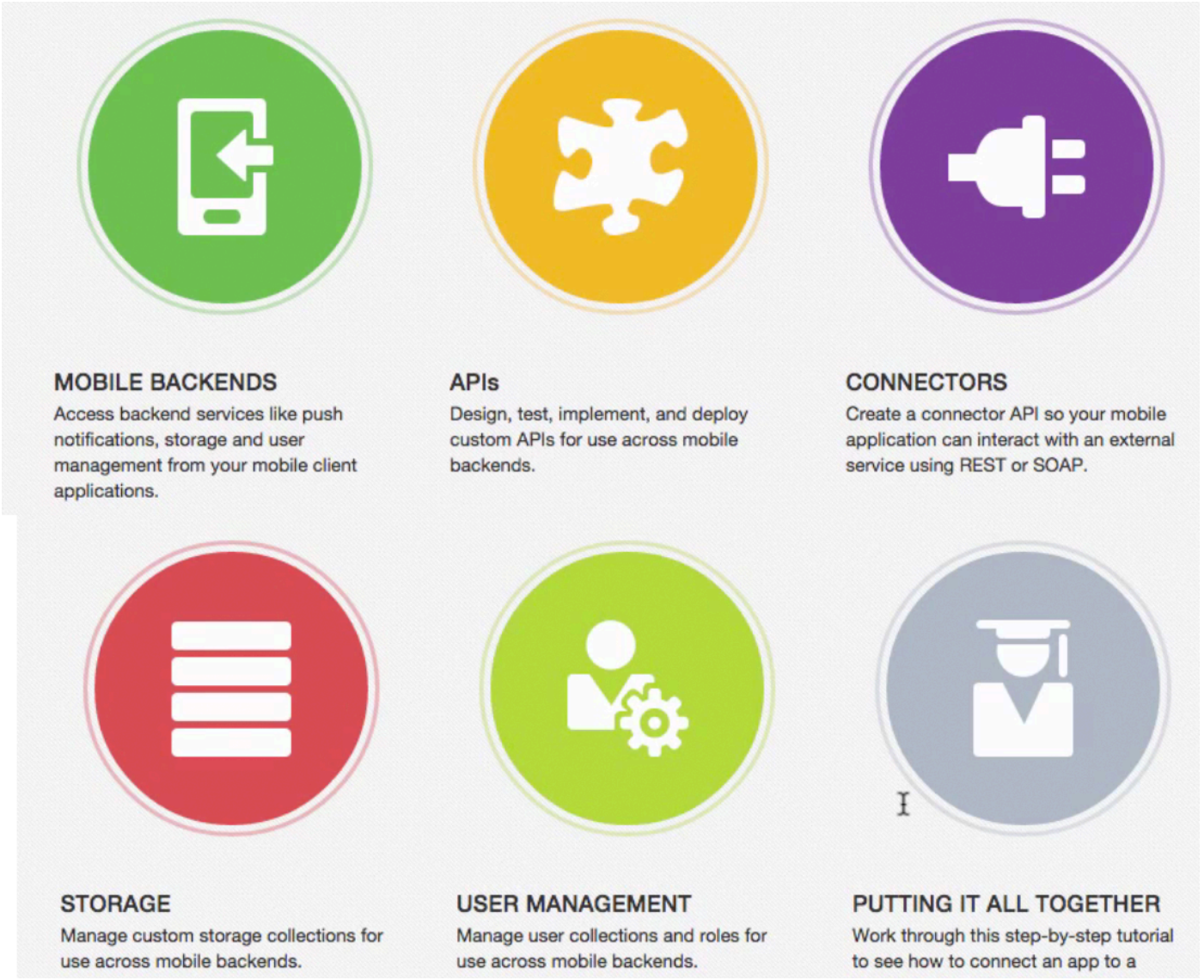
Oracle Mobile Cloud Service



What Does MCS Provide?

