

Mobile

cs5356

Daniel Doubrovkine

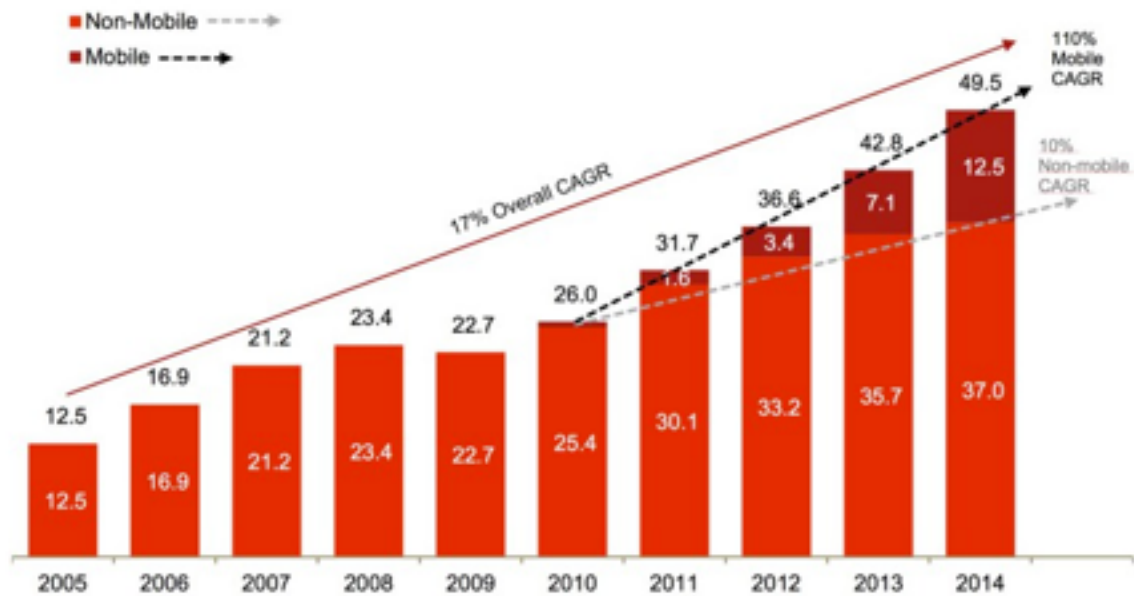
@dblockdotorg

Cell Phone Usage is Ubiquitous



\$\$\$

Annual Revenue 2005-2014 (\$ billions)



Source: IAB/PwC Internet Ad Revenue Report, FY 2014



Jason Grigsby, 🍀4

@grigs



Follow

Sometimes mobile stats just get boring.
Exponential growth. Massive data usage. No
end in sight. Yawn...

7:32 PM - 16 May 2009

Every Business Wants an APP

**You Say Greedy
Capitalist Pig Like
It's A Bad
Thing!**



Mobile First



Apps Everywhere



Agenda

Trends

Architecture

Development

Challenges

Process

Trends

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Architecture

Development

Challenges

Process

Trends: Context Awareness



Trends: Payments



Trends: Not Just Phone



Trends: IOT



What do YOU
want to
make **tweet**?

Click [here](#) to see what other's
have done with our easy to use
technology.



FIRST came the
tweeting toaster...



...and now
laundromats tweet!



What's next?

Architecture

Trends

Architecture

Development

Challenges

Process

Operating Systems: Android



Android

Google's Mobile OS
Based on the Linux Kernel
SDK & NDK

Android: Kernel

Drivers

Display
Bluetooth
Camera
Flash Storage
USB
Wifi
Power Management
...

{ Hardware Abstraction Layer
Process Management
Memory Management
Networking

Android: Core

Surface Manager
Media Framework
SQLite
SGL 2D
OpenGL 3D
WebKit
FreeType
SSL
libc
...

