iOS Mobile Development

Get it right from the very beginning

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Class summary

When developing an iOS app, there are numerous approaches for developing the solution we need. Designing view controllers, developing components, integrating with external services, managing components, and configuring apps are just a part of the challenges we face when we develop our mobile app. In this class you will learn how to plan the architecture of your app (whether it is for iPhone, iPad, or both), asking yourself a series of questions that will assist in building a scalable solution and setting the ground for future development requests, backward compatibility, and more. The best practices discussed in this class will assist in building an iOS app that is modular and extendable from the first day.

Key learning objectives

At the end of this class, you will be able to:

- Learn how to plan the development of an iOS app
- Discover the requirements to take into consideration when developing an app
- Discover the challenges and differences between mobile development and other client/front-end solutions
- Learn the best practices to apply when building iOS apps

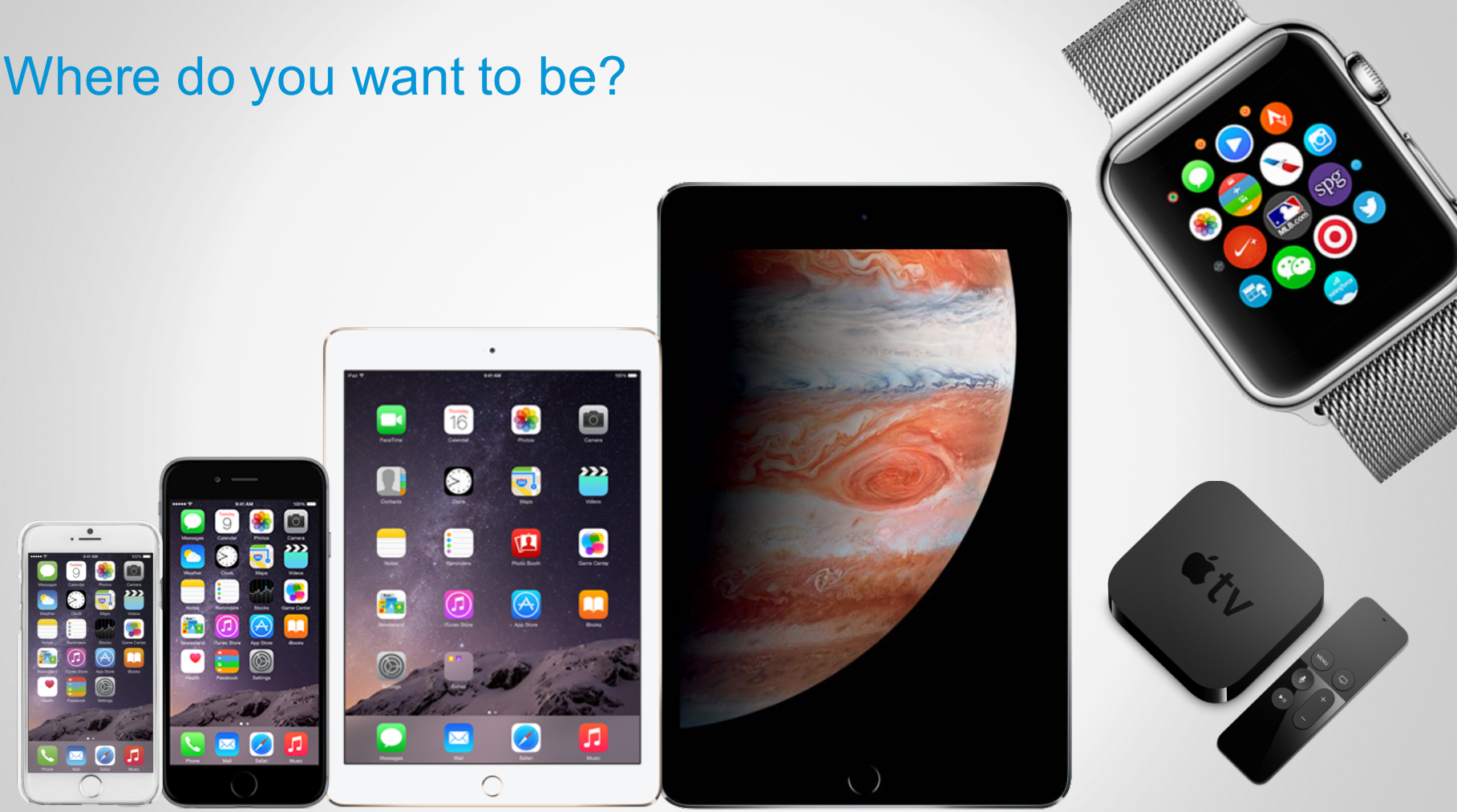
Nice to meet you

Tom Winter, Software Development Manager, A360

Asaf Shveki, Software Development Manager, AutoCAD 360

Which platforms are we aiming for?