- Enterprise-grade security
  - Support for SSO and OAUTH
  - User management
  - Device management
- Simplified integration with MCS connectors
- Push notifications
- Offline data synchronization
- Messaging with email, SMS, and voice mail
- Support for Oracle Mobile Application Accelerator (MAX)

MCS Development Tools

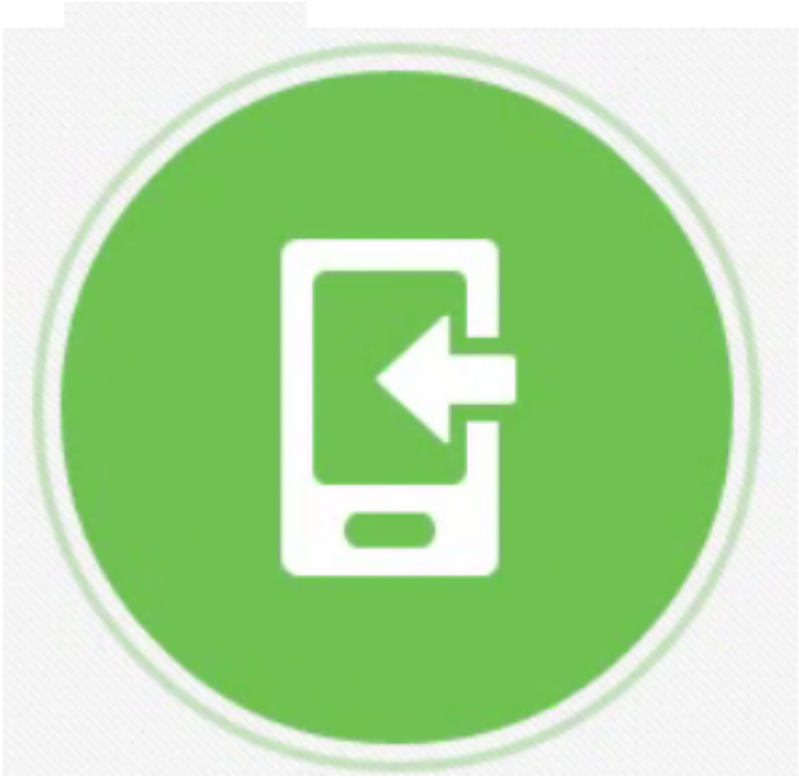


Development Options

- Mobile backend to support app including menu, links, and breadcrumbs
- Connectors: APIs needed to access existing resources (Platform, Connector, Custom)
- Storage to store and manage things mobile apps might need such as images, json payloads, etc
- User Management used to define Realms, Roles, and Users

MCS Backend

- Mobile backends
  - Created, modified, published, and versioned as a unit
  - Developers control lifecycle of backend used by apps
  - Provide Logging and Diagnostics



Developing Mobile Backend

- The steps to developing a Mobile Backend include:
  - Associate with Realm (Roles and Users)
  - Create and configure custom APIs
  - Register app (iOS/Android)
  - Install SDK
  - Test and debug
    (logging and debugging built-in)
  - Publish and deploy (dev->test->staging->prod)

