

Agenda

- 1 Introduction
- Setting The Stage
- The Platform
- 4 Summary





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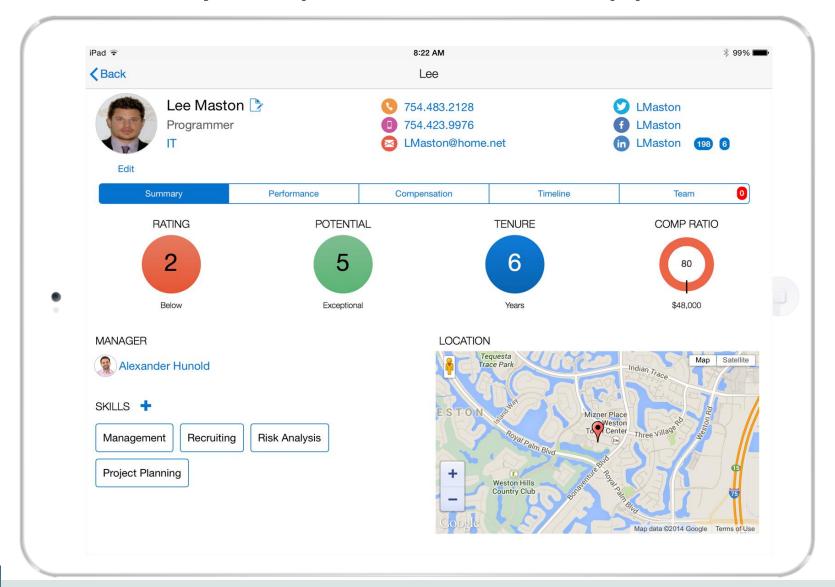