Where do you want to be?



Mobile is not special - it's DIFFERENT

Mobile IS NOT web / desktop development

- Do they feel the same?
- Do they look the same?
- How fast can you publish a new version / hotfix?
- Can you force your users to update / download?

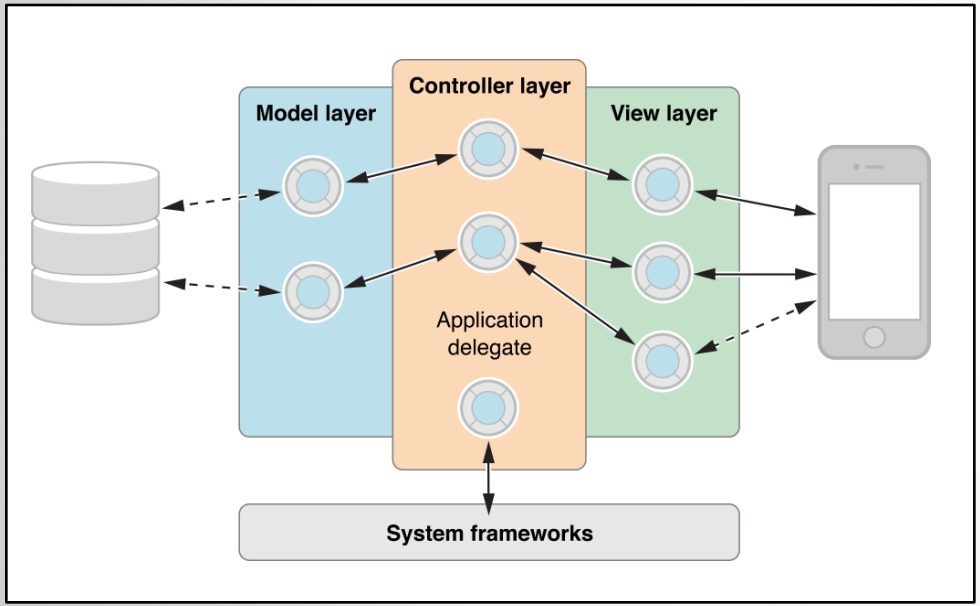
How “**Big**” is your app going to be?

How big is your app?