Android Runtime

{ Core Libraries
written in C/C++, preinstalled by vendor
Dalvik Virtual Machine
Google's implementation of Java

Android: Application Framework

Activity Manager
Window Manager
Content Providers
View System
Notification Manager
Package Manager
Telephone Manager
Location Manager
Sensor Manager

Android: Apps

Home

Contacts

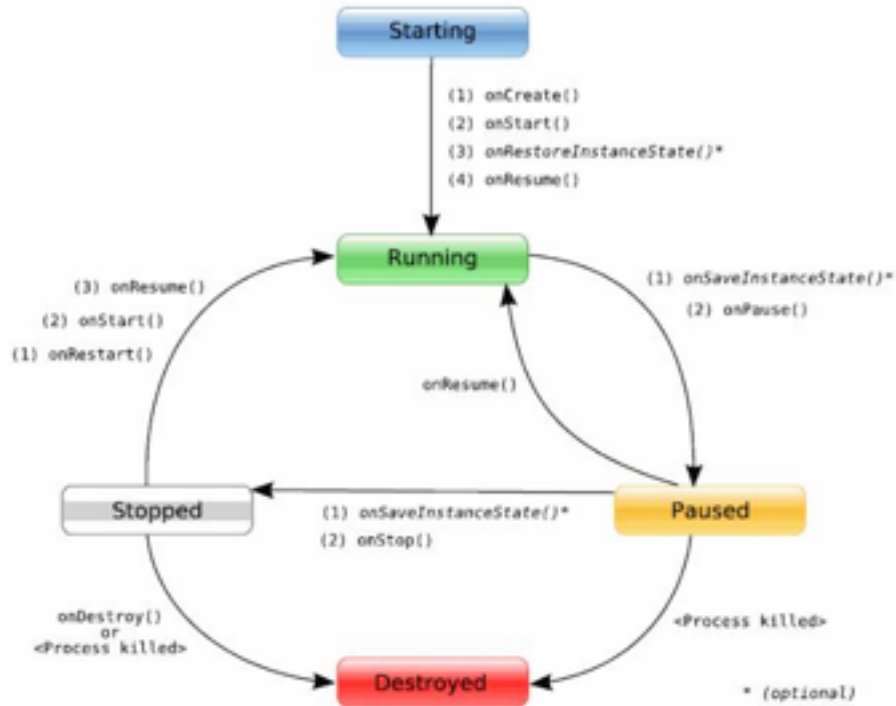
Browser

Widgets

...

Your Apps

Android: Application Lifecycle



Android (Interesting ...): *Networking*

Monitors Network Connection

WiFi, GPRS, UMTS, etc.

Send Broadcast Intents When Network Changes

Attempt Failover

API for Fine-Grained and Coarse-Grained State

Android (Interesting ...): *Sensors*

Accelerometer

Light

Magnetic Field

Orientation

Pressure

Proximity

Temperature

Operating Systems

palm webOS™

MeeGo™

Windows
Phone



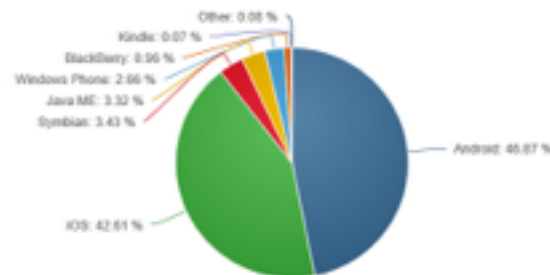
iOS



Android

BlackBerry

symbian



Development

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Native Development



Native

Native Look & Feel

Top Performance

Access to Device Features

Offline Mode

Super Monkey Ball in HTML?

