



# Building Cross Platform Mobile Apps Dev Tools, MBaaS, Architecture, APIs

# So You Want to Build a Mobile App

**What Mobile Platforms to Support?**

**What backend services to integrate?**

**What login credentials are required?**

**How to scale this app as it grows?**

# Mobile Apps in the Enterprise – The Philosophical Debate

**Mobile Web**

Use only for development, not for production.

**Hybrid Native:  
HTML5 + Wrapper**

Pros + Cons need to be considered. Faster iteration. More platforms. BYOD.

**Hybrid Native,  
Runtime**

Leverages Native UI Controls, Uses a Framework and Build Engine

**Full Native**

Best performance, most time to develop and maintain.

# Architecture of a Hybrid Native App

**Mobile UI Frameworks**



**Native App Wrapper**



**MBaaS**



**API Integration**

# Architecture of a Hybrid Native App

**Mobile UI Frameworks**



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graph TD; A[Mobile UI Frameworks] --> B[Native App Wrapper]; B --> C[MBaaS]; C --> D[API Integration];
```

**Native App Wrapper**

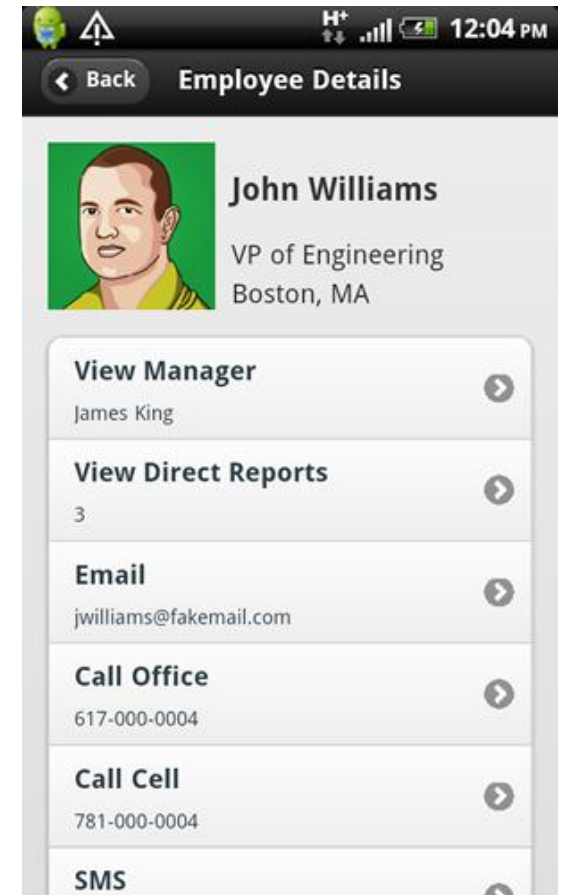
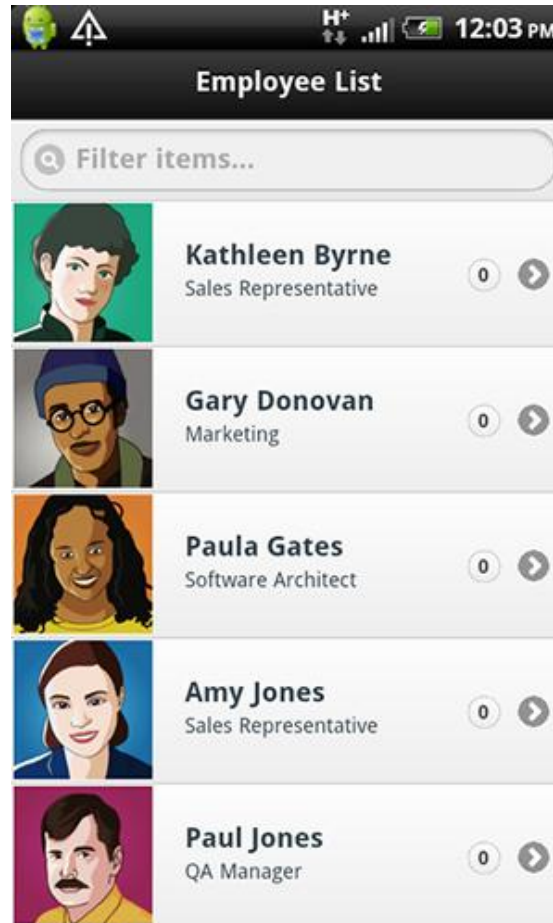
**MBaaS**

**API Integration**

# Mobile UI Frameworks

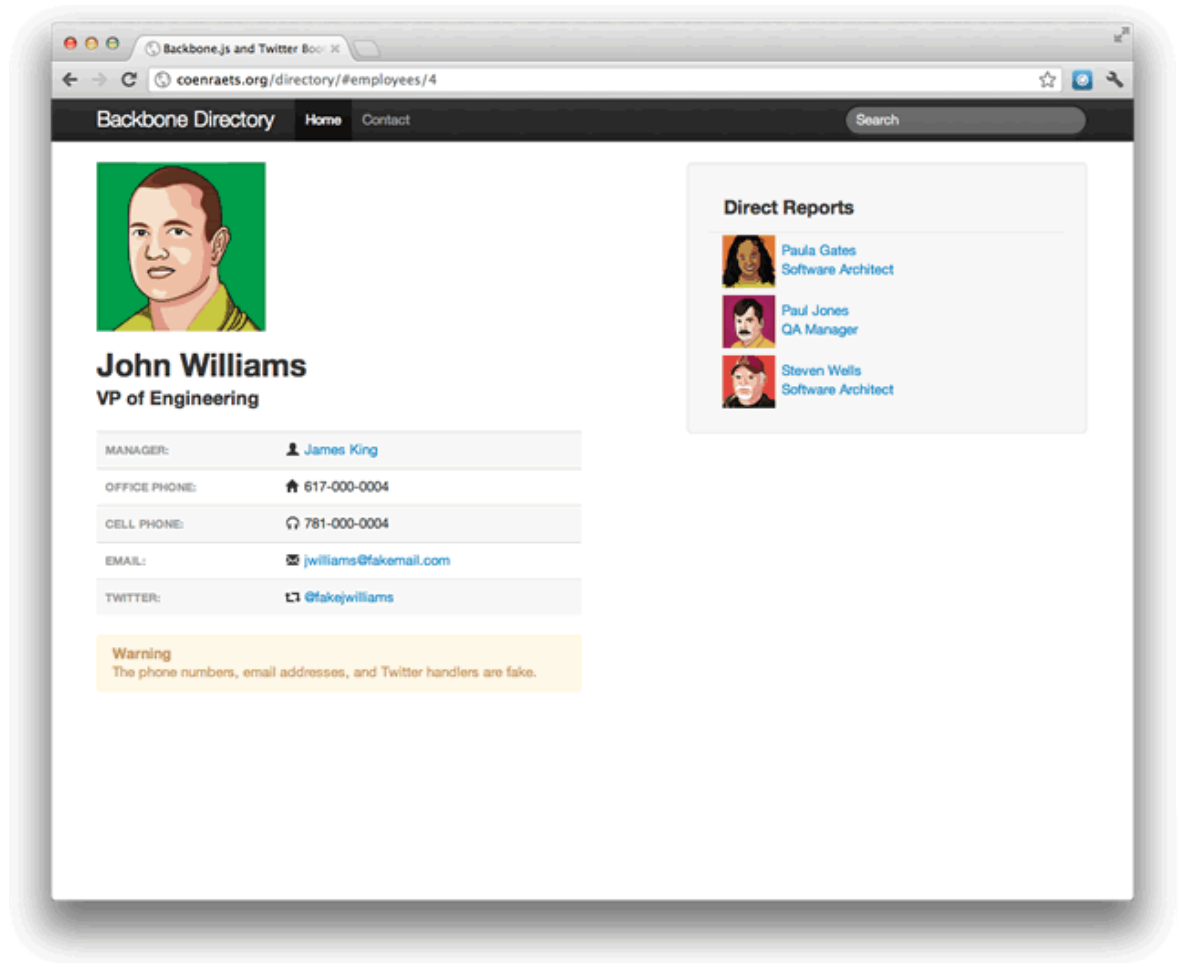