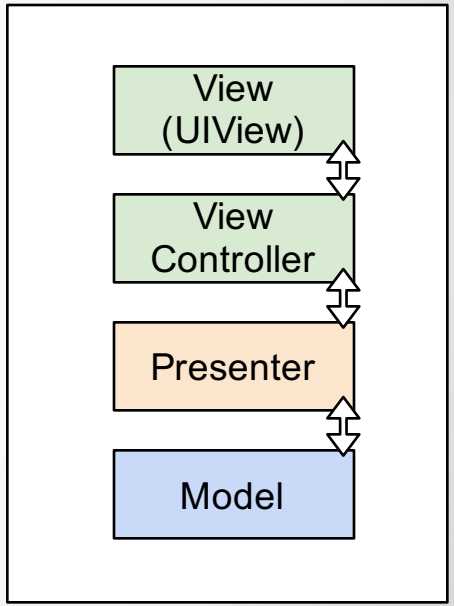
POC
Mid-Size
Enterprise

Architecture

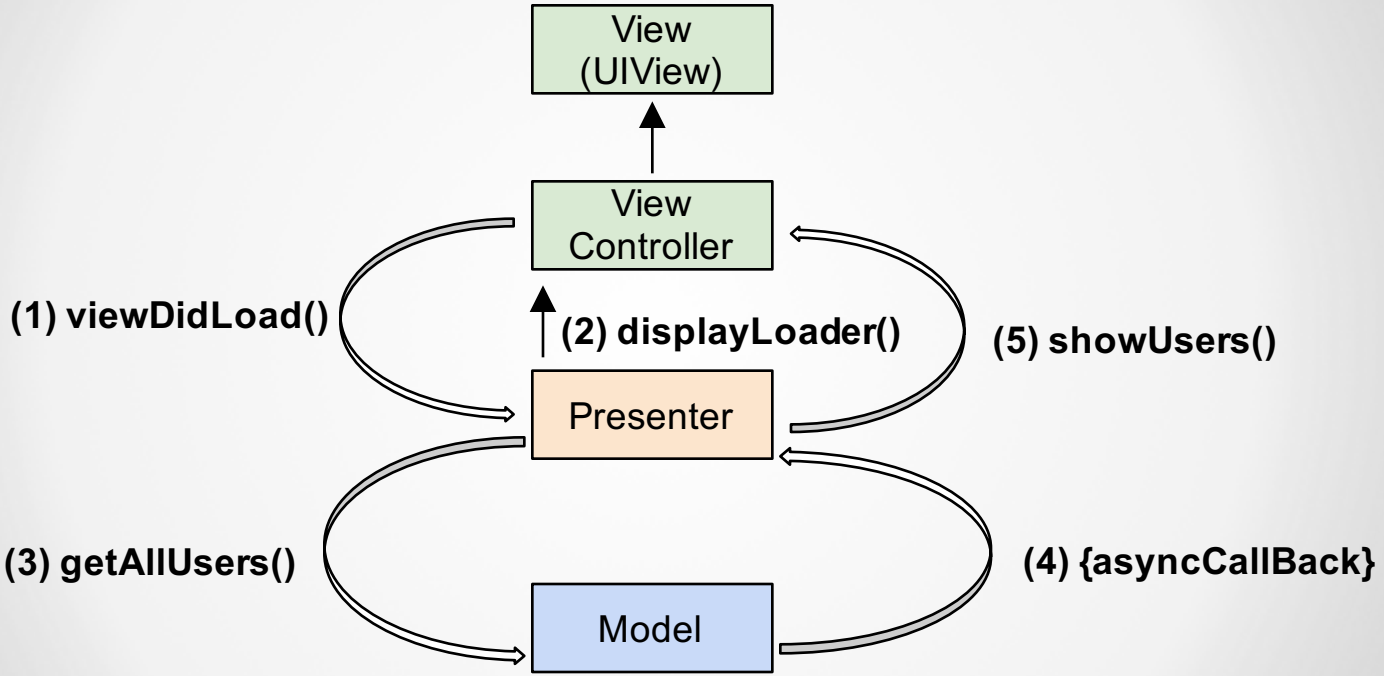
MVC



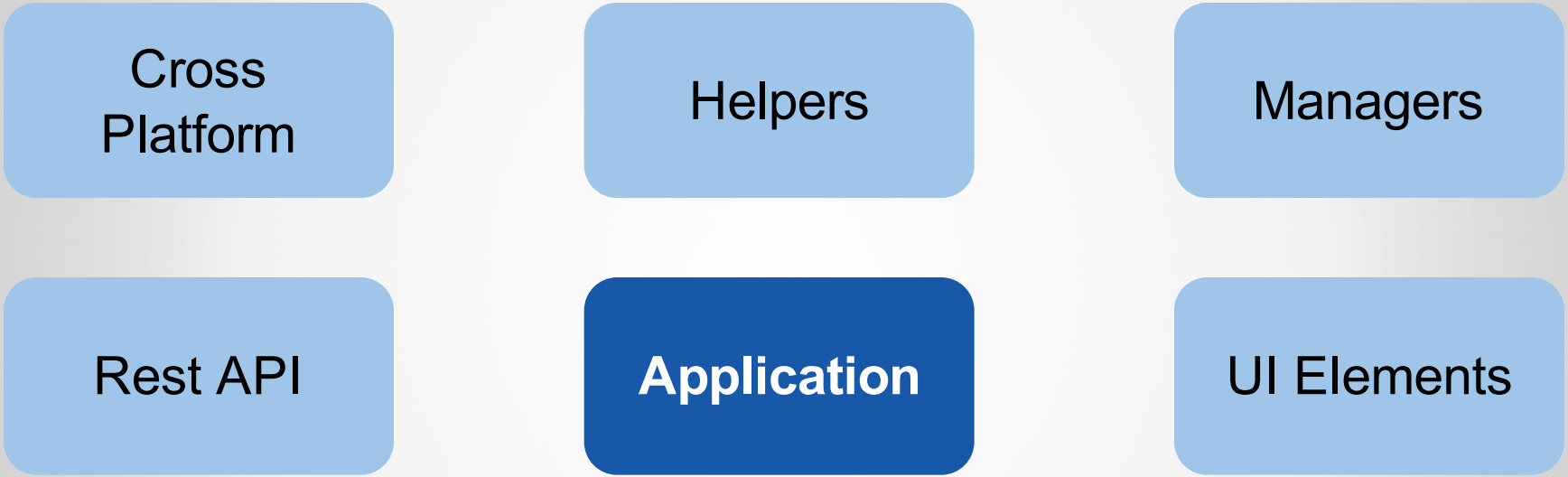
MVP



MVP


View
(UIView)
View
Controller
(1) viewDidLoad()
(2) displayLoader()
(5) showUsers()
Presenter
(3) getAllUsers()
(4) {asyncCallBack}
Model