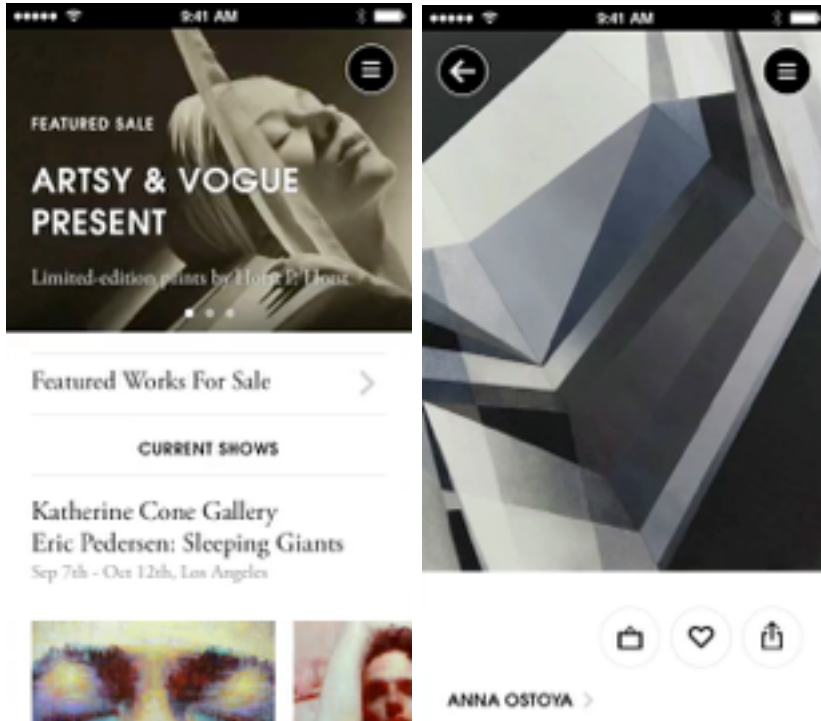


`<div id="bridge"
class="rope">`

`<div id="bubble">
<span id="monkey sprite-
replace">
Monkey`

`jquery-banana.js`

Hybrid



URL-based Navigation
Default to Web
Mobile Website

Multiplatform



Phonegap

Embed a chrome-less browser in a native app
Create a “bridge” between browser and native code
Write a web app!

How do I write one?

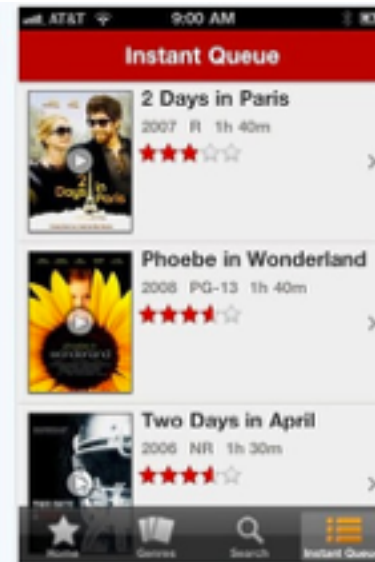
```
<button> I'm native </button>
```

An app!

```
<!DOCTYPE html>
<html>
  <head>
    <title>Vanilla</title>
    <meta name="viewport" content="width=device-width, initial-
scale=1.0, maximum-scale=1.0, user-scalable=no;" />
    <link rel="stylesheet" href="css/app.css" type="text/css"
media="screen">
  </head>
  <body>
    <h1>Vanilla!</h1>
    <p>Ice Ice Baby</p>
    <!-- always put phonegap.js first!!! -->
    <script src="phonegap-0.9.4.js"></script>
    <script>
document.addEventListener('deviceready', function() {}, false);
    </script>
  </body>
</html>
```

+ config.xml

But what about those games?