Enterprise Mobility Challenges



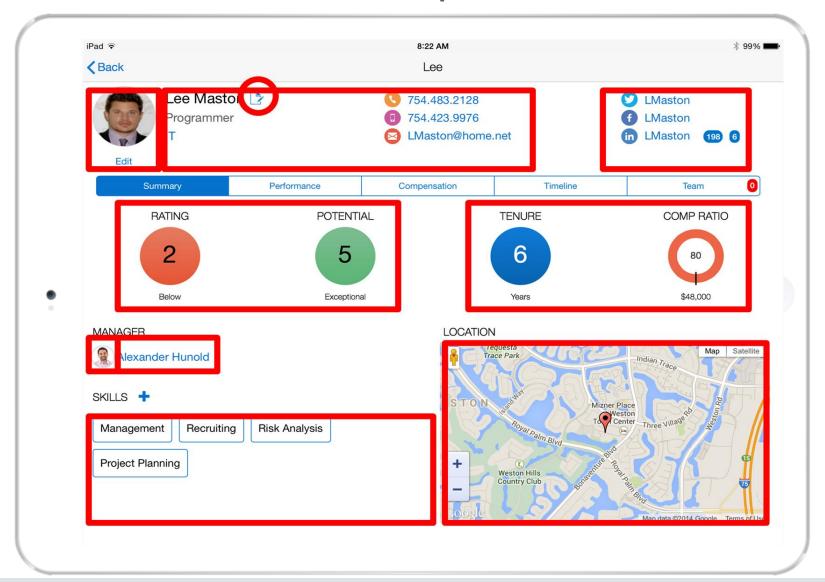


Let's look at a fairly simple HR Mobile app



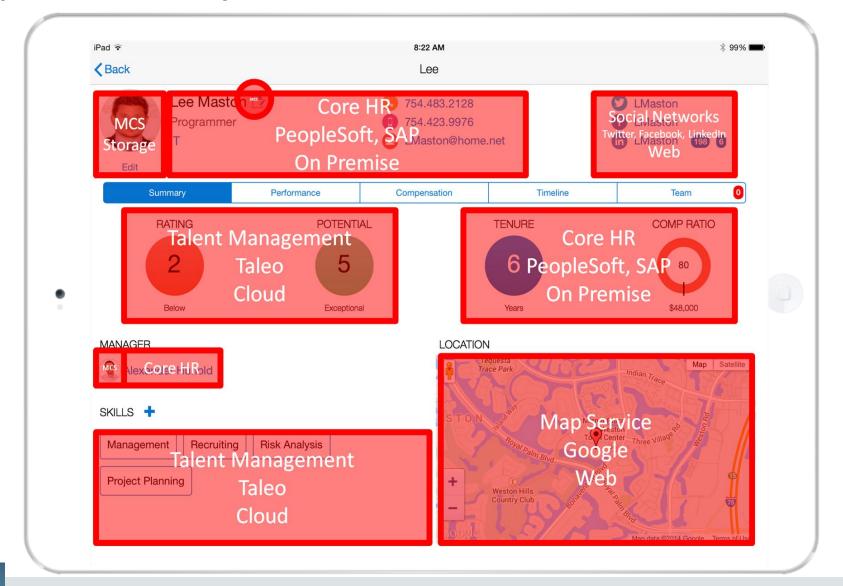


Decompose it into constituent parts



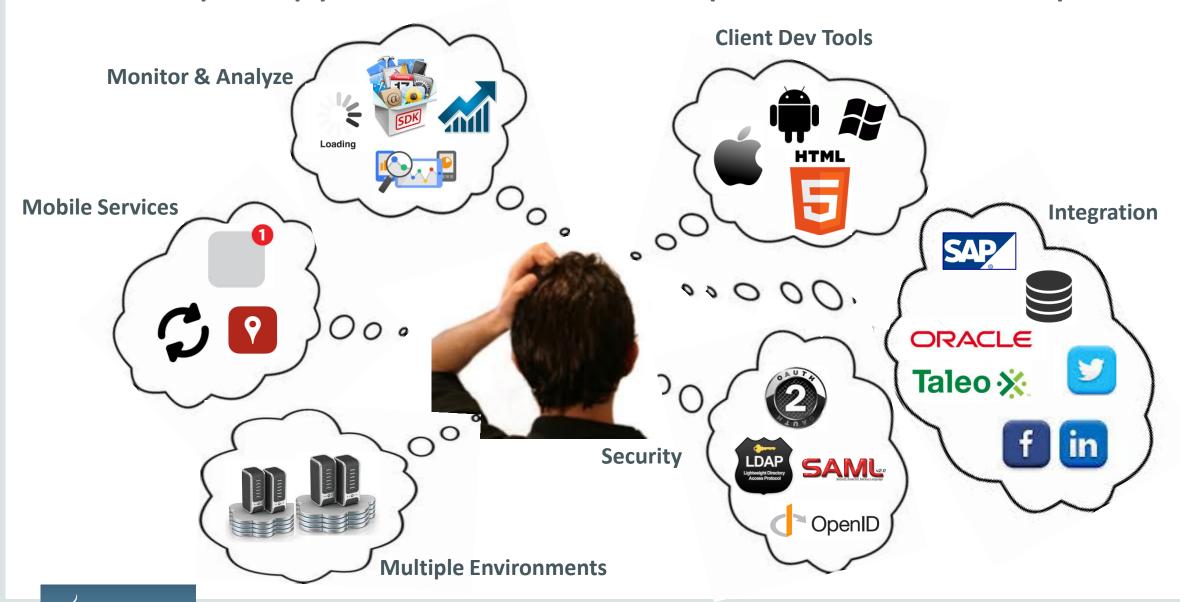


And map it to the systems of record





This simple app soon became complicated to develop...



App Profiles

Business-to-consumer vs. Business-to-employee

B₂C

Apps for the average Jane

- Masses of untrusted clients
- Little or no control over the device
 - Client-owned device(s)
 - Varied software versions and capabilities
- May or may not have a user profile
 - Self-registration



B₂E

Apps for a limited "somewhat" trusted group

- Limited number of clients
- BYOD, or company-supplied
 - Can limit software versions
 - Can impose MAM or MDM solutions
- Full user profile in corporate IdM





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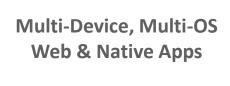




What does the Platform look like?

