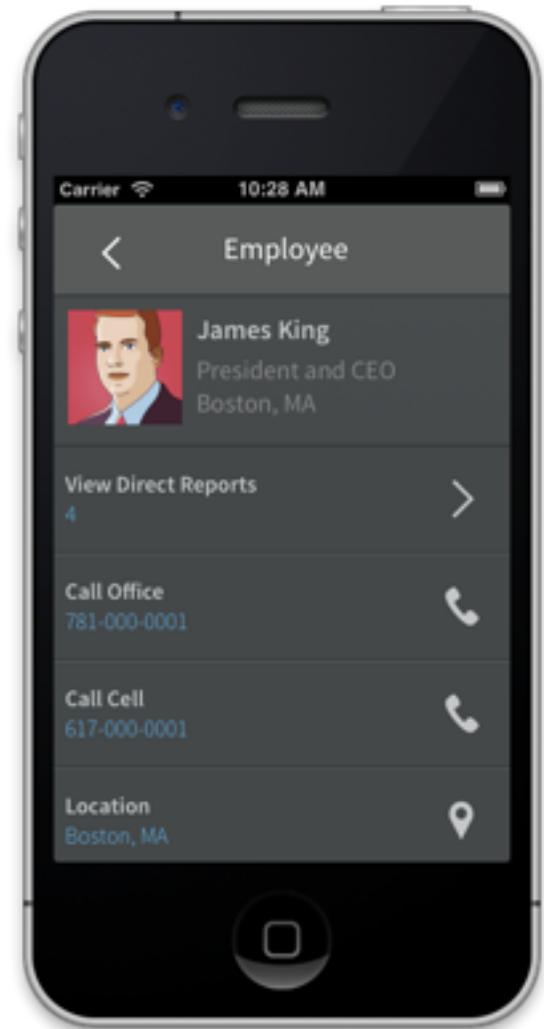


# Functionally Mobile

I believe every mobile app should be tested through automation.