Components


Cross Platform
Helpers
Managers
Rest API
Application
UI Elements

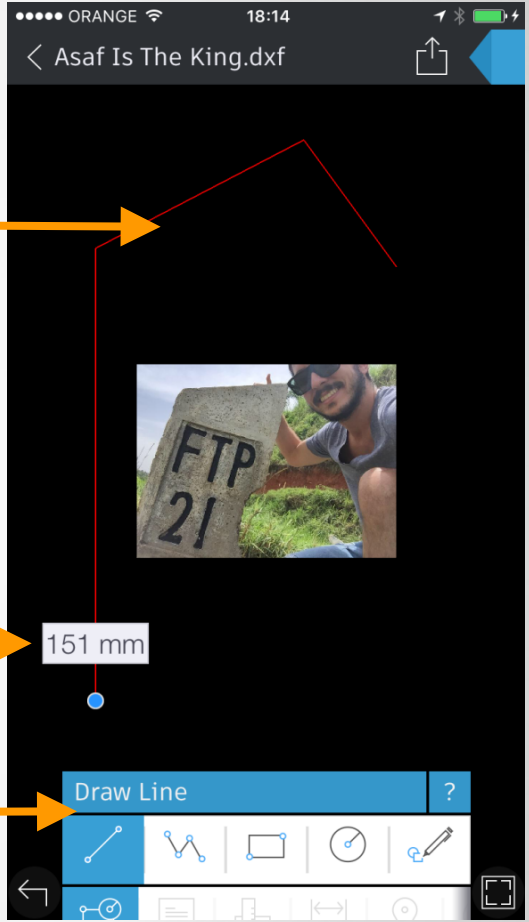
Custom UI Elements

Canvas Component

Accurate Editing Component

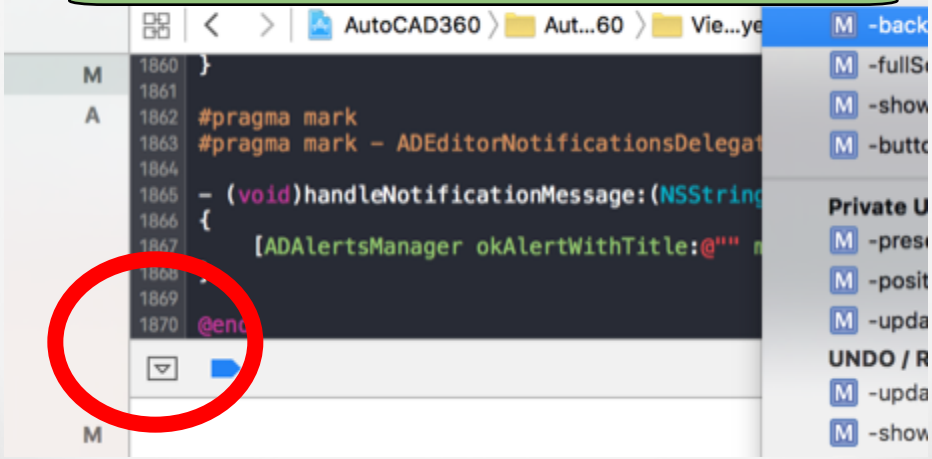
Toolbar Component

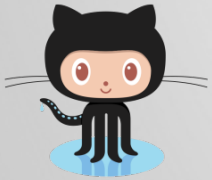
Undo\Redo Component



Components

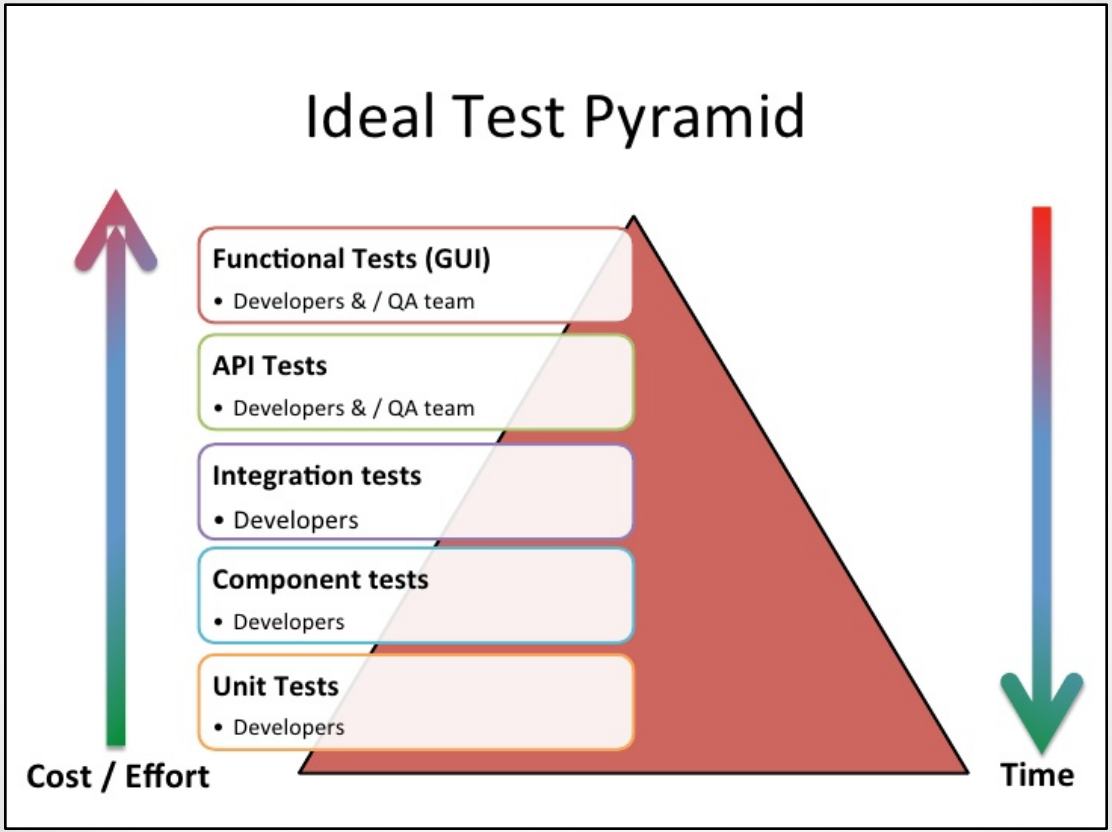

Massive View Controllers


AutoCAD360
Aut...60
Vie...ye
1860 }
1861
1862 #pragma mark
1863 #pragma mark - ADEditorNotificationsDelegat
1864
1865 - (void)handleNotificationMessage:(NSStrin
1866 {
1867 [ADAlertsManager okAlertWithTitle:@"" n
1868
1869
1870 @end
-back
-fullS
-show
-butto
Private U
-prese
-posit
-upda
UNDO / R
-upda
-show



How should we quality assure our apps?

