
INTRODUCTION TO MOBILE APP DEVELOPMENT

 **GENERAL ASSEMBLY**

INTRODUCTION TO MOBILE APP DEVELOPMENT

Kevin Bluer
CTO, Bluer Inc

CLASS AGENDA

- Brief Bio
- Mobile App Ecosystems (2x Case Studies)
- A Look to the Future
- Development Workflow
 - Requirements Gathering
 - Design Best Practices
 - Prototyping
 - Development Approaches
- Summary & Next Steps



INTRODUCTION

KEVIN BLUER

CTO, BLUER INC

- London + New York (+ Hong Kong)
- BSc (UK) and MSc (US)
- Companies have included Microsoft, MTV Networks, JP Morgan, Economist Group
- Specialize in web and mobile development
- Focus on hybrid, enterprise, and wearable



INTRODUCTION

YOURSELF?

- Designers
- Developers
- Marketing
- Product Development
- Anything Else?



INTRODUCTION TO MOBILE APP DEVELOPMENT

A FEW QUOTES & STATS...

MOBILE IS GIGANTIC

“Mobile is eating the world”

Benedict Evans

“Vendors are now forecast to ship more than 1.8 billion mobile phones this year, growing to over 2.3 billion mobile phones in 2017”, IDC



STATISTICS

- ▶ In 2013...
 - ▶ 102 billion apps downloaded in 2013 (more than 14 for every person on the planet)
 - ▶ **\$26 billion USD** in sales (90% via App Store / Google Play)
- ▶ In 2017...
 - ▶ **\$268 billion USD** in sales (estimated)
 - ▶ !!!



INTRODUCTION TO MOBILE APP DEVELOPMENT

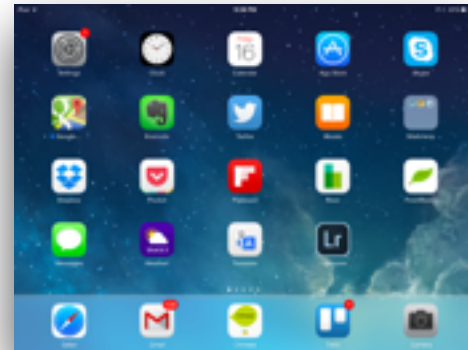
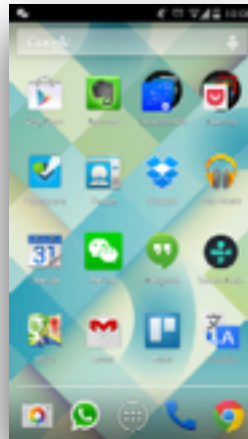


INTRODUCTION TO MOBILE APP DEVELOPMENT

MOBILE APP ECOSYSTEMS

MOBILE APP ECOSYSTEMS

- ▶ Show of hands...
 - ▶ iOS
 - ▶ Android
 - ▶ Other (Windows Phone, Blackberry, FF OS)
 - ▶ More than one?
- ▶ Any favorite apps?



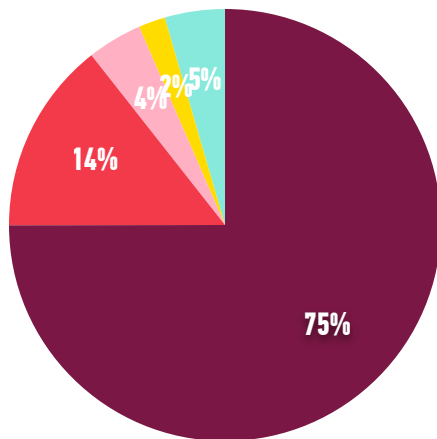
ECOSYSTEMS 10,000FT

- ▶ A phone is more than just a piece of HW / SW
- ▶ What comprises an Ecosystem?
 - ▶ Smartphone OS & (optional) Hardware
 - ▶ Marketplace (App Store, Google Play, etc)
 - ▶ Payment Infrastructure
 - ▶ Additional Services (iCloud, Game Center, etc)
 - ▶ Branding, Marketing, Support Materials, Developer Tools



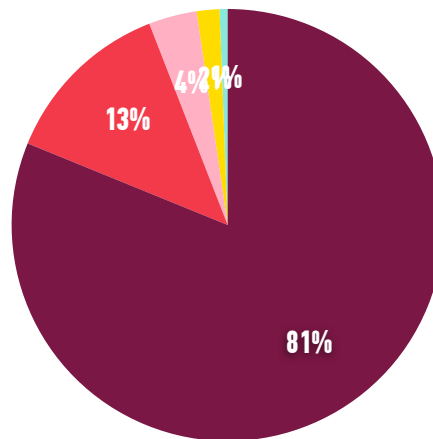
MARKET SEGMENTATION (IDC)

Q3 2012



- Android
- iOS
- Blackberry
- Windows Phone
- Other

Q3 2013



- Android
- iOS
- Windows Phone
- Blackberry
- Other

Q3 2014



•



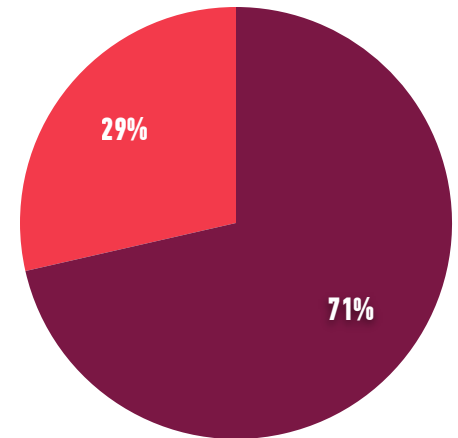
MARKET CONSIDERATIONS

- ▶ Smartphone Ecosystem are not evenly distributed
 - ▶ E.g. Finland has a higher propensity of Windows Mobile
 - ▶ E.g. Africa and Latin America deeper penetration of Blackberry (although likely to decline)
 - ▶ Lots more...



HONG KONG

- ▶ 13.8 Million mobile subscriptions in 2010
- ▶ “70% of the Hong Kong population uses a smartphone”
- ▶ 100% 3G coverage in the territory
- ▶ Nearly 2 subscriptions per person!?



● Smartphone ● Phone



INTRODUCTION TO MOBILE APP DEVELOPMENT

SKEWING THE HK AVERAGE?



ECOSYSTEMS PROS & CONS

Pros

- ▶ Reach & Discovery
- ▶ Infrastructure (e.g. deployment, updates)
- ▶ Payment Processing
- ▶ Device API's
- ▶ Development Guidelines

Cons

- ▶ Pay for the privilege (20-30%)
- ▶ Increased development costs
- ▶ Mercy of the vendors (approval process, changing Terms of Service)



THE TWO THAT MATTER *



- ▶ * With caveats such as Enterprise, Wearables, etc (and of course things do change rapidly)



IOS (APP STORE)

Pros

- ▶ Stronger Monetization Potential / User
- ▶ Less Device Fragmentation
- ▶ Arguable most sophisticated platform

Cons

- ▶ Yearly developer fee
- ▶ Most strict review process (and ever changing ToS)
- ▶ Development cost



ANDROID (GOOGLE PLAY)

Pros

- ▶ Broadest Reach
- ▶ Exploring the Future (Android Wear and Glass)

Cons

- ▶ Device Fragmentation
- ▶ Historically weaker development tools (although improving with Android Studio)



ENTERPRISE DEVELOPMENT

- ▶ Anyone work in an “enterprise”?
- ▶ Apps built and deployed internally within an organization
- ▶ Only legal way to bypass the App Store (although costs more)
- ▶ “By 2017, 25% of enterprises will have an in-house app store”, Gartner
 - ▶ Vendor MAM tools (App47, MobileIron, AppCentral, Zenprise)



INTRODUCTION TO MOBILE APP DEVELOPMENT

COUPLE OF CASE STUDIES

CASE STUDY – WHATSAPP



- ▶ Founded by Brian Acton and Jan Koum in 2009
- ▶ Reached ten billion messages per day by Aug 2012
- ▶ Reasons for success?
 - ▶ Offered a core service (SMS) much more cheaply
 - ▶ Incredibly **high vitality coefficient** (by using the user's phonebook)
 - ▶ Focused on platform ubiquity
- ▶ Purchased by FB for \$19bn (cash and shares)



THE OTHER EXTREME...