**Sebastian Tiedtke**  
**@sourishkrout**





# Paradigm Shift?

More mobile devices  
More consumers  
More apps



Mobile creates

# New Opportunities



Opportunities come with

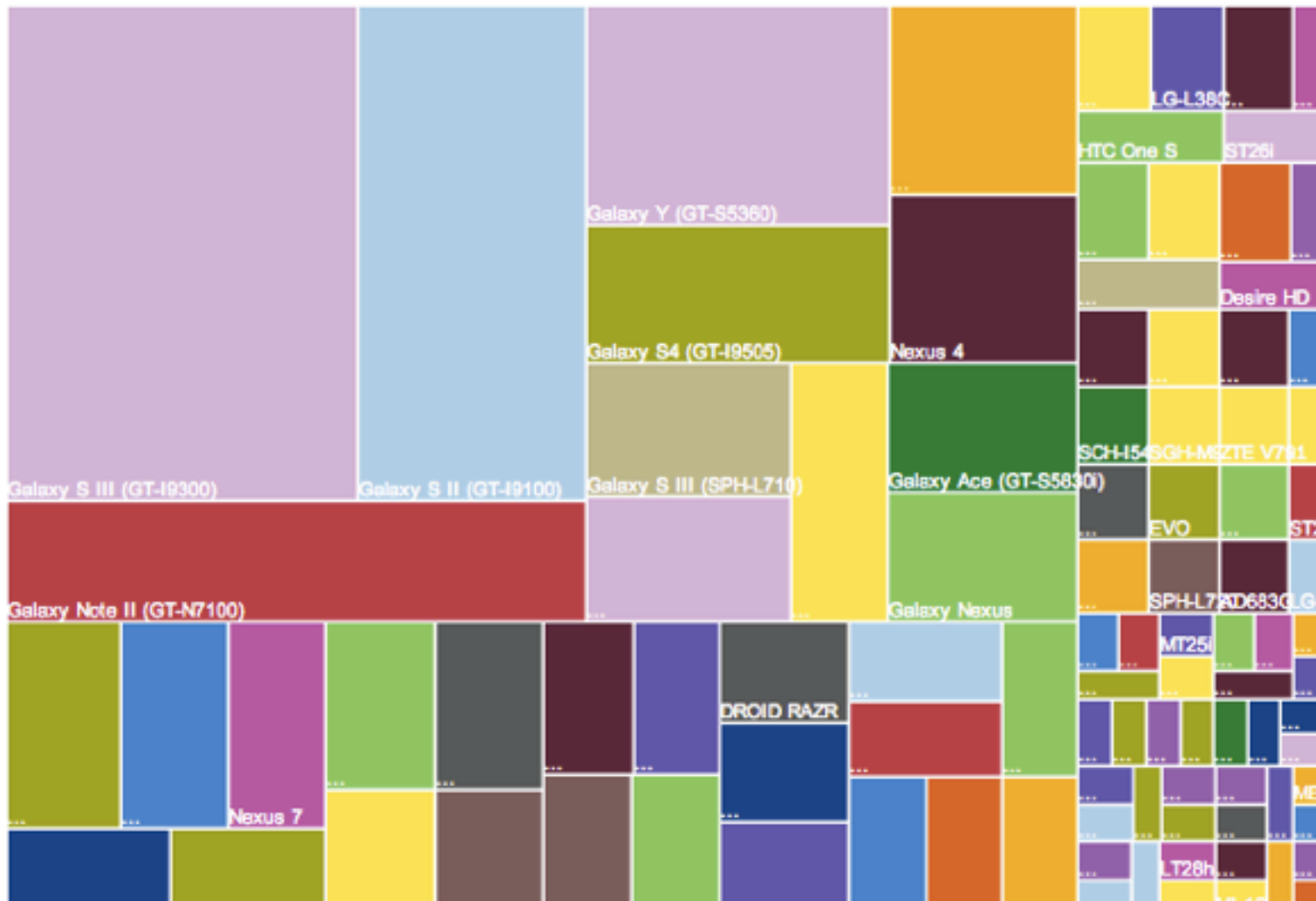
# Challenges



# Multitude of Platforms



# Device Fragmentation



\* Rectangle area