Testing


Ideal Test Pyramid
Functional Tests (GUI)
• Developers & / QA team
API Tests
• Developers & / QA team
Integration tests
• Developers
Component tests
• Developers
Unit Tests
• Developers
Cost / Effort
Time

Unit Tests

XCTest

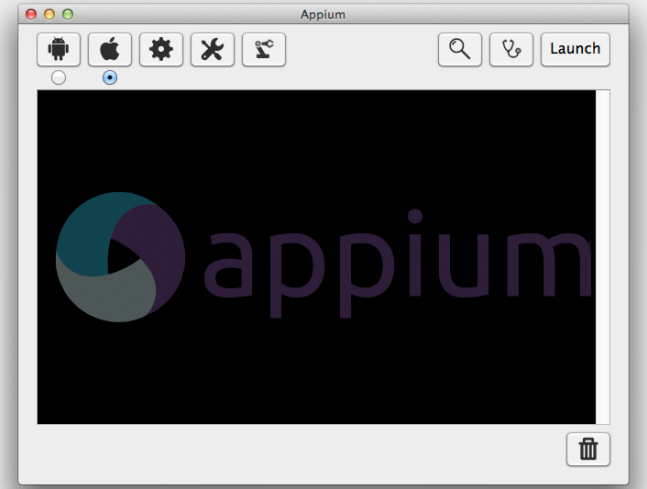
```
130
131 - (void)test_authFailed_should_call_logout
132 {
133     // Arrange
134     self.liveClientMock = OCMStrictClassMock([LiveConnectClient class]);
135     OCMExpect([self.liveClientMock logout]);
136
137     [self.oneDriveConnectionManager startAuthentication:nil liveClient:self.liveClientMock
138
139     // Act
140     [self.oneDriveConnectionManager authFailed:nil userState:nil];
141
142     // Assert
143     OCMVerifyAll(self.liveClientMock);
144 }
```

* TDD

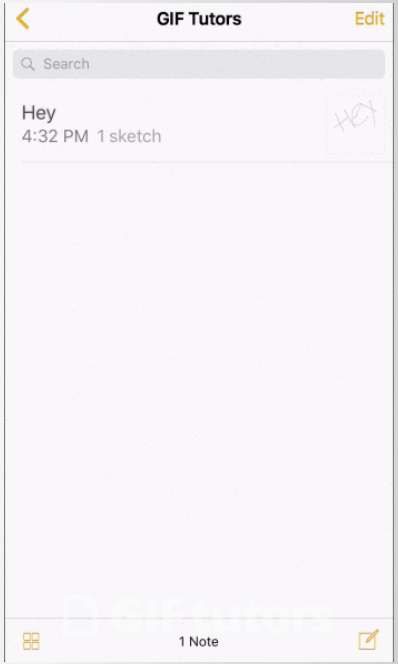
Functional Tests

Java \ Python

ObjC \ Swift



**KIF **
UI Automation



User experience is it all

You have just a few seconds....

Onboarding & In-app tutorials

- **Focus** and keep it short
- **Show**, don't tell
- **Progressive**, connect the dots

https://blog.optimizely.com/2015/01/13/7-tips-to-improve-mobile-app-onboarding/

UX / UI Design principles

- Get to know Apple's HIG
  https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/MobileHIG/
- Minimum taps, **maximum** functionality
- Landscape / Portrait - **Be adaptive**
- Keep it simple
- Learn from others