**You have
no friends**

Rando



CASE STUDY – RANDO

- ▶ “Anti-social photo sharing app”...every photo you shared would get sent to exactly one other person. You’d then get to see one other randomly selected image.
- ▶ Got press, traction, “cult following” (1m downloads & 20m photos shared)
- ▶ The company (ustwo) behind built it native it on iOS, Android, and Windows phone
- ▶ **No revenue streams** and increasing overheads forced the company to pull it



INTRODUCTION TO MOBILE APP DEVELOPMENT

SO THERE'S A BIG OPPORTUNITY...



INTRODUCTION TO MOBILE APP DEVELOPMENT

**BUT BEFORE WE
BUILD, A LOOK TO
THE FUTURE...**

WILLIAM GIBSON

“The future is already here - it’s just not evenly distributed...”



THE FUTURE...

- ▶ Operating System
- ▶ Sensors
 - ▶ Everywhere
 - ▶ iBeacons
- ▶ Wearables
- ▶ Context (as an umbrella concept)



INTRODUCTION TO MOBILE APP DEVELOPMENT

OS EVOLUTION

IOS 8 AND ANDROID 5.0 (CODENAMED L)

- ▶ Announcements at WWDC and Google IO
 - ▶ Personal Health
 - ▶ Home (HomeKit & Nest)
 - ▶ New Application Scenarios
 - ▶ Increased flattening of the UX (“Material Design”)
 - ▶ Wearable Integration



INTRODUCTION TO MOBILE APP DEVELOPMENT

IOS 8



INTRODUCTION TO MOBILE APP DEVELOPMENT

ANDROID 5.0 (CODENAMED L)



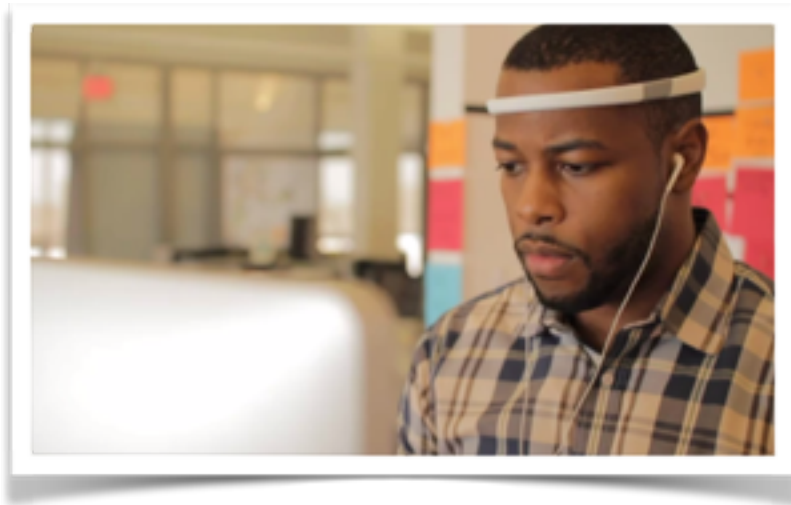
INTRODUCTION TO MOBILE APP DEVELOPMENT

SENSORS

INTRODUCTION TO MOBILE APP DEVELOPMENT

SENSORS, EVERYWHERE.

thinkmelon.com



94fifty.com



notchdevice.com



INTRODUCTION TO MOBILE APP DEVELOPMENT

IBEACON

- ▶ "We think this is the start of a technology revolution that will rival the invention of the **mouse** and the **graphical user interface...**"

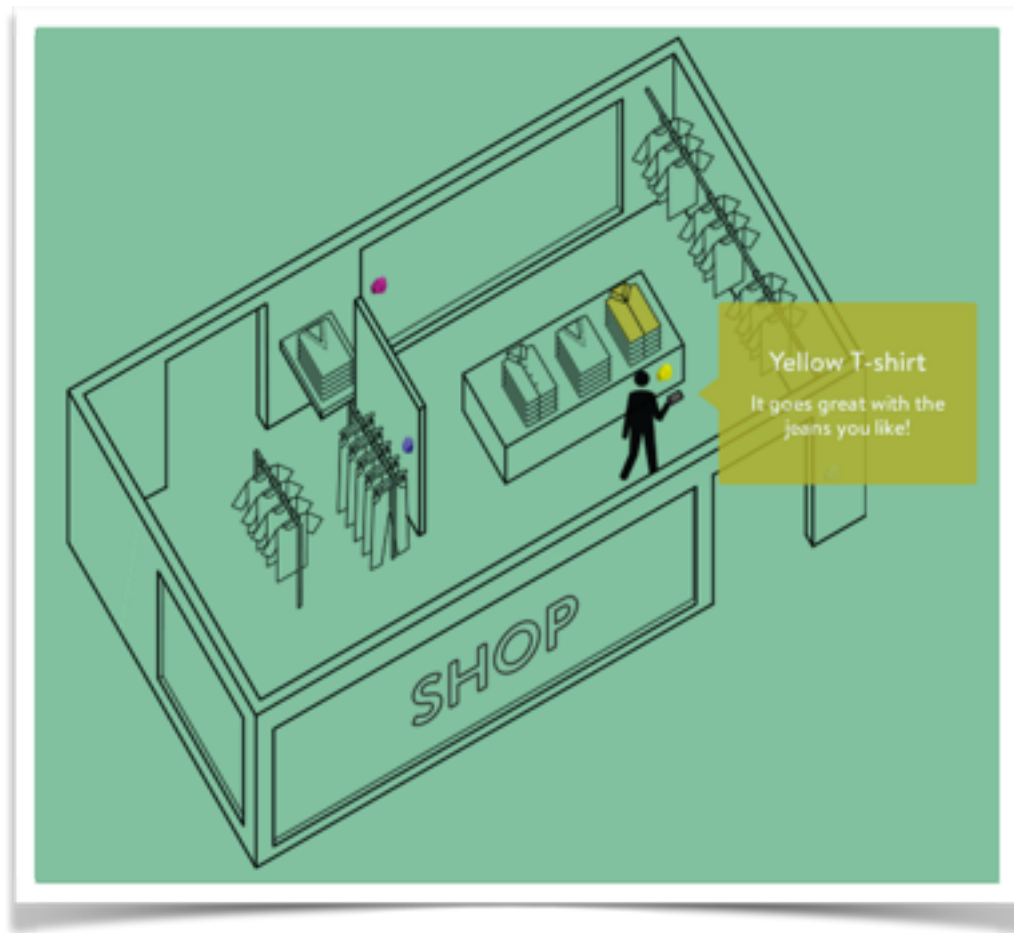


Get In-Store
Notifications



INTRODUCTION TO MOBILE APP DEVELOPMENT

IBEACON EXAMPLE



IBEACON BROADER USE CASES

- ▶ Proximity Marketing
- ▶ Automatic check-ins
- ▶ Contactless payments
- ▶ Context Aware Experiences
 - ▶ Malls / Stores (Macy's)
 - ▶ Stadiums (MLB)
 - ▶ Museums