represents number of device units sold as of July 2012

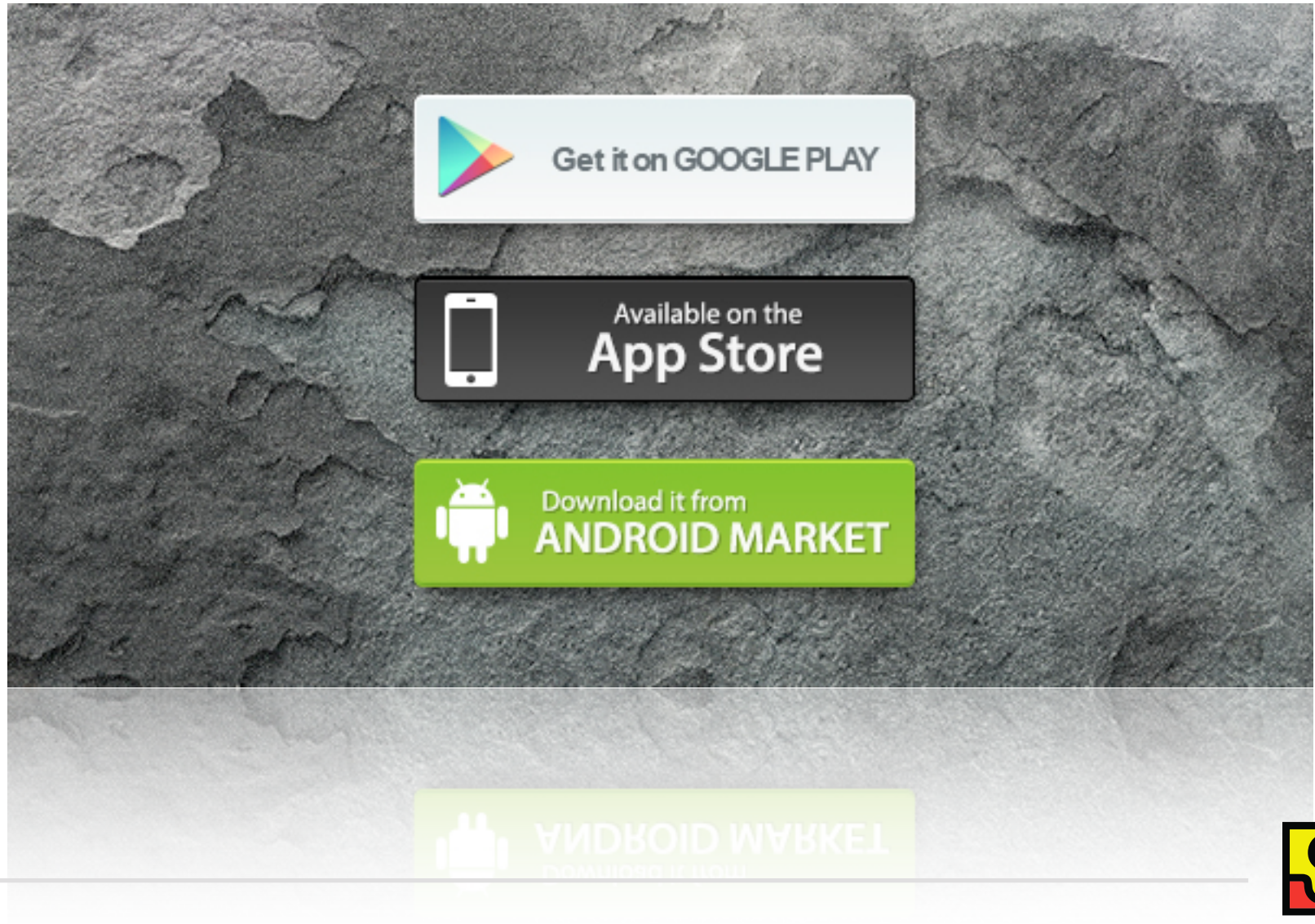


# Different Screen Sizes





# AppStore Approval





# Quality Assurance

is a key factor to success

- Find bugs before app users do
- Execute tests quickly and repetitively
- Systematically and automated