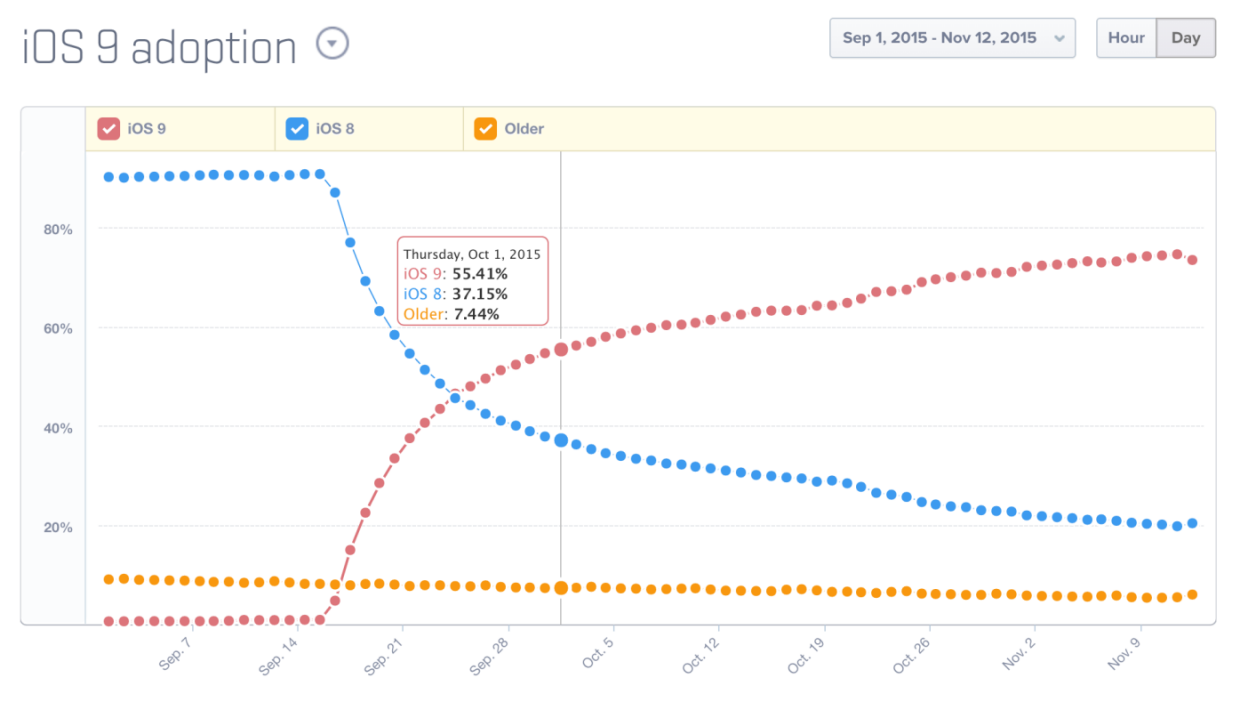
Analytics - Data is EVERYTHING

- Our eyes and ears in the app
- Plan metrics in order to learn and understand
- Analyze workflows
- Make decisions according to collected data
- From day 1

Mixpanel
Google Analytics (free)
Flurry (free)
...

Learn from trends

https://mixpanel.com/trends/



A / B Testing

- Experiment UI, workflows, beta features
- Let your users decide, they know so much better
- Analyze your experiments!

Apptimize - http://apptimize.com/
Mixpanel - https://mixpanel.com/
…

Tips & Tricks

Dependency Management

https://cocoapods.org/

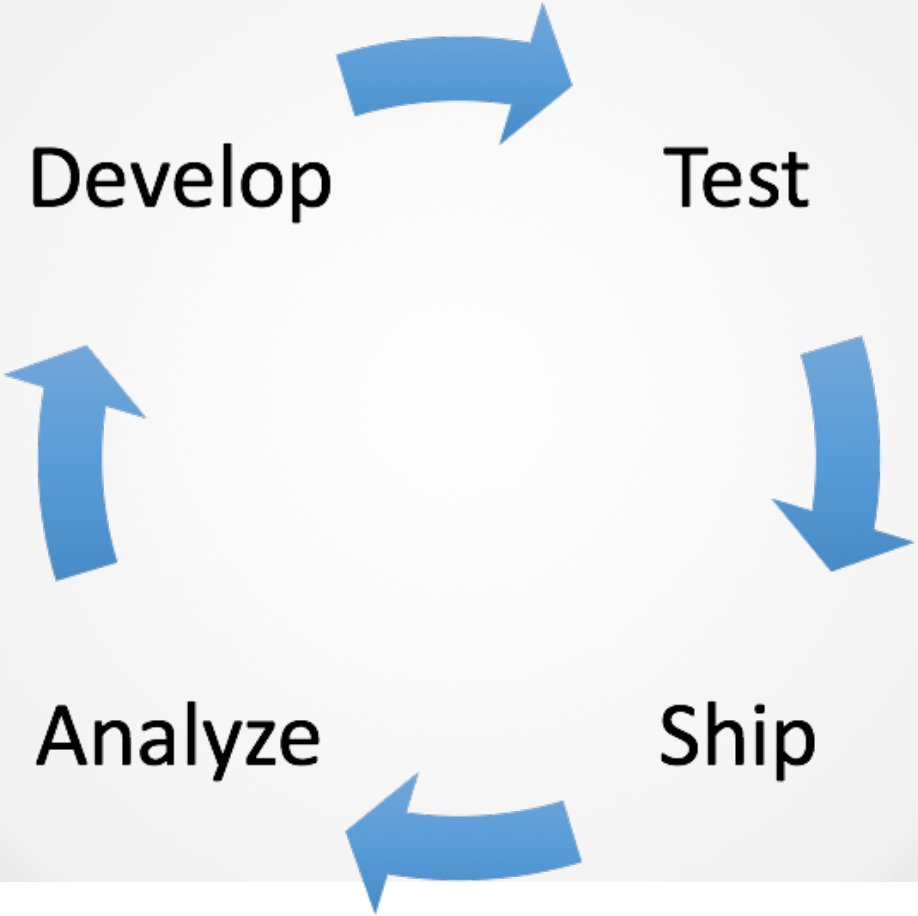
```
source 'https://github.com/CocoaPods/Specs.git'

# Regular pods
pod 'SDWebImage'
pod 'Evernote-SDK-iOS'

# Pod with a specific version
pod 'GoogleSignIn', '2.3'

# Development pods
pod 'AD360SDK', :path => '../AD360SDK-iOS'

# Pods on an internal git
pod 'StatsD', :git => 'git@git.autodesk.com:AutoCAD360/statsd-cocoa.git'
```