INTRODUCTION TO MOBILE APP DEVELOPMENT

WEARABLES

WEARABLES

- ▶ Is this the year?
- ▶ Google already out there
- ▶ It's just a matter of time with Apple



GOOGLE GLASS

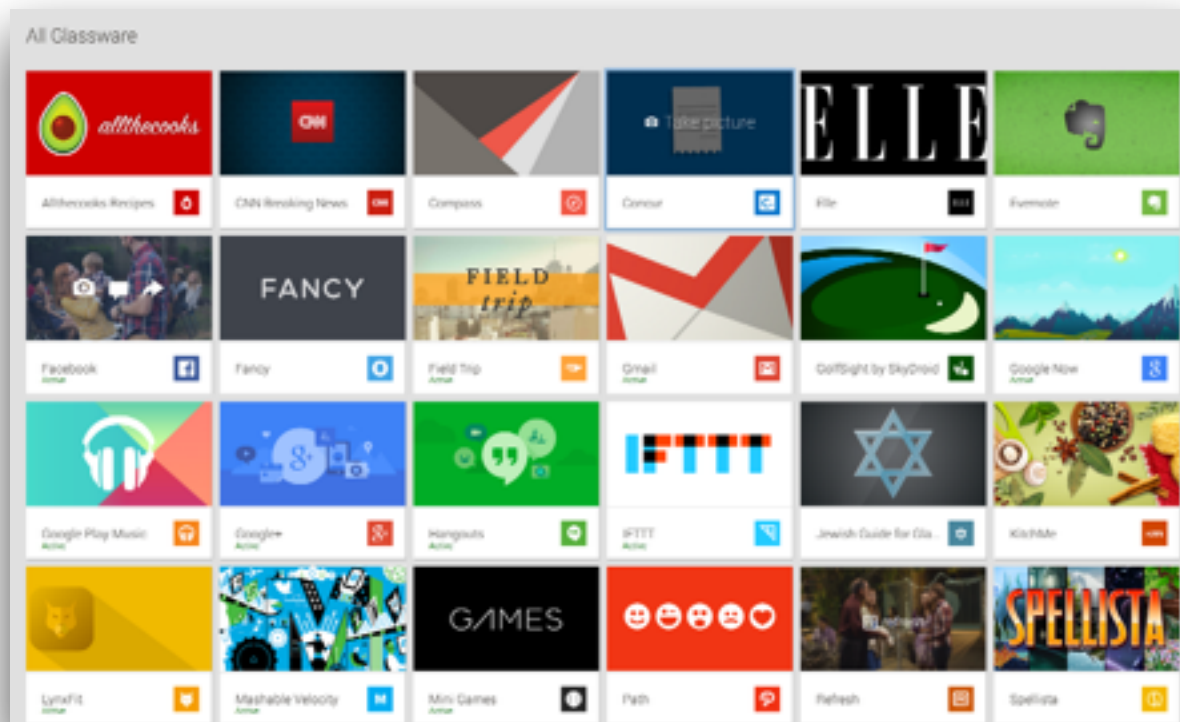
- ▶ Google are making a BIG bet, although...
- ▶ More than just the hardware (OS, App Store, Sensors)
- ▶ Running a customized version of Android
- ▶ Google Glass at Work: It might be a better target than the consumer market (<https://gigaom.com/2014/04/08/google-glass-at-work-it-might-be-a-better-target-than-the-consumer-market/>)



INTRODUCTION TO MOBILE APP DEVELOPMENT

GOOGLE GLASSWARE (APP STORE)

- ▶ Another Ecosystem? Already includes well known brands (e.g. Evernote, CNN, Elle, etc).

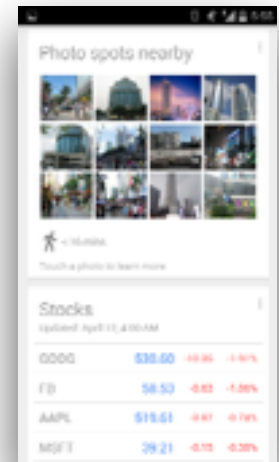
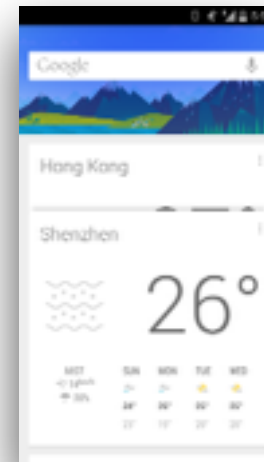


INTRODUCTION TO MOBILE APP DEVELOPMENT

CONTEXT

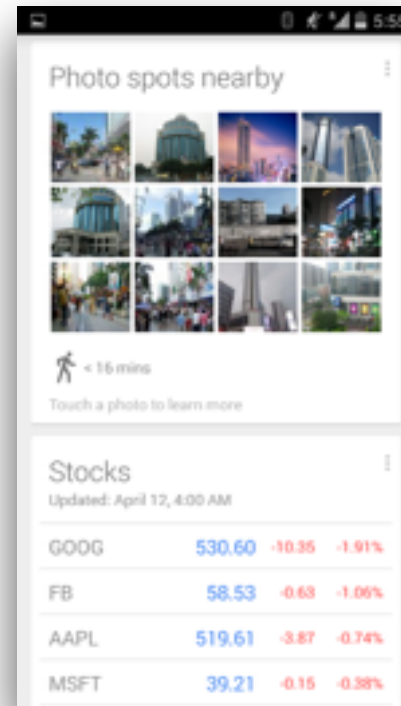
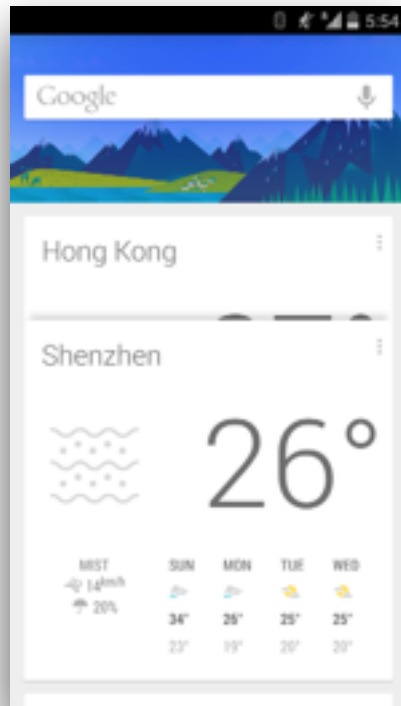
SIGNIFICANCE OF CONTEXT

- ▶ Robert Scoble (The Age of Context) explains context as having 5 pillars...
 - ▶ Mobile
 - ▶ Social
 - ▶ Data
 - ▶ Sensors
 - ▶ Location
- ▶ Tailoring the experience based on the context
 - ▶ Location, Time, Social Setting, Preferences



INTRODUCTION TO MOBILE APP DEVELOPMENT

GOOGLE NOW (CONTEXT AWARE OS)



INTRODUCTION TO MOBILE APP DEVELOPMENT

DEVELOPMENT WORKFLOW... THE HOW

APPROACHES + CONSIDERATIONS

- ▶ Software Development Lifecycles
 - ▶ Waterfall
 - ▶ Scrum
- ▶ Teams
 - ▶ Distributed
 - ▶ Outsourced
- ▶ Tools
 - ▶ Source Code, Project Management, Task Tracking, Wireframing, Wikis, etc, etc