Mobile

app requests











Develop/Administer
Deploy/Manage
Analyze/Monitor



Admin and dev requests

Mobile Cloud Service



Mobile Services

Calls out to external systems



External apps and systems





API Management

Controlling Access to Data Assets

- Define a set of REST-based APIs
 - RAML, RSDL, RADL, etc.
- Attach implementations to each API
- Specify authentication mechanisms, security policies, roles
- API catalog allows clients to browse available APIs
- At invocation-time the management layer hosts a runtime in which the implementation executes
- Measure and monitor application access



MBaaS: The Next Step

MBaaS = API Management ++

- API Management just the first step
 - Multi-channel access, but with full mobile support
- Set of core services available for all implementations
 - Includes functionality specially suited for mobile devices
- Build and plug in additional services for other types of access
 - Connect to external data and systems
- Sophisticated analytics
 - Mobile-driven events in addition to server-side recordings



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Big Picture



Mobile

app requests







External apps and systems

> ON-PREMISE **PACKAGED APPLICATIONS**

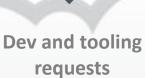








Multi-Device, Multi-OS Web & Native Apps



Mobile Cloud Service

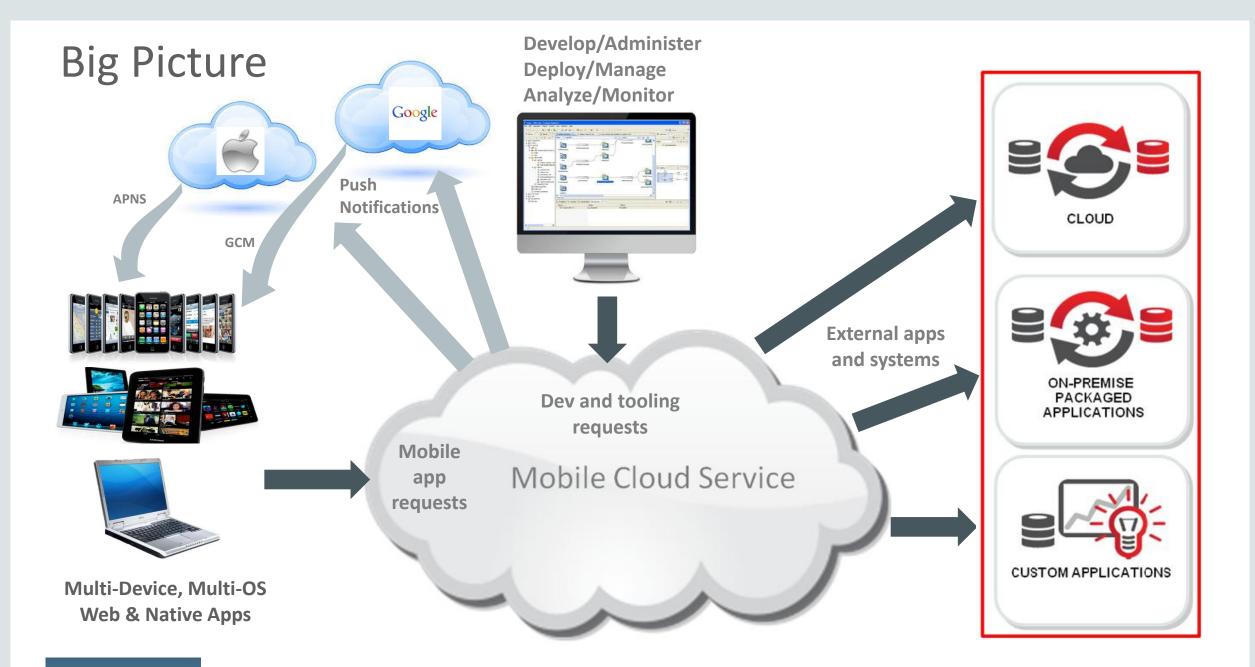


Connectors

Flexibility to Access Any Data, Anywhere

- Configurable resources that can connect to
 - Other Cloud-based services
 - On-premise ERP and other systems
 - Any system exposed to invocation
 - Legacy systems
- Where all the real Enterprise data is stored
- REST, SOAP and other types of protocol connectors
- Typically stateless connections
 - Makes session model a little more difficult
- Configurable
 - Can set credentials and headers to be used when calling out to a connector