Challenges

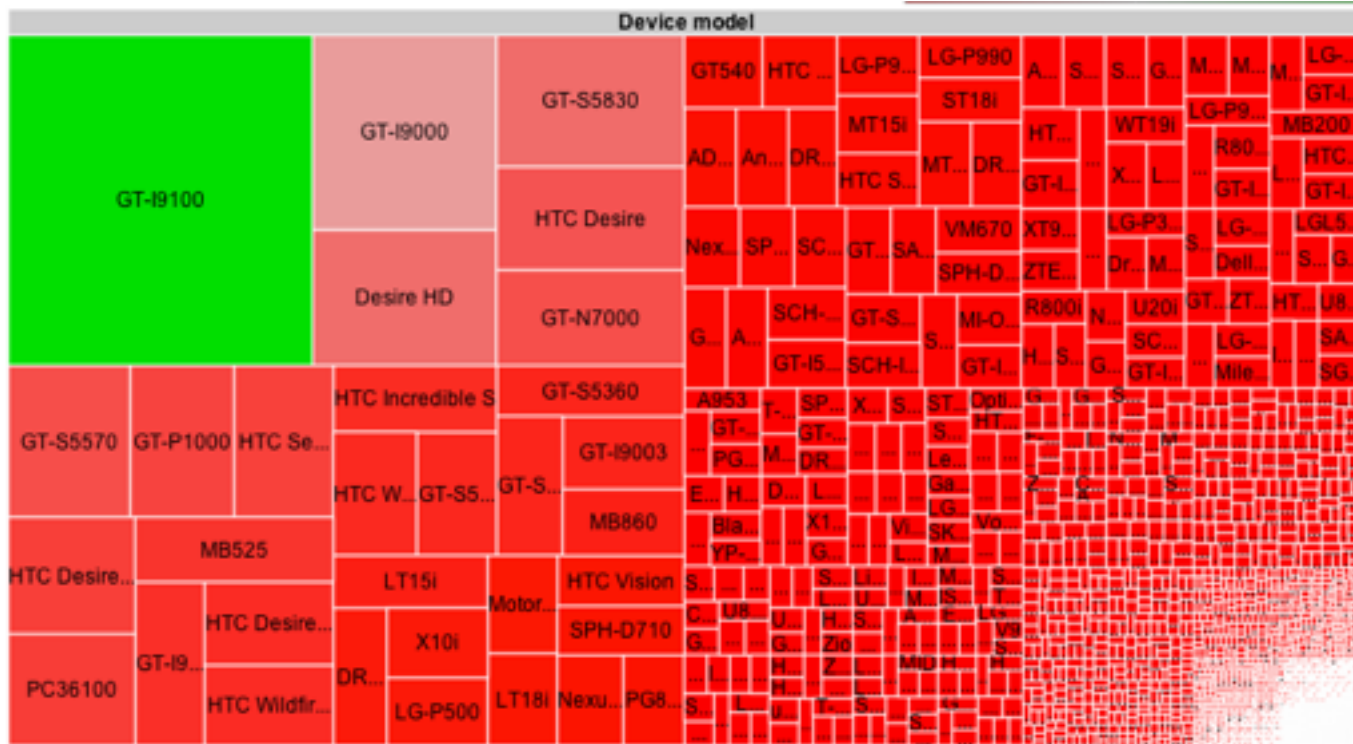
Trends

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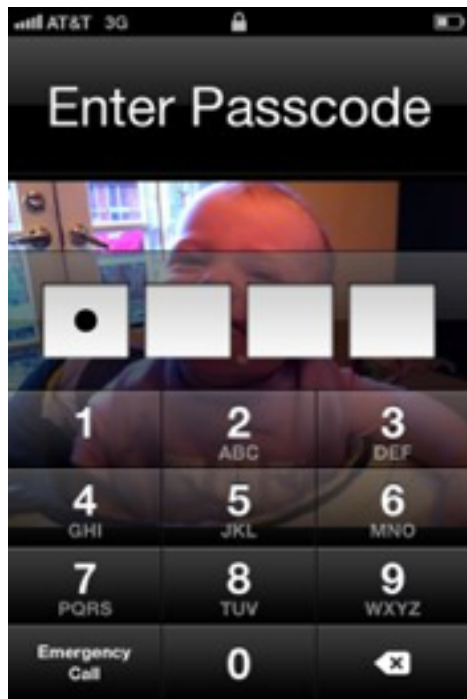
Process



Rapid Innovation



Security



Unreliable Networks



Time to Market





Process

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Process

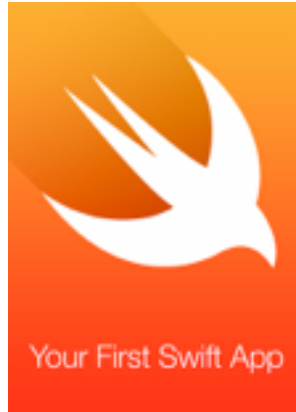
~~Design
Develop
Test
Market~~

Continuous Everything
Open-Source

build passing

(COCOPODS)

Guest Speaker



Ash Furrow
@ashfurrow