Comprehensive App Development Approach using

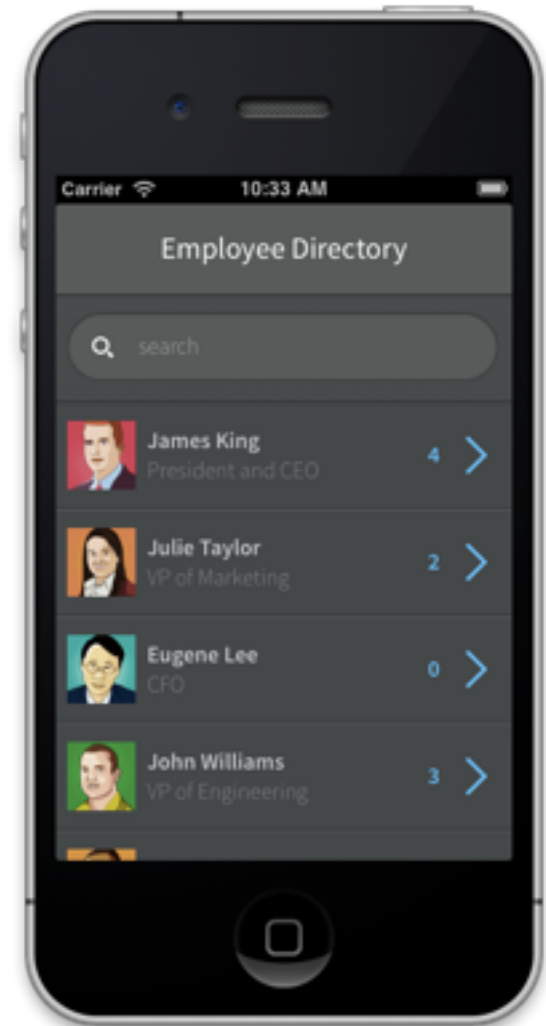
# Web Technologies



# Test App - Quick Demo

Courtesy of Christophe Coenraets  
from Adobe

<https://github.com/ccoenraets/directory-backbone-topcoat>



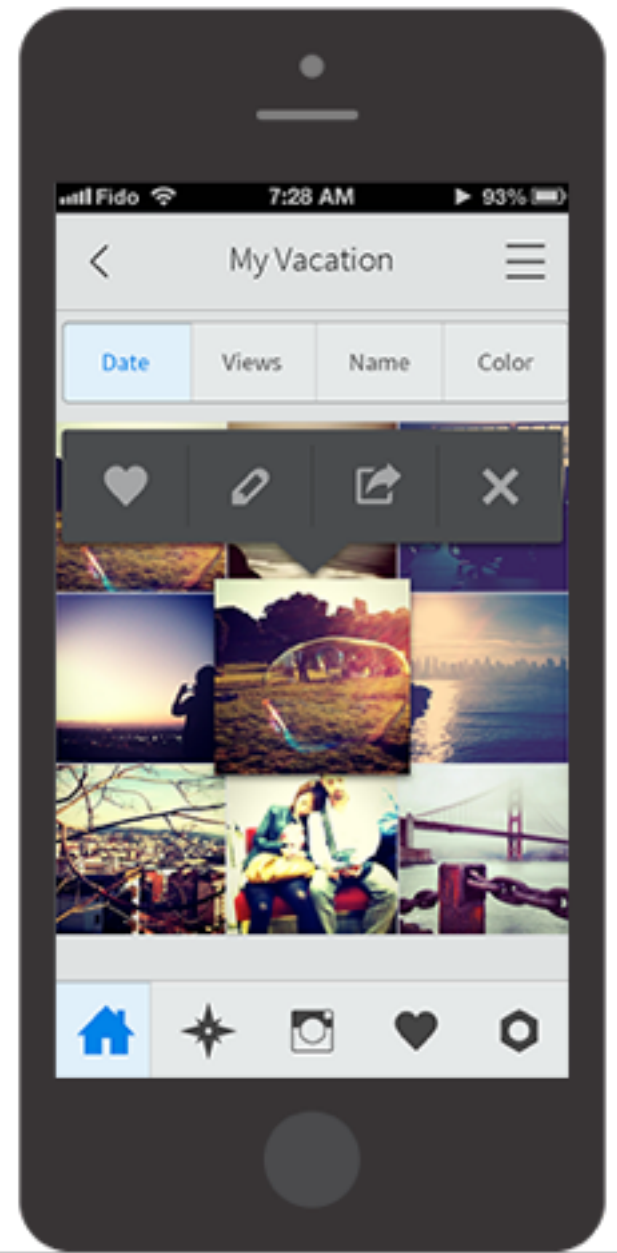
# Apache Cordova / PhoneGap

Apache Cordova is a platform for building native mobile applications using HTML, CSS and JavaScript.



# Topcoat

CSS for clean and fast web apps.  
Benchmarked for performance.  
Think twitter bootstrap for apps.







# Appium

**Appium is an open source test automation framework for use with native and hybrid mobile apps. It drives iOS and Android apps using the WebDriver JSON wire protocol.**





# Why Appium?

- R1. Test the same app you submit to the market place**
- R2. Write your tests in any language, using any framework**
- R3. Use a standard automation specification and API**
- R4. Build a large and thriving open-source community effort**

**Test execution on emulators and real devices.**





+



# What's a Hybrid App?

**Apache Cordova runs a web app hosted within a native app (iOS, Android, etc) and make its UI accessible through a “fullscreen” WebView**

**Cordova exposes native platform APIs to the web app using a unified Javascript API**





+



# Native vs Webview Context

Same protocol to talk to native as well as webview parts of mobile apps

API calls available to switch contexts





+



# Native vs Webview Context

```
it('should confirm table cell element is visible', function(done) {  
  h.driver.elementsByTagName('tableCell', function(err, els) {  
    // do something with native table cell (iOS) elements  
  });  
});  
  
it('should confirm spans are visible', function(done) {  
  h.driver.elementsByTagName('span', function(err, els) {  
    // do something with span elements (DOM)  
  });  
});
```





#### HomeView

- ✓ should display as initial view (567ms)
- ✓ should allow to search for employees (1631ms)
- ✓ should find five employees for the letter j (1627ms)
- ✓ should scroll down list of employees (2399ms)

#### EmployeeView

- ✓ should select James King and check his direct reports (4773ms)
- ✓ should open location map and dismiss modal dialog (6944ms)

6 passing (1 minutes)

# Test All The Things!

Execute the exact same test suite on iOS and Android

Demo + Code





# Test Implementation

Based on node.js 0.11's generators (ES6 Harmony)

- Mocha
- WD.js through yiewd.js (generator based)
- monocle.js



```
yield("should open location map and dismiss modal dialog", function*() {  
  var options = yield h.driver.elementsByCssSelector('.actions a');  
  options.length.should.equal(6);  
  
  yield options[3].click();  
  
  yield nativeSeq(h, function*() {  
    yield dismiss(h.driver);  
  });  
});
```

An orange square with the text "ES6" in white, representing ECMAScript 6.

# Harmony? Generators?

Based on Jonathan Lipps' work:

<https://npmjs.org/package/monocle-js>

<https://npmjs.org/package/yiewd>





## What's next?

**Continuous Integration with Jenkins, Travis, Strider, etc**  
**Appium Functional Testing at Scale using Sauce Labs**  
**(free for Open Source projects)**

**Smoke tests are a good starting point**  
**Perfect to back up your Javascript unit tests**



# Please Help Us!

-  Appium: <http://appium.io/>
-  Gappium: <https://github.com/appium/io.appium.gappium.sampleapp>
-  Apache Cordova: <http://cordova.apache.org/>
-  Topcoat: <http://topcoat.io/>
-  @sourishkrout