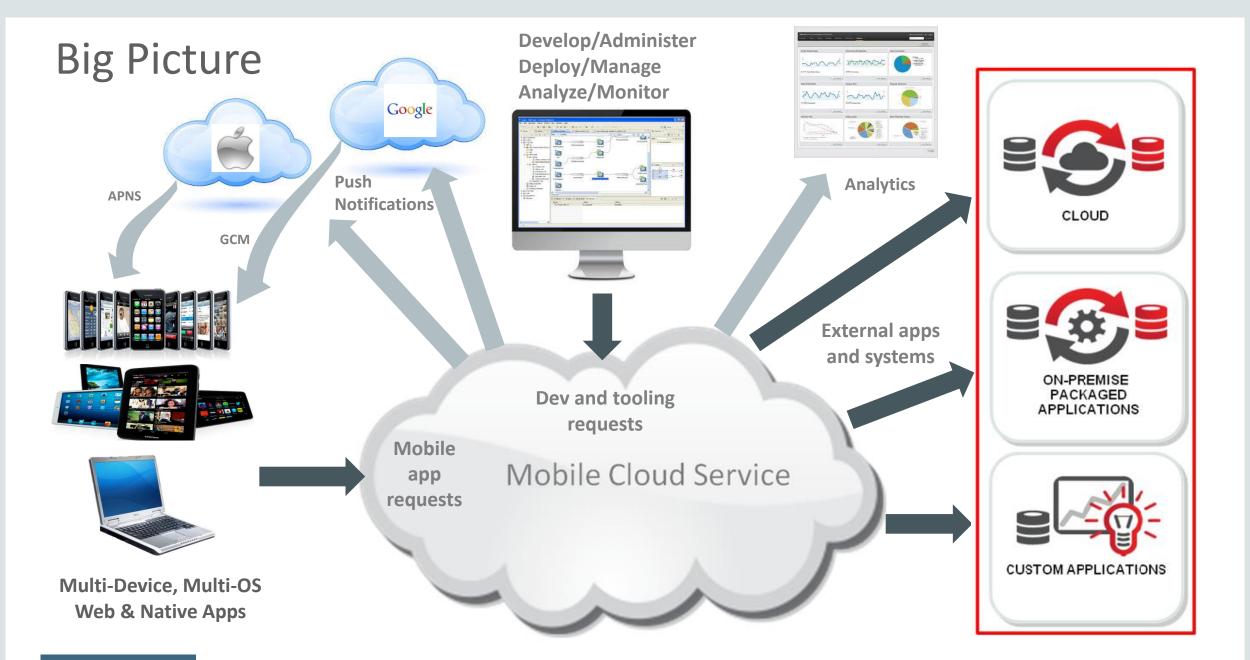


Push Notifications

Mass Device Messaging

- Integrated with multiple native platforms
 - Apple via APNS
 - Google via GCM
 - Others as required
- Push to a group of devices based on criteria
 - All devices registered with a given application
 - Role-based notification
 - All devices of a given type
- Still problems with vendor support and consistency
 - No QoS standards
 - No standard activity timeout or device TTL standards, etc.