# Mobile UI Frameworks – jQuery Mobile



# Mobile UI Frameworks – Bootstrap

# Bootstrap





# Mobile UI Frameworks – Sencha



**Speakers**

A

 **Nikesh Arora**  
President, Global Sales Opera.

B

 **Jim Balsillie**  
Co-CEO, Research In

 Carol Bartz

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**web2.0  
SUMMIT**

**Searches**

 **Sencha**  
New #SenchaTouch portfolio site for @Classicist member David Jones Architects, by @dyadcom. View w/ WebKit: <http://t.co/6VIG8FWQ>

 mbritton



# Mobile App Specific IDEs

appery.io™


 appcelerator®

 AppGyver.

 **MOTOROLA SOLUTIONS**

**RHOMOBILE SUITE**



 **HTML5 Development Environment**

 Sencha

**TheApp  
Builder**

 **AppMachine**  
THE NEXT STEP IN APP BUILDING

**BiznessAPPS**

 **AppFurnace**  
make your own apps



**eclipse**

 **Visual Studio**

# Architecture of a Hybrid Native App

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**API Integration**

# How to go from Mobile Web to Hybrid Native?

A multiple phone web based application framework is a software framework that is designed to support the development of phone applications that are written as embedded dynamic websites and may leverage native phone capabilities, like geo data or contact lists.