being Reachability (38). Finally, evidence of the dependency manager CocoaPods only appeared in 30 apps*, indicating that many developers are still adding these projects the old fashioned way. The gist below gives the

Medium.com

* 30 out of 100

Minimum **loveable** product, Develop **Lean**



Feature toggling

- Control app flow
- Toggle UI
- Toggle functionality
- Phased roll out
- Toggle unfinished code

Don’t forget them in your code, clean up.

Remote configuration (and control)

Configurations that may change without app updates:
Base URL / Feature toggles / force upgrades / app constants

- Remote independent location (Amazon S3)
- Json / Plist / xml config file
- Local config for backup / cache
- Should be updated frequently

Distribution, Crashes & Errors

- Test flight your app internally / beta testers
- Monitor crashes frequently
- Get to know your errors (e.g. remote logging / analytics)

Apple Testflight - https://developer.apple.com/testflight/
HockeyApp - http://hockeyapp.net/
Crashlytics - https://try.crashlytics.com/
Testfairy - https://testfairy.com/

Big - Help them find you!

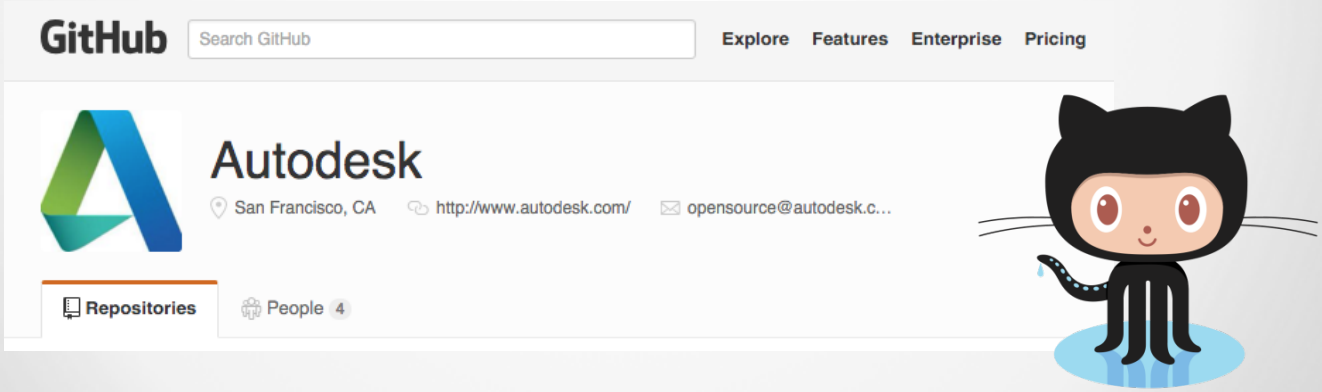
- Adopt new APIs quickly
- Create device specific features (Split screen, 3d touch)
- Is your app exclusive to iOS?
- Cross device flows - **tell a story**. (e.g. Handoff)

Blogs & Open Source

TLV

AUTODESK®

https://medium.com/autodesk-tlv



Questions?