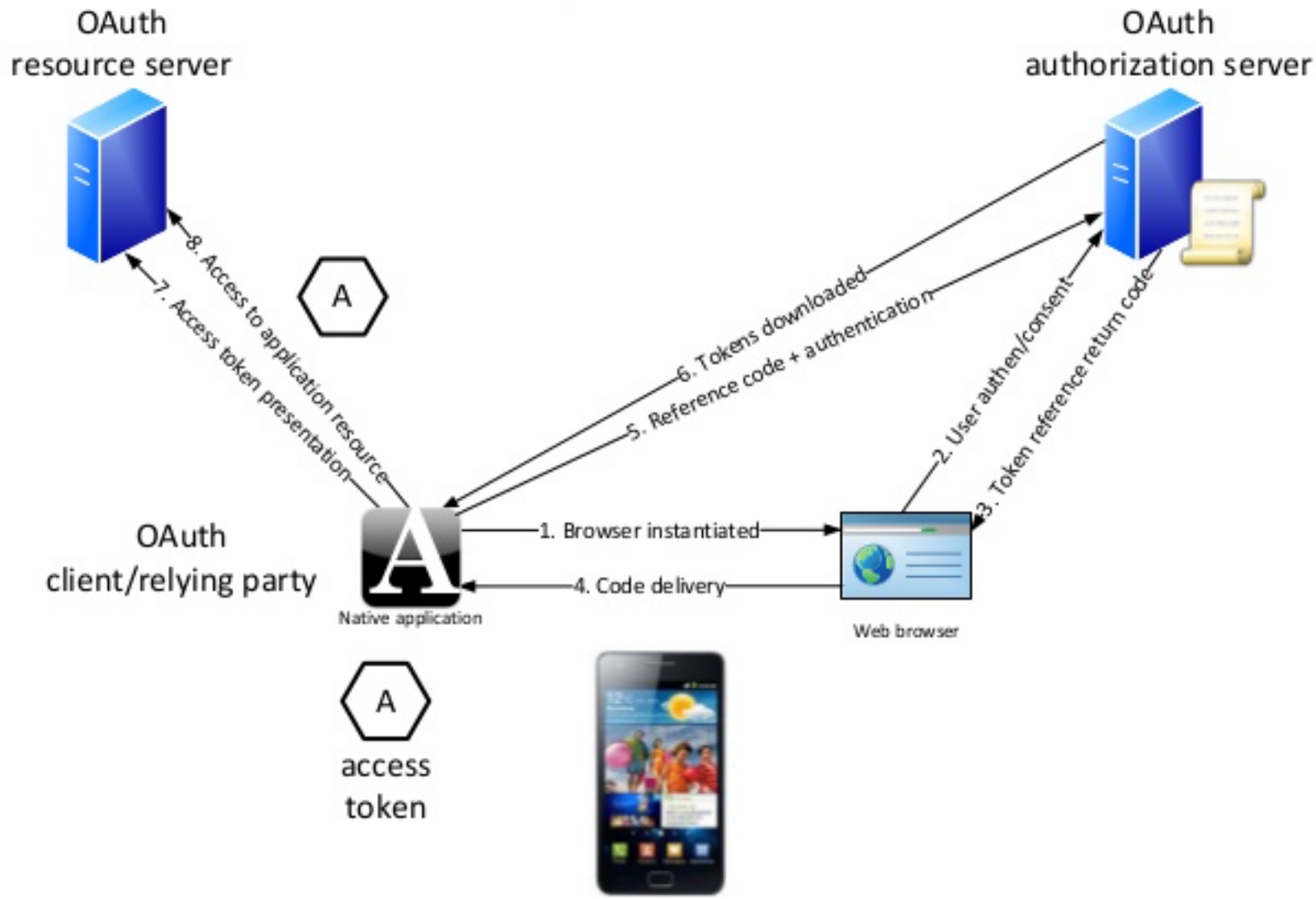
MCS and Security

- Single sign on across MCS-managed apps
- Certificate management
- Security and user management tools
- Secure container and application tunnels
- Application and Device focused security policies
- Oracle Mobile Security Suite
- Oracle MCS may be used to create secure mobile applications using OAuth tokens - tokens are part of API calls to protected resources
- MCS Identity Management (IDM) services

Security at the Mobile Backend

- Before an app may access resources using the mobile backend a user is authenticated
- Flexible OAuth (actually OAuth 2.0) may connect with Single Sign-On, LDAP, HTTP Basic Authentication, or even Google and Facebook
- MCS mobile user management allows authenticated access to APIs