WORKFLOW (SDLC)

- ▶ Requirement Gathering
- ▶ Design & Prototype
- ▶ Build
- ▶ Test
- ▶ Launch
- ▶ Support & Iterate
- ▶ Profit :-)



INTRODUCTION TO MOBILE APP DEVELOPMENT

REQUIREMENTS GATHERING

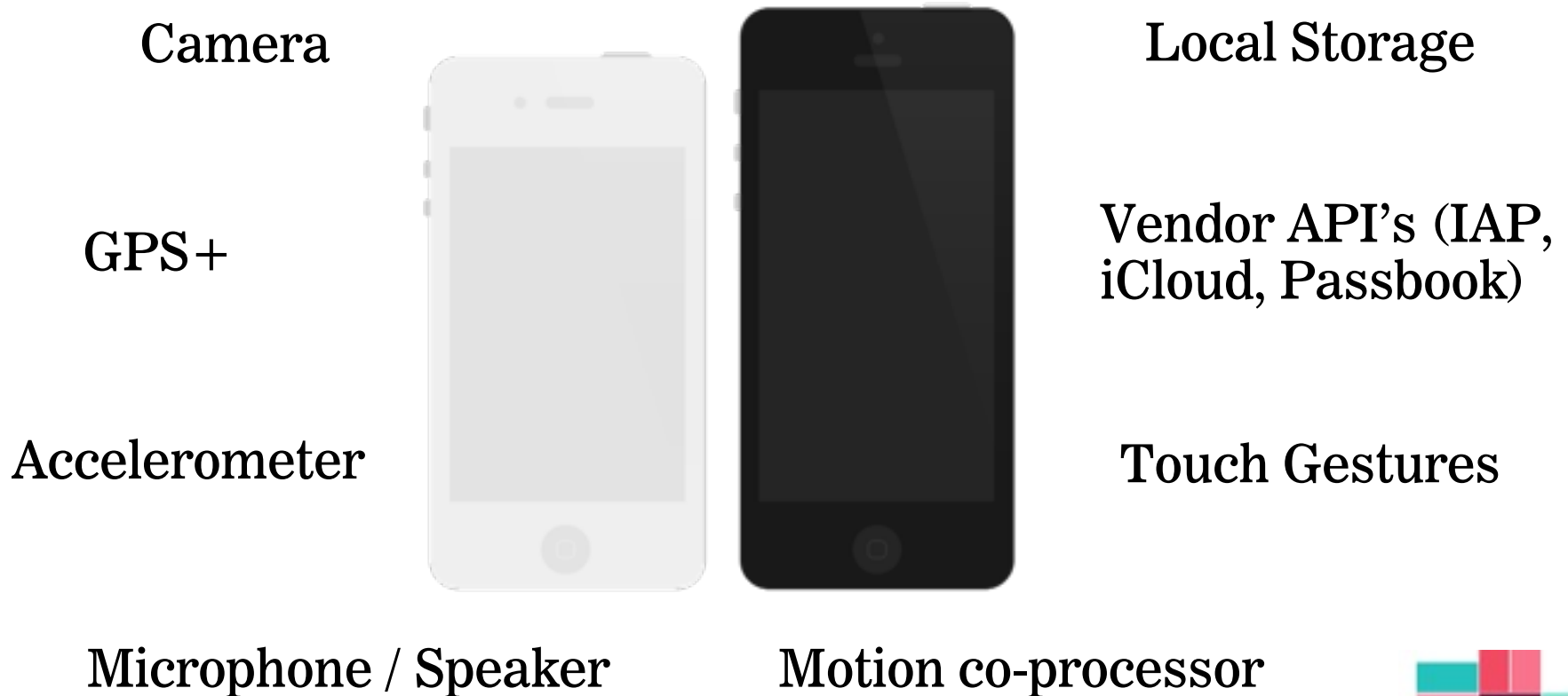
Q) WHAT CONSTITUTES A “MOBILE APP”?

- ▶ Other than something that runs on a mobile device :-)



INTRODUCTION TO MOBILE APP DEVELOPMENT

WHAT CONSTITUTES A “MOBILE APP”?



REQUIREMENTS GATHERING

- ▶ This can form your lightweight requirements spec.
 - ▶ Definition Statement
 - ▶ Features & Functionality (Audience)
 - ▶ App Type
 - ▶ Target Device(s)
 - ▶ Monetization
 - ▶ Localization



DEFINITION STATEMENT

<<Differentiation>>

<<Solution>>

<<Audience>>

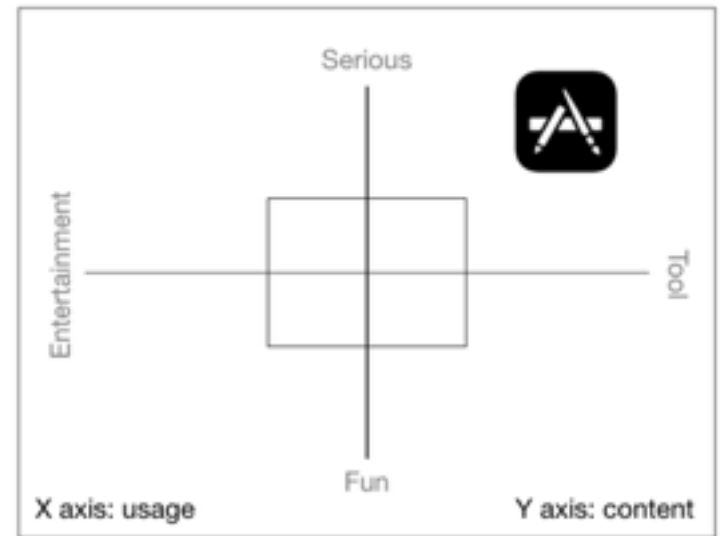
E.g. <<A professional>> <<mockup editor>> for <<iOS creatives>>

E.g. <<An educational>> <<game>> for <<pre-school kids>>



APP TYPE

- ▶ Type
 - ▶ Utility
 - ▶ Serious Tool
 - ▶ Fun Tool
 - ▶ Fun Entertainment
 - ▶ Serious Entertainment



FEATURES / FUNCTIONALITY

- ▶ Features will typically determine the functionality (and therefore the categories and rating)
 - ▶ Categories (iOS) - Books, Business, Catalogs, Education, Entertainment, Finance, Food & Drink, Games, Health & Fitness, Lifestyle, Medical, Music, Navigation, News, Photo & Video, Productivity, Reference, Social Networking, Sports, Travel, Utilities, Weather
 - ▶ iOS Ratings (4+, 9+, 12+, 17+) determined by features / content (e.g. degree of violence, nudity, humor, themes, etc)
 - ▶ Android Ratings - Everyone, Low maturity, Medium maturity, High maturity



MONETIZATION

- ▶ Upfront
- ▶ IAP (Freemium)
- ▶ Advertising
- ▶ Subscription



LOCALIZATION

- ▶ Language
- ▶ Pricing
- ▶ Layout (RTL Languages for examples)



GETTING AN “APP” ONTO A DEVICE

- ▶ App Store (vendor, enterprise)
- ▶ Enterprise App Stores
- ▶ Browser (as a Mobile Web App)
- ▶ Side-loading (legally grey depending on the ecosystem)



INTRODUCTION TO MOBILE APP DEVELOPMENT

QUICK BREAK?