*From Wikipedia*



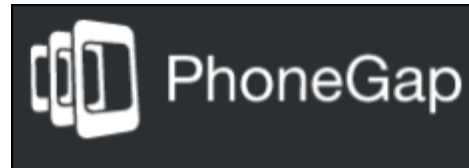
# What Identifies a Hybrid Native App?

- **Back Button**
- **Non-native UI Controls**
- **Slow Performance**
- **Lack of Snappiness**
- **Available on All Platforms**

# How to go from Mobile Web to Hybrid Native?



# PhoneGap Architecture Explained



PhoneGap is a Bridge



bada



webOS

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**MBaaS**



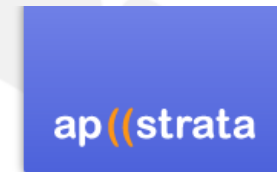
**API Integration**



# Mobile Backend as a Service – What?

Feature	Functionality
Identity	SSO, User Mgmt, Auth at API Layer
Persistence	Offline Mode, Data Syncing, Caching
Messaging	Push Notifications, Email, SMS
Orchestration	Server Side Code, API Integration

# Backend as a Service Ecosystem



# Mobile Backend as a Service, Which One?

**Is this really just a prototyping platform?**

**What will my cost be at scale?**

**Will we be creating redundant data?**

**Will this startup be around in 2 years?**

**Do they offer SDKs for all mobile platforms?**

**How will it help me integrate my APIs?**

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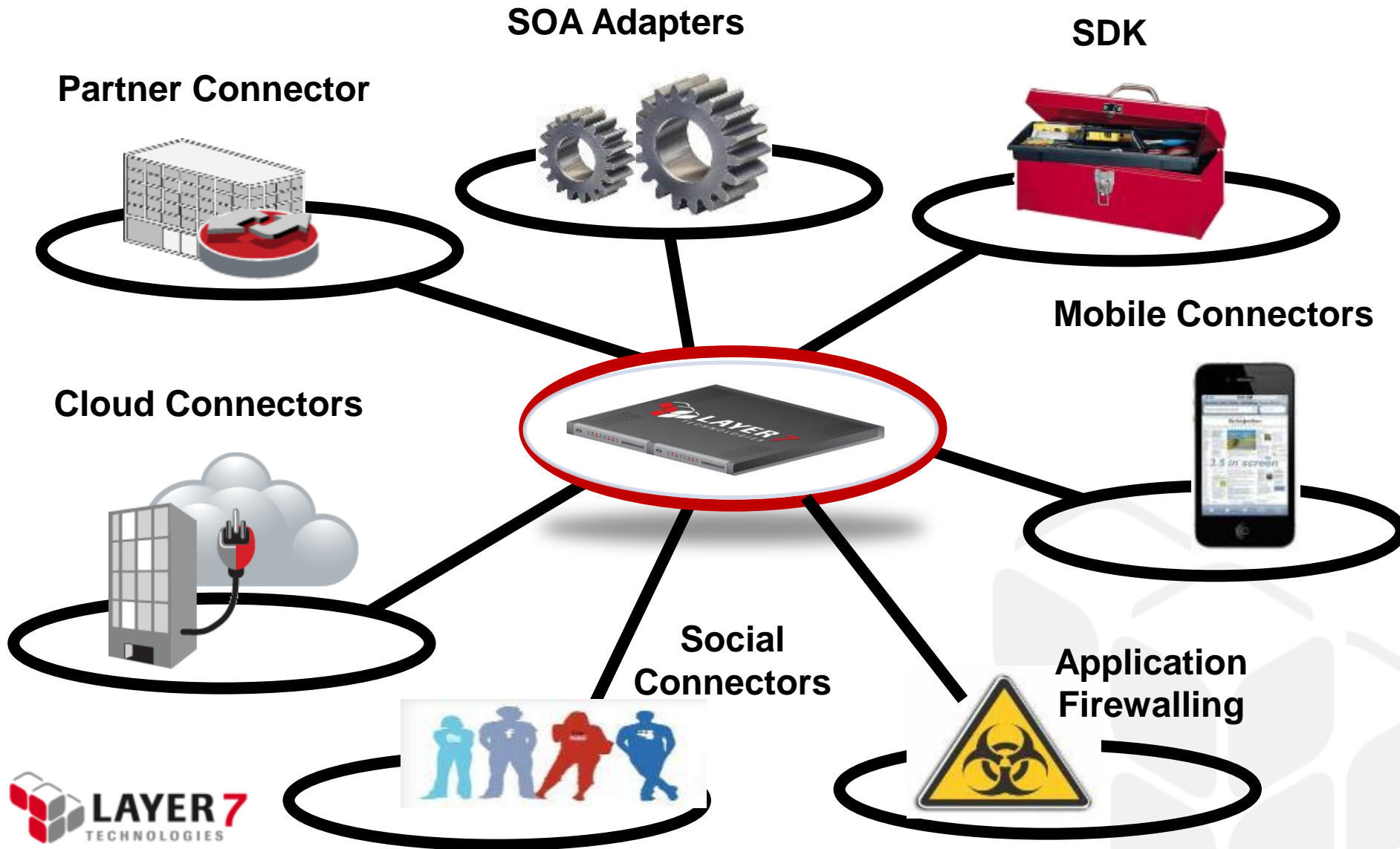


**MBaaS**



**API Integration**

# Architecture of an API Powered Mobile App



# Best Practices for Integrating APIs

- Never leave the user waiting for an API response
  - Decouple API from UI
  - Pre-fetch when possible
- Cache data in local storage or SQLite
- Always test Apps in Offline Mode

# Architecting APIs for Mobile

- Utilize Gzip compression at API layer
- Implement OAuth for long-term scale and security of user logon
- REST APIs make it easier to consume
- Versioning of APIs to prevent breaking apps
- Explore hypermedia, potentially create auto-API learning apps as your APIs evolve



# Free API Workshop Next Week!

## API Strategy Workshop

Conrad Hotel NY

June 18<sup>th</sup> 8:30am – 1pm

[API.co/nyc-wrk](https://api.co/nyc-wrk)

- Align API design with business goals
- Architect flexible and robust APIs that are developer-accessible
- Design for multiple client platforms (Web, mobile and cloud)
- Implement USE methodology, versioning, reusability and hypermedia
- Address issues around security, identity, social integration, reliability and scalability

**Thank you**

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