MCS has OAuth Bult-In

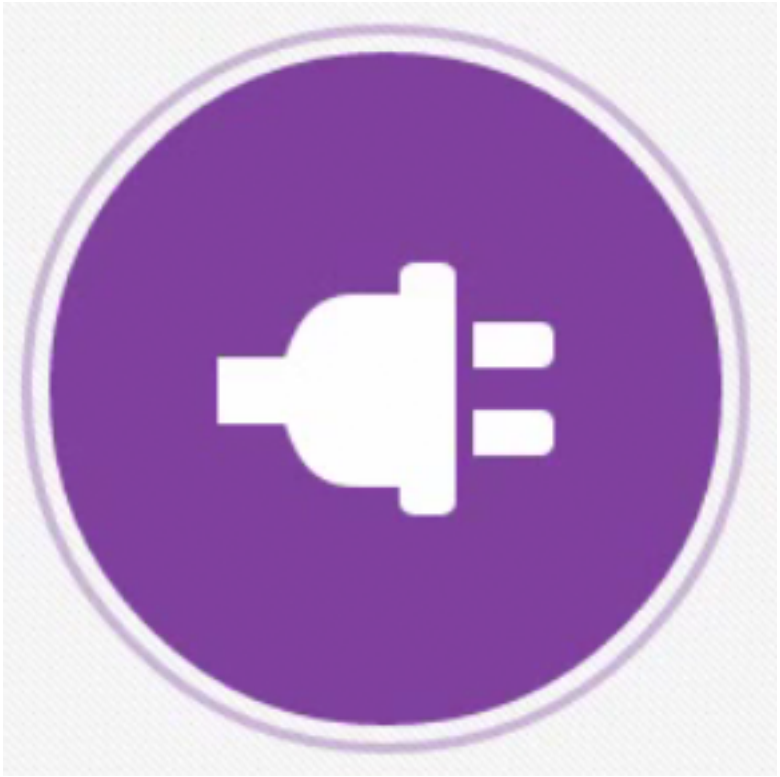


How MCS Security is Managed

- "Realms" allow mobile apps to share users and data
- "Roles" define permissions controlling user access to resources and APIs
- "Users" may belong to zero, one, or many roles

Oracle MCS Connectors

- MCS provides many built-in API connectors to many enterprise systems including:
  - Oracle E-Business Suite
  - JD Edwards
  - Salesforce
  - SAP