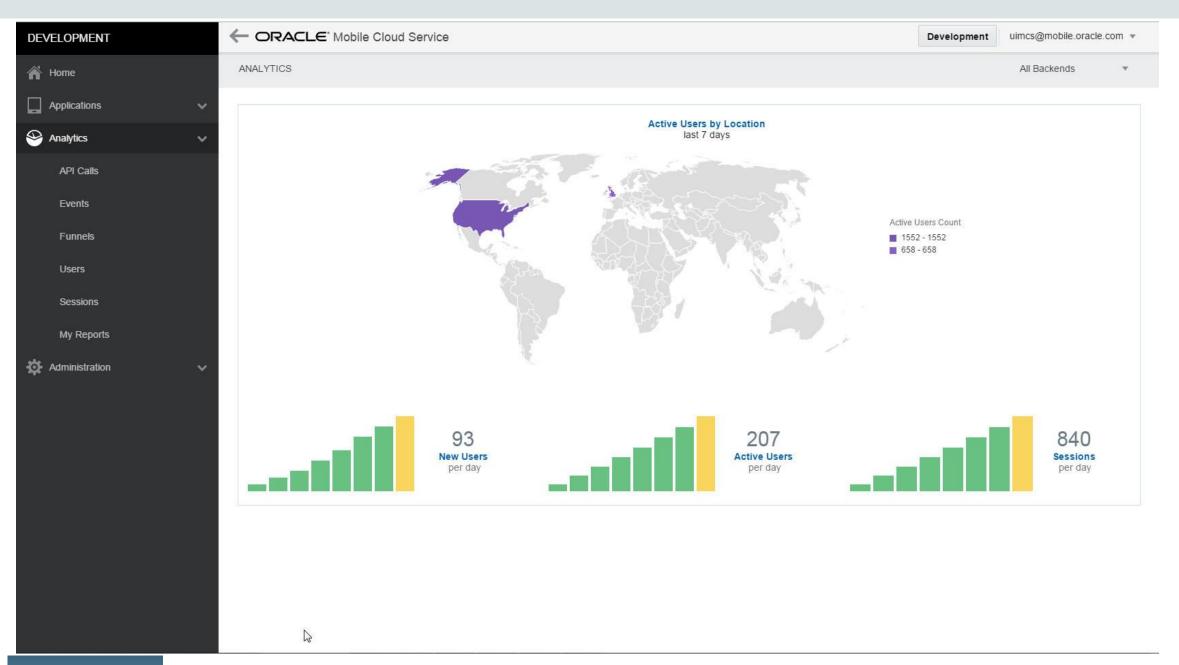


Analytics

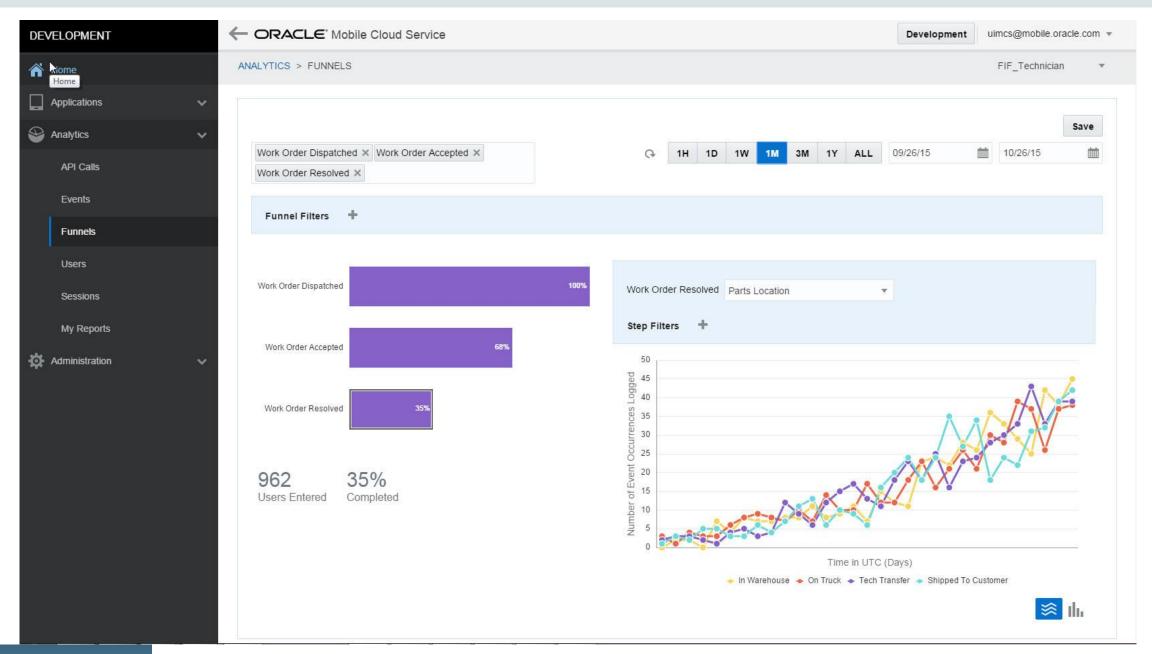
Finding Stuff Out

- Analytics events generated from:
 - Client side device
 - Custom code
 - Platform itself
- Event Context
 - Device type, location, time-of-day, etc.
- Application usage
 - Client profiles
- System behavior
 - Performance, failures, etc.