WORKFLOW (SDLC)

- ▶ Requirements
- ▶ Design & Prototype
- ▶ Build
- ▶ Test
- ▶ Launch
- ▶ Support & Iterate
- ▶ Profit :-)



INTRODUCTION TO MOBILE APP DEVELOPMENT

DESIGN & PROTOTYPE

DESIGN RESOURCES

- ▶ Practices and Guidelines
 - ▶ Apple iOS Human Interface Guidelines
 - ▶ Android Design (and now “Material”)
- ▶ Inspiration (and Marketplaces)
 - ▶ Dribbble
 - ▶ Behance
 - ▶ Forrst
- ▶ Build your Pinterest Boards / Adobe CC Files



ADDITIONAL CONSIDERATIONS

- ▶ Color Palette
- ▶ Font & Typography
- ▶ Icon is important too :-)
- ▶ Splash screen (displayed on load of the app)
- ▶ Ultimately create a mood-board and series of assets



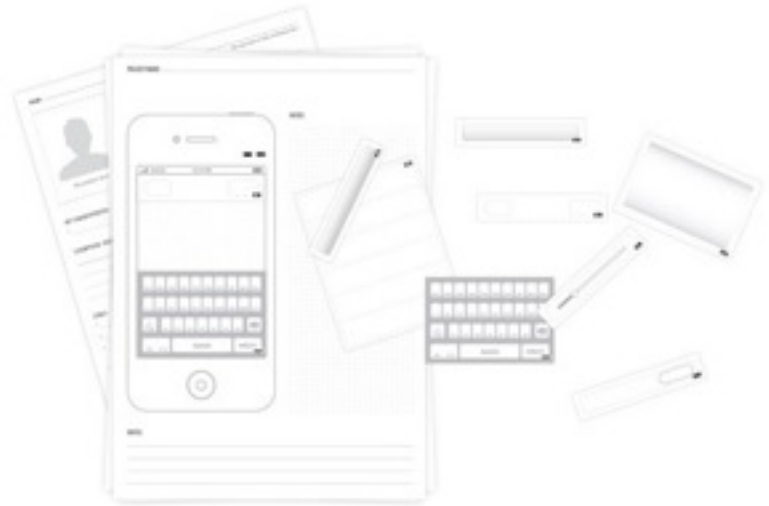
APP LANDING PAGE

- ▶ Consider a landing page even if there's no web component
- ▶ Various approaches
 - ▶ Instagram (small subset of functionality, which in turn drives traffic back to the app)
 - ▶ Path - Promotional page only
 - ▶ Full blown integration
- ▶ Also consider the “Startup Framework”



DESIGN / PROTOTYPE

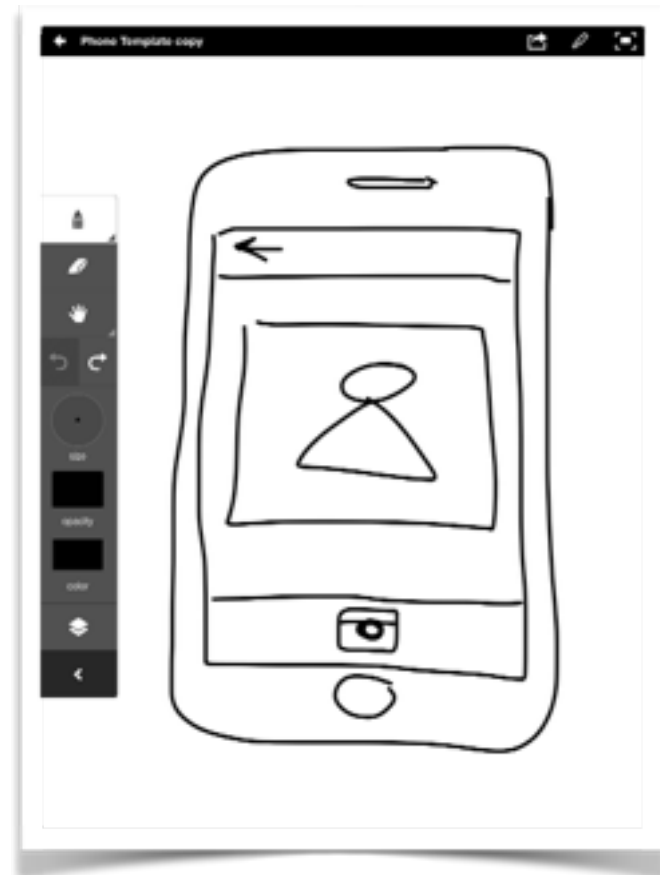
- ▶ Fidelity (Fi) Spectrum (“lo” to “hi”)
 - ▶ Paper
 - ▶ Adobe Ideas
 - ▶ Balsamiq
 - ▶ UX Pin / Proto.io
 - ▶ AppCooker / Taster
 - ▶ Photoshop