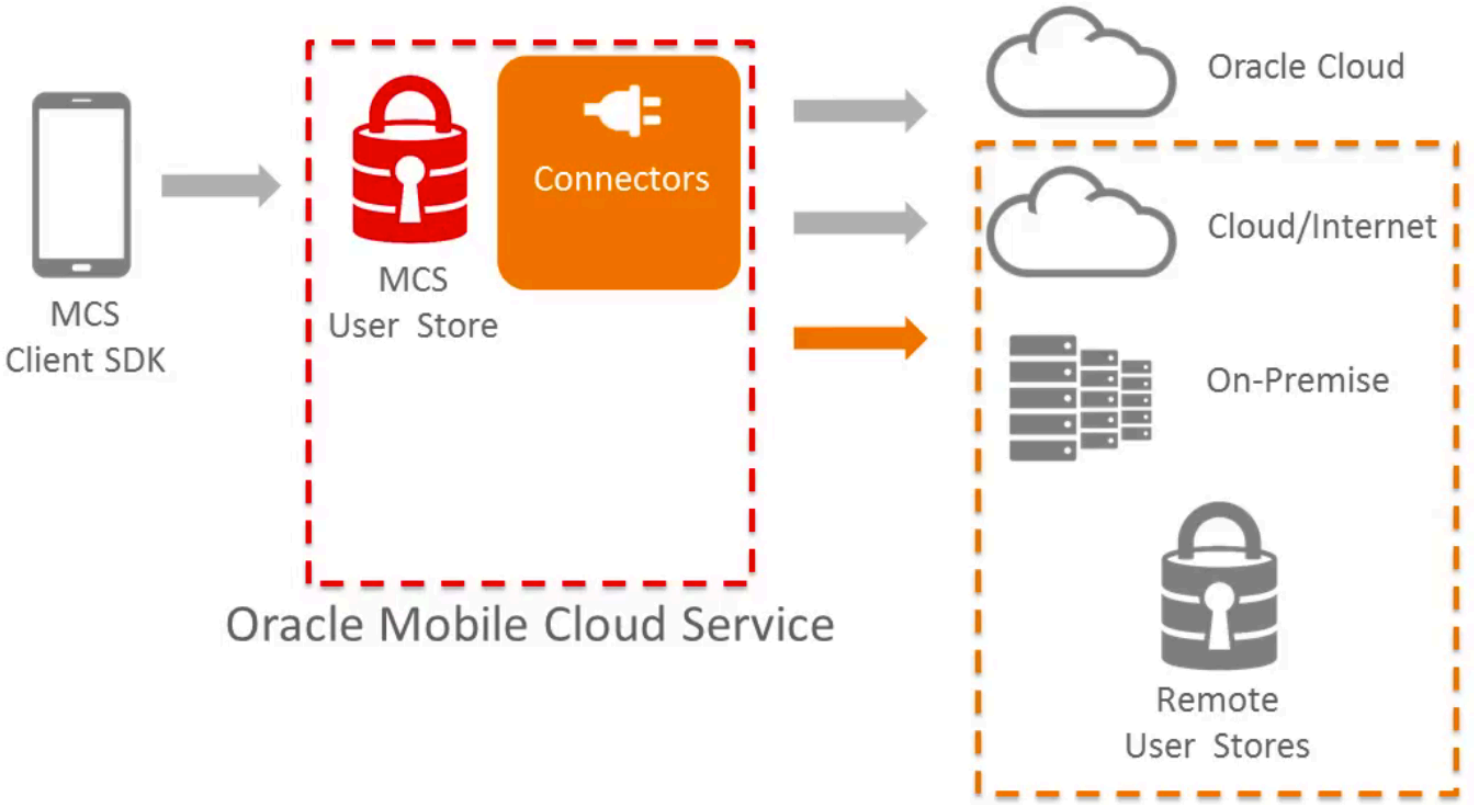
Oracle MCS Connector APIs

- REST Connector APIs: Connect to external REST services
- SOAP Connector APIs: Connect to external SOAP services
- ICS Connector APIs: Connect to Oracle Integration Cloud Service (ICS)
- Fusion Applications Connector APIs: Connect to Oracle Fusion (Cloud) Applications

Custom API Connectors

- MCS provides tools to create and configure APIs to provide access to
  - Tables and Objects in the Oracle Database
  - Back End Systems
- Manage Custom Connectors
- Debug Custom Connectors