Push Notifications Develop/Administer
Deploy/Manage
Analyze/Monitor





Analytics

External apps and systems





ON-PREMISE PACKAGED APPLICATIONS







Multi-Device, Multi-OS
Web & Native Apps

Mobile app requests

User Management



Dev and tooling requests

Mobile Cloud Service



User Management

Declarative and Programmatic API Security

- Create and manage mobile users and roles in the system
- Declarative:
 - Set role-based access control on APIs
 - API management layer authenticates and authorizes each API call
- Programmatic:
 - Custom code can invoke UM service to obtain the roles of the caller
 - Can programmatically authorize users for specific operations
- Also supports the notions of Self-registration and anonymous access







Push Notifications

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ON-PREMISE PACKAGED APPLICATIONS









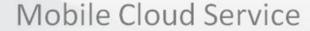
Multi-Device, Multi-OS
Web & Native Apps



User Management



Dev and tooling requests





Object Storage Database Storage





Object Storage

Unstructured Store

- For apps that just want to store object data
 - Generally just blobs
 - Key-value with natural or generated keys
 - Namespaces, location, or granularity attributes
- May also have JSON capabilities
 - JSON object read/write operations
 - Lookups, basic searching
- Objects stored in containers or collections
 - May set individual container isolation level
 - User, Application, Shared



Relational Store

Traditional Database Capabilities

- DB service:
 - Scaled down version for the mobile platform
 - Other external service offered by the vendor
- Tenant control to create/manage the schema
- Limit client access
 - Prevent mobile apps/devices from operating on it directly
 - Only accessible via tenant business logic (custom code)







GCM



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ON-PREMISE PACKAGED APPLICATIONS







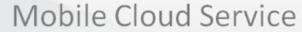
Multi-Device, Multi-OS
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Dev and tooling requests





Object Storage Database Storage



Custom Code



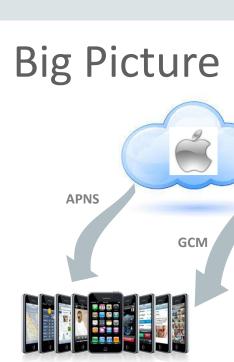


Custom Code

Filling in the Business Logic

- Can invoke any of the built-in core services
 - Custom code just another core service chained invocations
- Data input/output and transformations
 - Invoke storage services to read/write data within the platform
 - Use data connectors to read/write from/to the outside world
- May support one or more languages or environments
 - Special purpose mini-PaaS
 - Likely have fettered access to the provided environment
 - Will NOT have access to the execution infrastructure environment





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Analytics

External apps and systems





ON-PREMISE PACKAGED APPLICATIONS







Push

Notifications

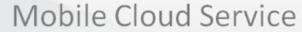
Google

Mobile

app requests



Dev and tooling requests





Object Storage Database Storage



User Management









Geo-location

Using Location Context

- APIs to indicate current location of a device
- Locality improves relevance in virtually any domain
- Make use of location as a domain—specific search filter
 - Only return results that apply to that zone
 - Use direction APIs and other geo-spatial features to extend to the neighborhood
- Mix with other contextual APIs for even more power/relevance
 - Ex. Add temporality to know where the nearest open bar is





Security

Secure At Every Turn

- Authentication using current protocols like OAuth 2
 - Token-based auth with token expiration
 - Login using 3rd party resource providers
- Role-based API security
- Propagation of tokens to connectors
- Key and certificate management
- SSL for all device-to-platform transport



Demo...



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Summary

The future is still mobile

- Mobile devices are not only ubiquitous, both in the workplace and in the masses, but are diversifying
- Enterprises must "mobilize" their apps or be left behind
- Can't approach enterprise mobile apps in the same way as traditional web apps
- API management is a start for multi-channel apps, but isn't enough
- Enterprise applications need enterprise-grade MBaaS
- Analysts, developers and architects all agree that MBaaS will very soon be the platform underlying all enterprise mobile app development



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