INTRODUCTION TO MOBILE APP DEVELOPMENT

LOW FIDELITY

INTRODUCTION TO MOBILE APP DEVELOPMENT

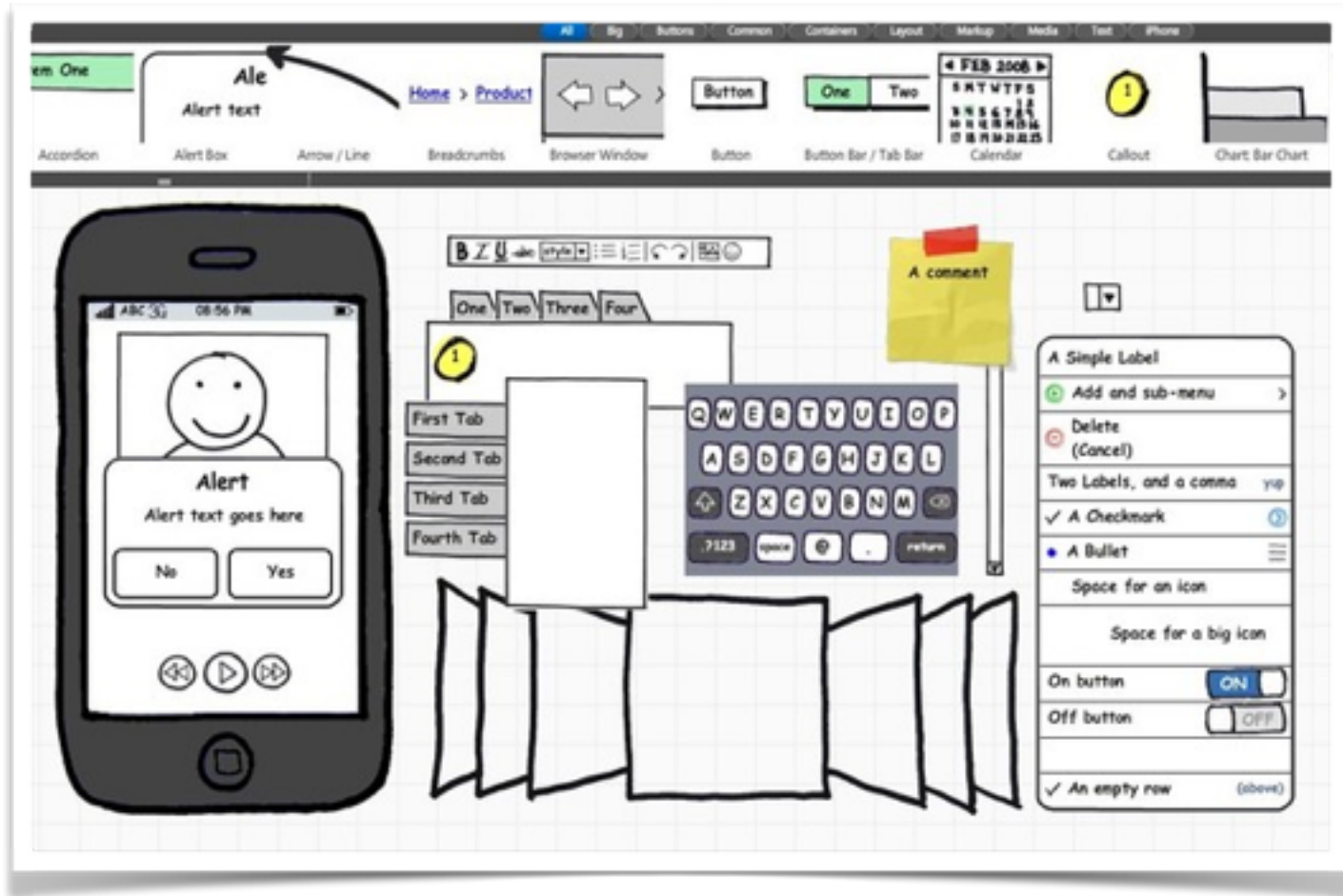


INTRODUCTION TO MOBILE APP DEVELOPMENT

DEMO

BALSAMIQ

INTRODUCTION TO MOBILE APP DEVELOPMENT



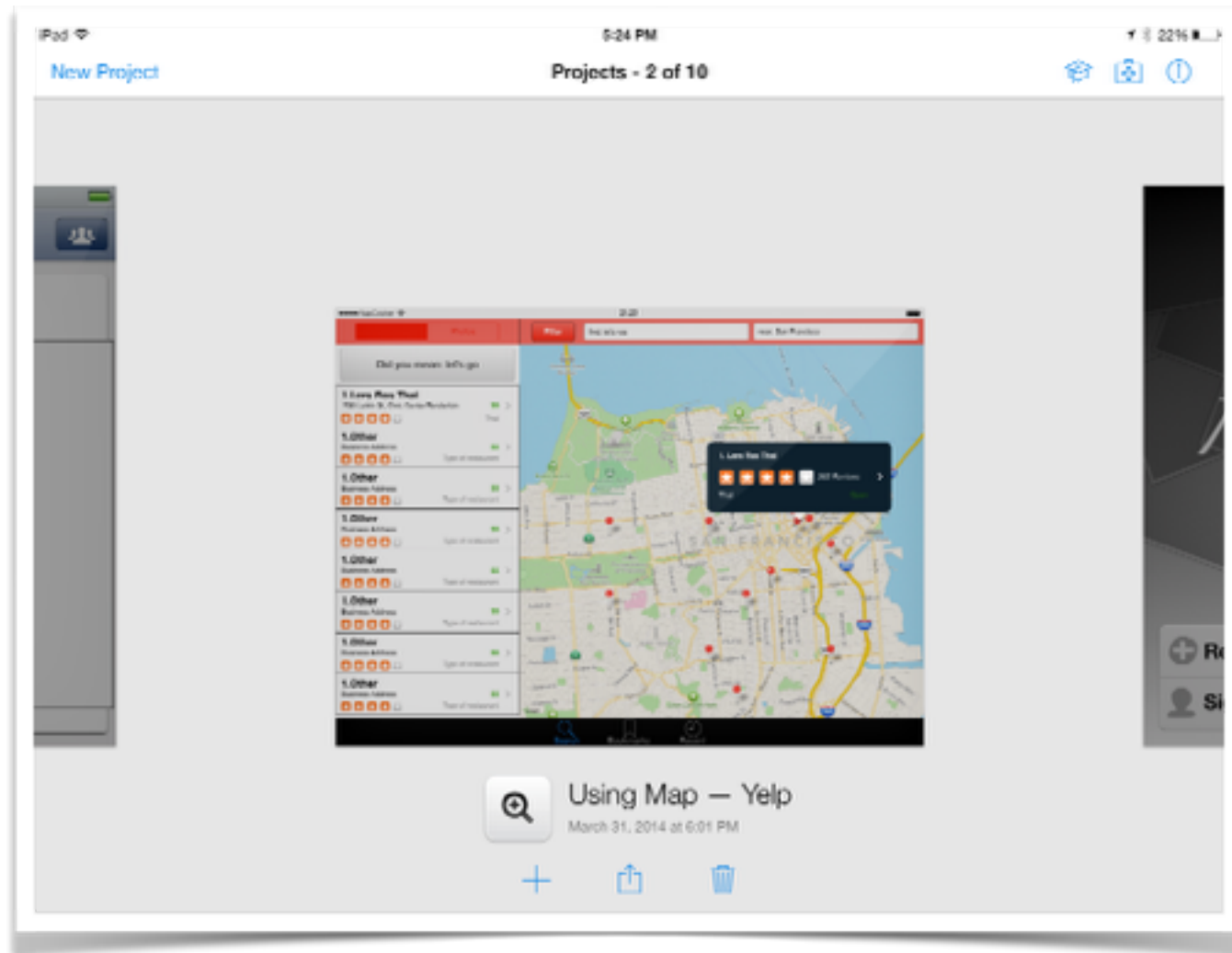
INTRODUCTION TO MOBILE APP DEVELOPMENT

UX PIN / PROTO

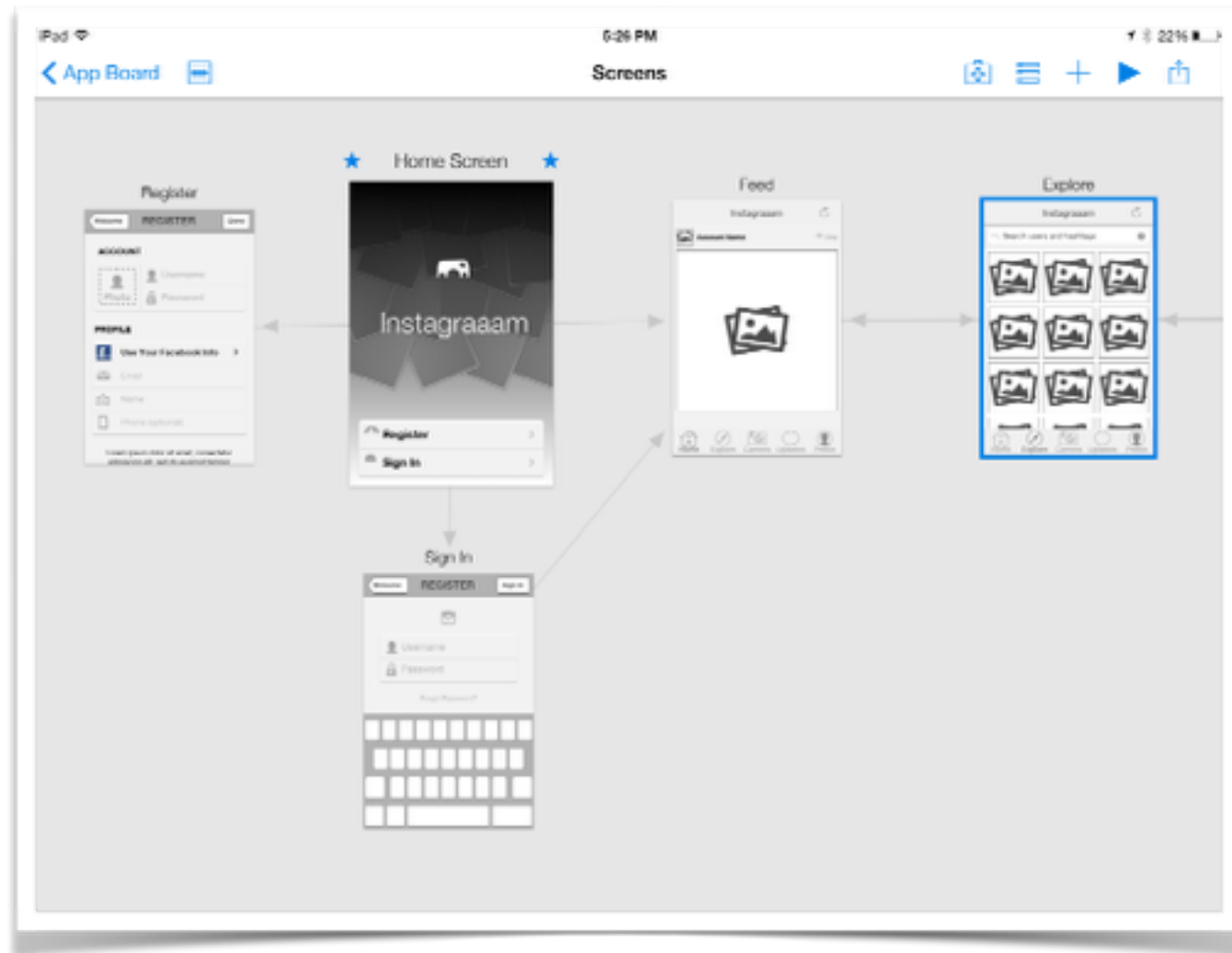
INTRODUCTION TO MOBILE APP DEVELOPMENT

APPCOOKER

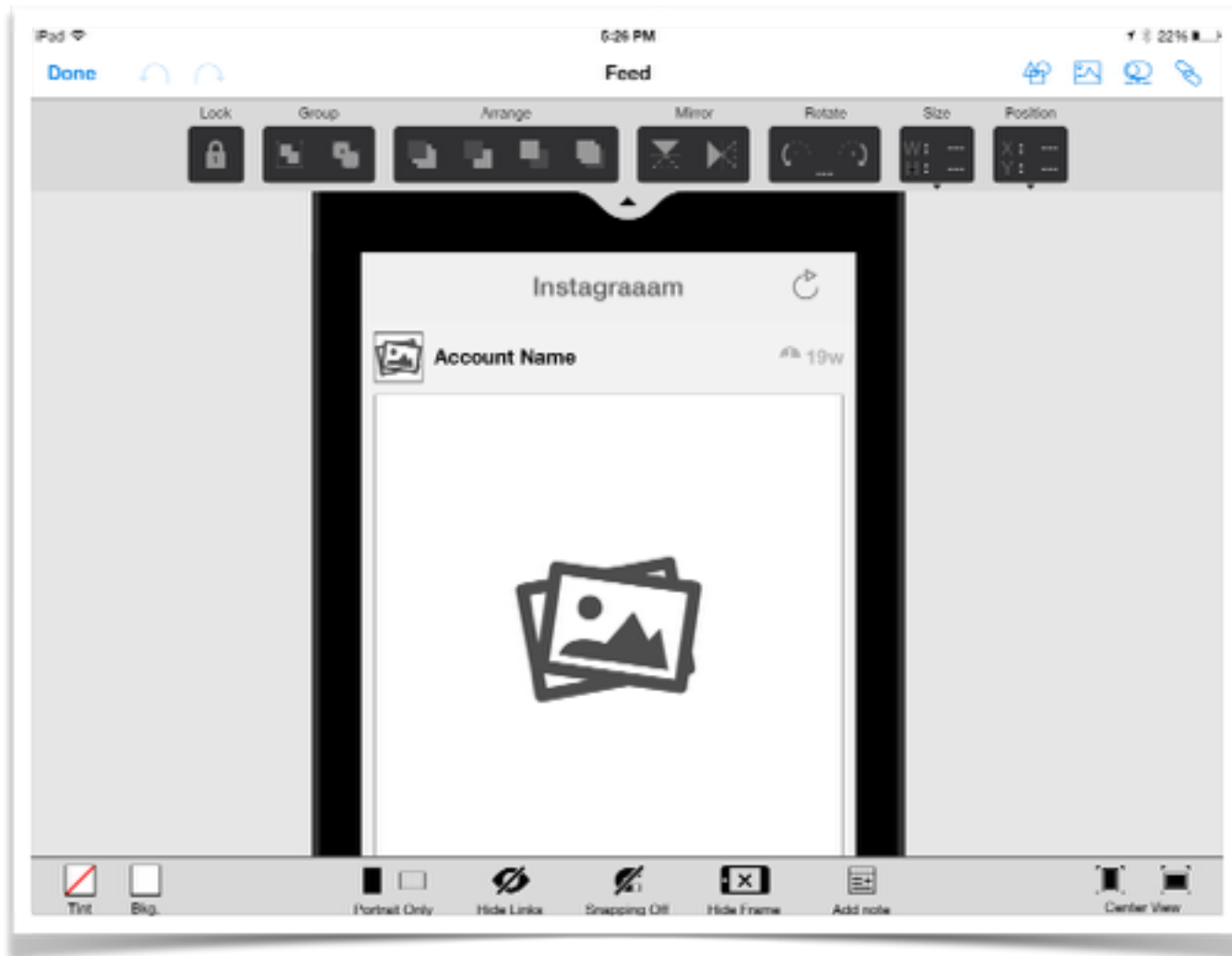
INTRODUCTION TO MOBILE APP DEVELOPMENT



INTRODUCTION TO MOBILE APP DEVELOPMENT



INTRODUCTION TO MOBILE APP DEVELOPMENT



INTRODUCTION TO MOBILE APP DEVELOPMENT



PROTOTYPING BEST PRACTICES

- ▶ Ultimately important to find a design / prototyping workflow that works for you (and your team)
- ▶ Get the app as refined as you possibly can at this stage before anything is built
 - ▶ Adopt lean principals
 - ▶ Doing so will save you time and money
 - ▶ Validate with prospective users and customers



INTRODUCTION TO MOBILE APP DEVELOPMENT

BUILD

WORKFLOW (SDLC)

- ▶ Requirements
- ▶ Design & Prototype
- ▶ Build
- ▶ Test
- ▶ Launch
- ▶ Support & Iterate
- ▶ Profit :-)



BUILD CONSIDERATIONS

- ▶ Trade-offs
 - ▶ Cost (and / or Time)
 - ▶ Downstream Support / Maintenance
- ▶ Expertise
 - ▶ An array of disciplines are needed
 - ▶ Coding (native stacks, web, API)
 - ▶ Dev Ops
- ▶ Before you start building anything...



CONSIDER TOOLS / PLATFORMS

- ▶ Does it actually need to be native?
 - ▶ Mobile Web (still leverage location, storage, etc)
- ▶ Magazine “Like” Platforms
 - ▶ Adobe Digital Publishing Suite
 - ▶ Mag+
 - ▶ Mobile Roadie
- ▶ Hybrid is maturing...