Security and Connectors



Oracle MCS Platform APIs, 1

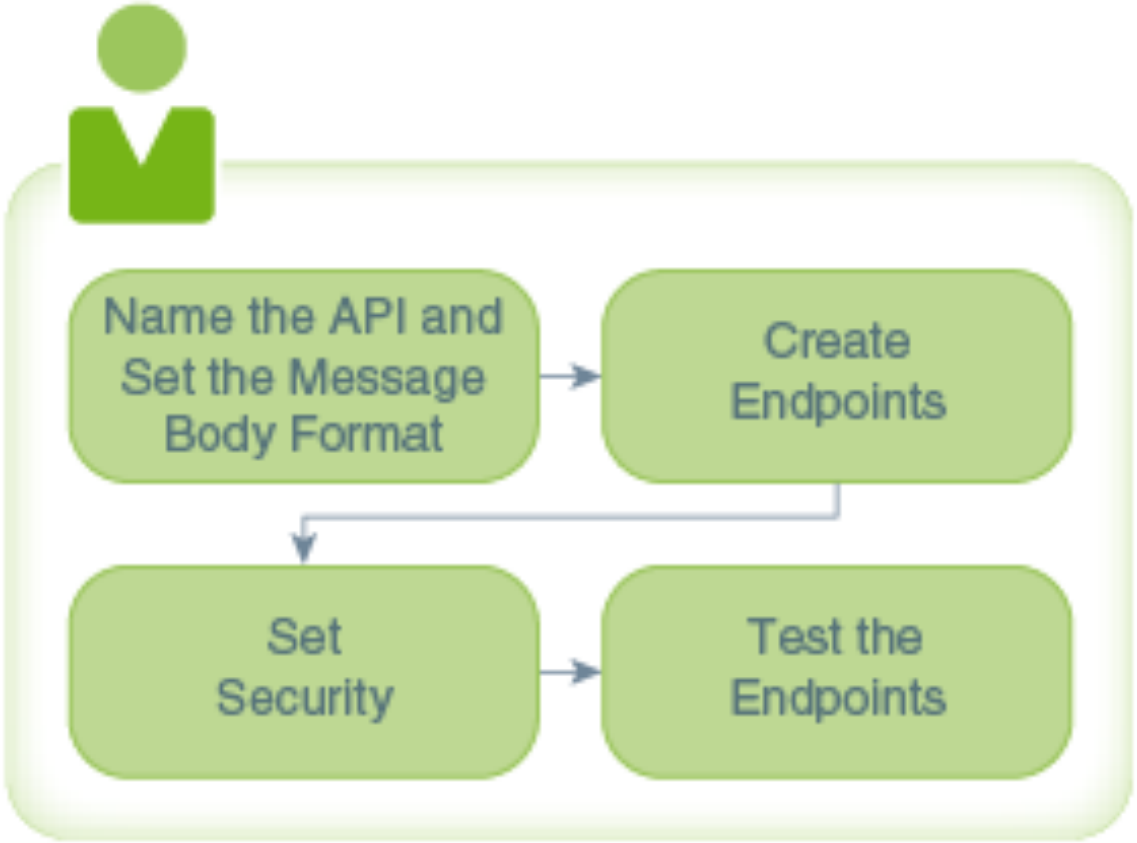
- Analytics Collector: Define and manage logging
- App Policies: Read application configuration properties
- Database Access: Interacts with Oracle Cloud database SQL via REST API
- Database Management: Create, drop, and manage database tables, views, and other objects
- Data Offline: Manages cached application data from REST APIs

Oracle MCS Platform APIs,

- Mobile User Management: Store and manage mobile user data
- Location: Define and query locations
- Notifications Device Registration: Register devices that may receive notifications or register devices that run an app with MCS so that they receive notifications (iOS, Android, & Windows)
- Notifications: Sends notifications to mobile apps
- Storage: Create collections and objects to store and manipulate things such as documents and images

Custom MCS APIs

- MCS tooling allows creation of Custom APIs that include:
  - API Metadata
  - Root and/or Nested Resources
  - Methods to act upon Resources
  - Schema describing body of data
  - Endpoints to access API
  - Security specifications for API



Using Oracle MCS

- Oracle offers several ways to take advantage of MCS including:
  - Oracle Mobile Application Framework (MAF)
  - Oracle Mobile Application Accelerator (MAX)
  - Oracle JavaScript Enterprise Toolkit (JET)

Mobile Application Options

- Native — Deploy "native" specific to iOS or Android (or other…)
- Web — Deploy as web application; works on pretty much any browser
- Hybrid — Vendor provided development environment that deploys to iOS or Android (or other…) but leverages open technologies like JavaScript, HTML5, and CSS

Native vs Web vs Hybrid

- Here's a great comparison done by the Dzone website http://java.dzone.com/articles/state-native-vs-web-vs-hybrid