HYBRID DEVELOPMENT

- ▶ Full access to sensors
- ▶ Essentially native
- ▶ “Build once, run anywhere”
- ▶ Also lends itself to complimentary browser app
- ▶ Tools
 - ▶ Cordova / Adobe PhoneGap (Build)
 - ▶ Trigger.io
 - ▶ AppBuilder (formerly Icenium)



MOBILE BACKEND (MBAAS)

- ▶ Out of the box API
- ▶ A lot of choices
 - ▶ Parse (now part of FB)
 - ▶ Contentful (gives you a CMS on top)
 - ▶ Apigee
 - ▶ iCloud
 - ▶ Custom



INTRODUCTION TO MOBILE APP DEVELOPMENT

**TEST,
LAUNCH,
SUPPORT**

WORKFLOW (SDLC)

- ▶ Requirements
- ▶ Design & Prototype
- ▶ Build
- ▶ Test
- ▶ Launch
- ▶ Support & Iterate
- ▶ Profit :-)



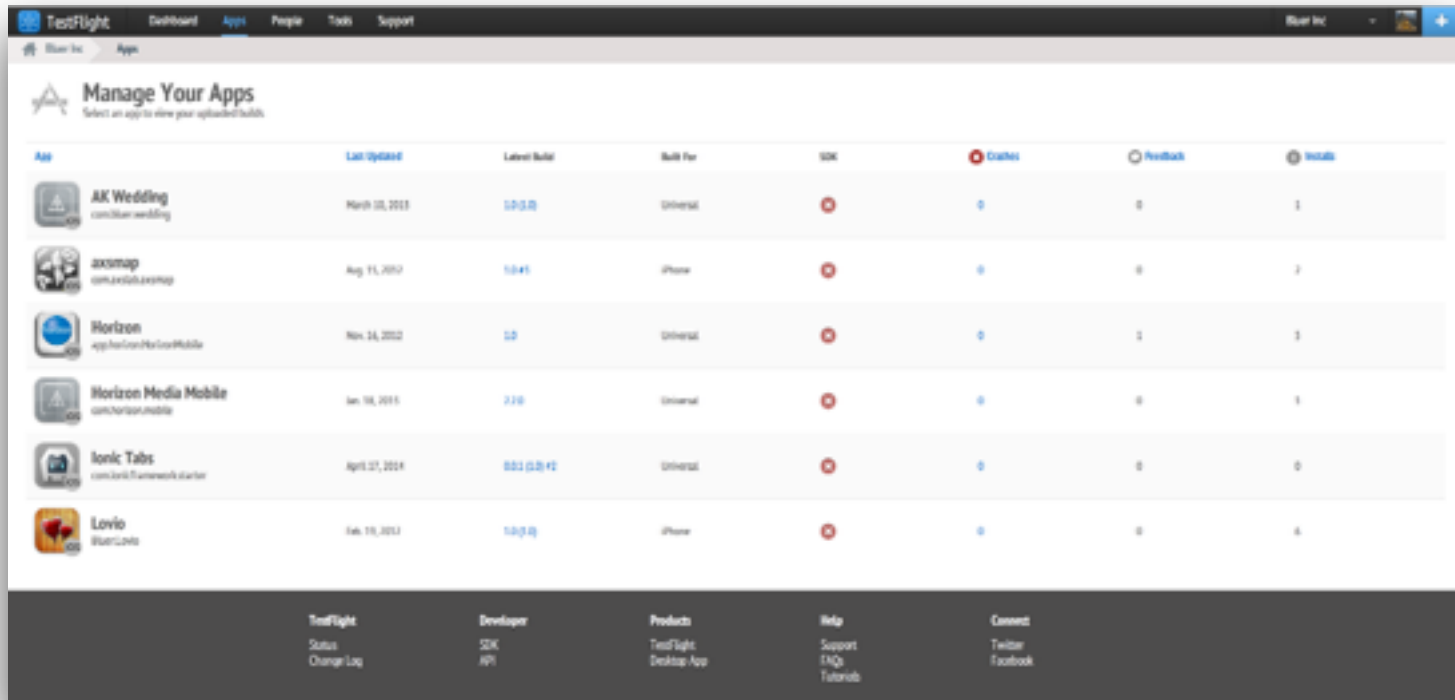
TEST, LAUNCH, SUPPORT

- ▶ Testflight (Test Management Tools)
- ▶ Flurry & Google Analytics (Analytics)
- ▶ Crashalytics (Crash Reporting)
- ▶ New Relic Mobile (Performance + Visibility)
- ▶ App Annie (Metrics)









INTRODUCTION TO MOBILE APP DEVELOPMENT

TESTFLIGHT



The screenshot shows the TestFlight 'Manage Your Apps' dashboard. The dashboard has a navigation bar with 'Dashboard', 'Apps', 'People', 'Tools', and 'Support'. The 'Apps' section is active, showing a list of apps with columns for App, Last Updated, Latest Build, Built For, SDK, Crashes, Feedback, and Installs. The apps listed are AK Wedding, axomap, Horizon, Horizon Media Mobile, Ionic Tabs, and Lovio. Each app row includes an app icon, name, bundle ID, last update date, latest build number, target platform, SDK version, and counts for crashes, feedback, and installs.

App	Last Updated	Latest Build	Built For	SDK	Crashes	Feedback	Installs
 AK Wedding com.iklan.wedding	March 10, 2018	1.0 (3.0)	Universal	9.0	0	0	1
 axomap com.axonlab.axomap	Aug 11, 2017	1.0 #1	iPhone	9.0	0	0	2
 Horizon app.horizon.horizonMobile	Nov 14, 2012	1.0	Universal	9.0	0	1	1
 Horizon Media Mobile com.horizon.mobile	Jan 10, 2011	2.2.0	Universal	9.0	0	0	1
 Ionic Tabs com.ionicframeworks.ionic	April 27, 2018	0.0.1 (0.0 #2)	Universal	9.0	0	0	0
 Lovio Bluewin.Lovio	Feb 19, 2012	1.0 (3.0)	iPhone	9.0	0	0	4

The footer contains links for TestFlight (Status, Change Log), Developer (SDK, API), Products (TestFlight, Desktop App), Help (Support, FAQs, Tutorials), and Connect (Twitter, Facebook).



INTRODUCTION TO MOBILE APP DEVELOPMENT

PROFIT :-)

INTRODUCTION TO MOBILE APP DEVELOPMENT

SUMMARY & NEXT STEPS

SUMMARY

- ▶ Not trivial, but with correct know how it can be done
- ▶ A variety of approaches (mobile web, hybrid, native)
- ▶ A wealth of materials, utilities, and tools out there



NEXT STEPS

- ▶ Begin Spec'ing and Wireframeing
- ▶ Accelerators and Programs
 - ▶ Accelerator HK
 - ▶ Cyberport
 - ▶ Vendor Support (e.g. AppCampus)
- ▶ Courses
 - ▶ Mobile App Bootcamp (upcoming)



INTRODUCTION TO MOBILE APP DEVELOPMENT

1. ENTREPRENEUR EDITION

- ▶ July 26 -27 (Sat and Sun)
- ▶ Fees: HK\$5,200
- ▶ Special price:
 - ▶ HK\$4,500 (HK\$700 discount) if sign up by the end of July 23 (Wed)
 - ▶ HK\$4,000 per person if sign up as a group of 2

2. “SWIFT” APPLE EDITION

- ▶ Sep 6 – 9 (over Mid-Autumn Festival public holiday)
- ▶ Fees: HK\$11,000
- ▶ Special price: HK\$10,000
- ▶ (HK\$1,000 discount) if sign up by the end of July 25 (Wed)



INTRODUCTION TO MOBILE APP DEVELOPMENT

THANK YOU & Q&A

EMAIL FOR DECK / ZIP

KEVIN@BLUER.COM