NATIVE vs. WEB vs. HYBRID: 7 FACTORS OF COMPARISON

KEY: CON | PRO | NEUTRAL

	NATIVE	HYBRID	WEB
COST	Commonly the highest of the three choices if developing for multiple platforms	Similar to pure web costs, but extra skills are required for hybrid tools	Lowest cost due to single codebase and common skillset
CODE REUSABILITY/ PORTABILITY	Code for one platform only works for that platform	Most hybrid tools will enable portability of a single codebase to the major mobile platforms	Browser compatibility and performance are the only concerns
DEVICE ACCESS	Platform SDK enables access to all device APIs	Many device APIs closed to web apps can be accessed, depending on the tool	Only a few device APIs like geolocation can be accessed, but the number is growing
UI CONSISTENCY	Platform comes with familiar, original UI components	UI frameworks can achieve a fairly native look	UI frameworks can achieve a fairly native look
DISTRIBUTION	App stores provide marketing benefits, but also have requirements and restrictions	App stores provide marketing benefits, but also have requirements and restrictions	No restrictions to launch, but there are no app store benefits
PERFORMANCE	Native code has direct access to platform functionality, resulting in better performance	For complex apps, the abstraction layers often prevent native-like performance	Performance is based on browser and network connection
MONETIZATION	More monetization opportunities, but stores take a percentage	More monetization opportunities, but stores take a percentage	No store commissions or setup costs, but there are few monetization methods

What is MAF?

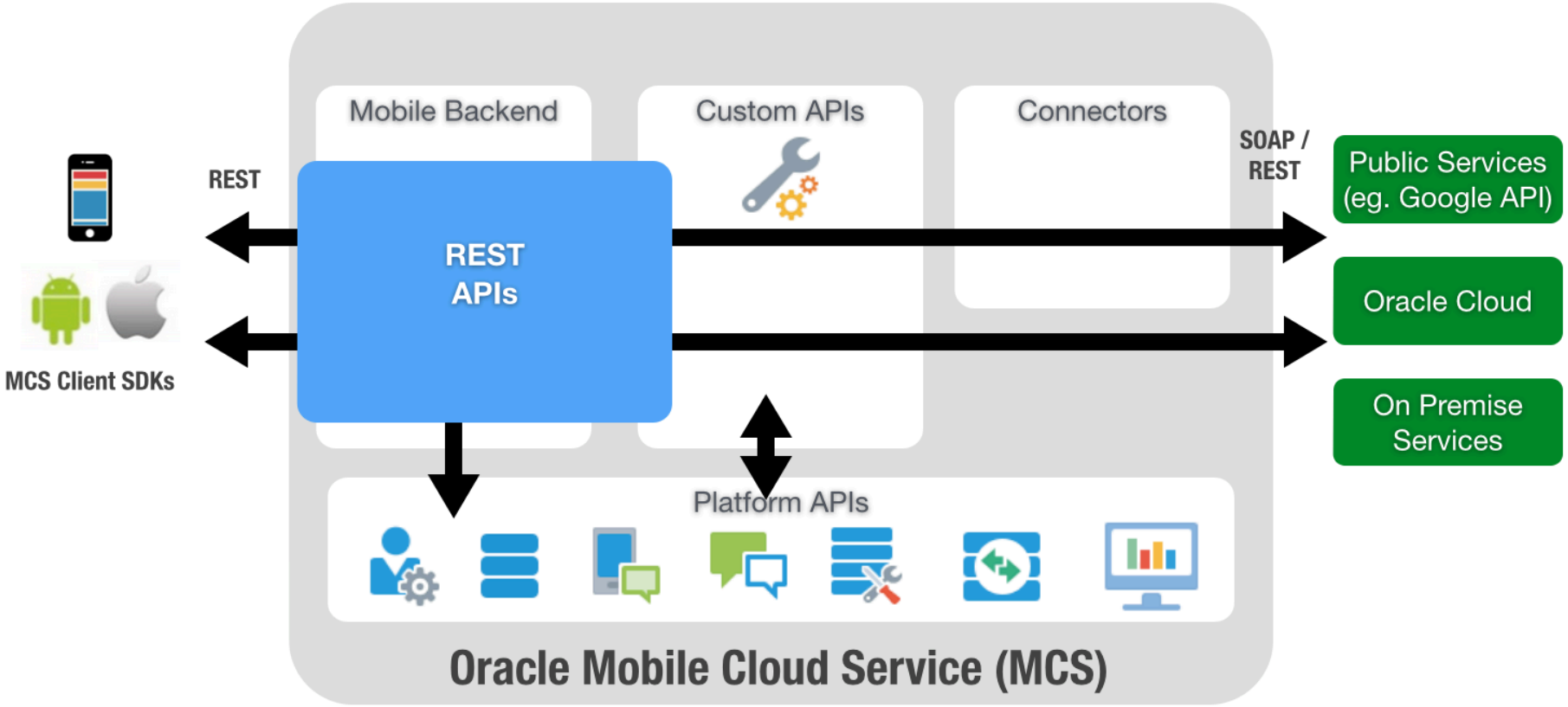
- Hybrid approach from Oracle
- Free to develop* using JDeveloper or (OEPE)
- Runtime Oracle license (per user/per app); or INCLUDED if using Oracle Mobile Cloud Service (MCS) services in app
- No requirement for Oracle ADF or WebLogic licenses
- Replacement for Oracle ADF Mobile

* iOS development requires license from Apple

MAF and MCS

- Oracle MAF includes the Oracle MAF MCS Utility
  - MAF is Java (under the covers)
  - The MAF MCS Utility is a Java library
  - MAF MCS is used to interact with MCS via REST API calls

MAF and MCS in Action



Mobile Application Accelerator

- Mobile Application Accelerator (MAX) provides non-technical people ("citizen developers") to create mobile applications quickly and easily
- MAX is a cloud-based service intended for business and functional people to use; NO development experience requried!

How MAX Works

- MAX UI (User Interface) designs are based upon pre-set UI templates
- MAX UI templates are connected to backend systems using Oracle MCS Connectors
- Apps created with MAX may be developed and/or executed on any web browser (no plug-ins or other software required)
- MAX uses MAF work together; any MAX application may be extended and/or enhanced with MAF

Oracle MCS and Oracle JET

- Oracle JET is a set of open source and Oracle JavaScript libraries used to build hybrid applications (uses Require.js)
- MCS provides client-side SDKs that make working with MCS easier through REST APIs
- The MCS SDKs include JavaScript, Cordova, iOS, Android, and Windows used to build hybrid-mobile apps
- The JavaScript and Cordova SDKs allow Oracle JET applications to interact easily with MCS

Conclusion

- Oracle MCS removes the complexity of creating cloud-based apps by abstracting operations and deployment
- MCS developers focus on coding; not operations or deployment
- MCS Administrators can oversee operations, control deployments, and learn from analytics
- MCS provides the best platform for enabling MAF, MAX, and JET applications

Watch this space !!!

Dates & Venue for RMOUG 2018 coming soon

PHOTO CREDIT: Mike Landrum, SQL Developer and the "Data Tsunami" from i-Behavior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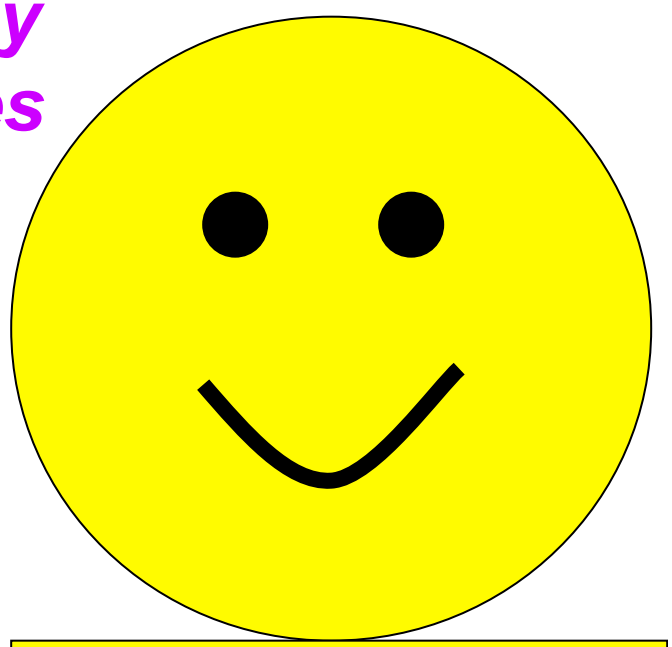

Thanks for your attention!

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