Introduction to iOS Development

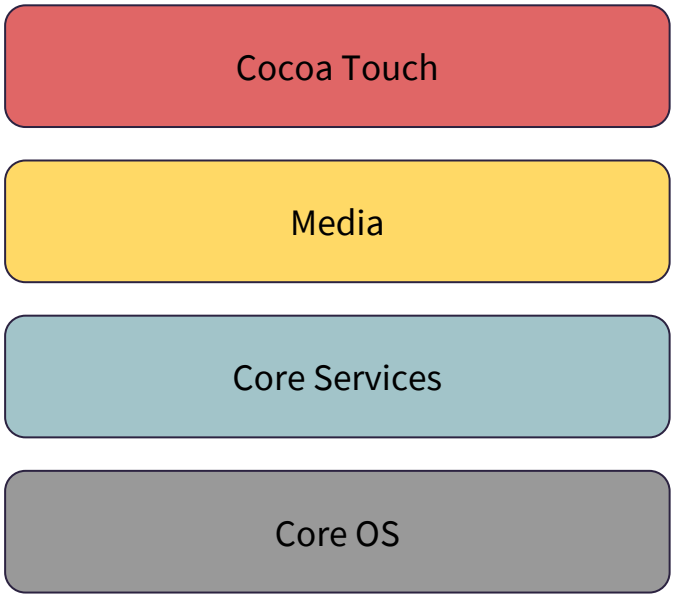
WOMEN WHO CODE SOFIA

Paysafe:

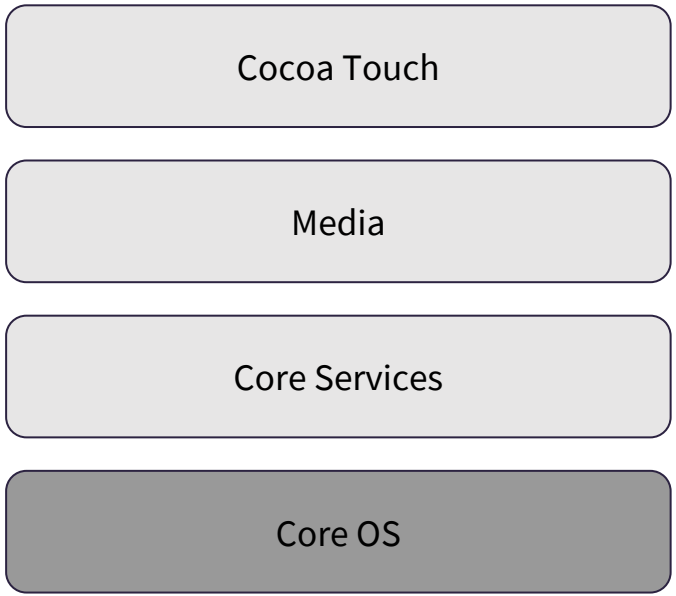
iOS - The most advanced mobile operating system

- January 2007 - Presented with first iPhone
- March 2008 - Named iPhone OS 2 and **App Store** was announced
- June 2010 - Renamed to **iOS** 4 when iPad was announced
- June 2012 - iOS 6 presented with Siri
- June 2013 - iOS 7 with new UI design
- September 2018 - iOS 12 was released

iOS architecture

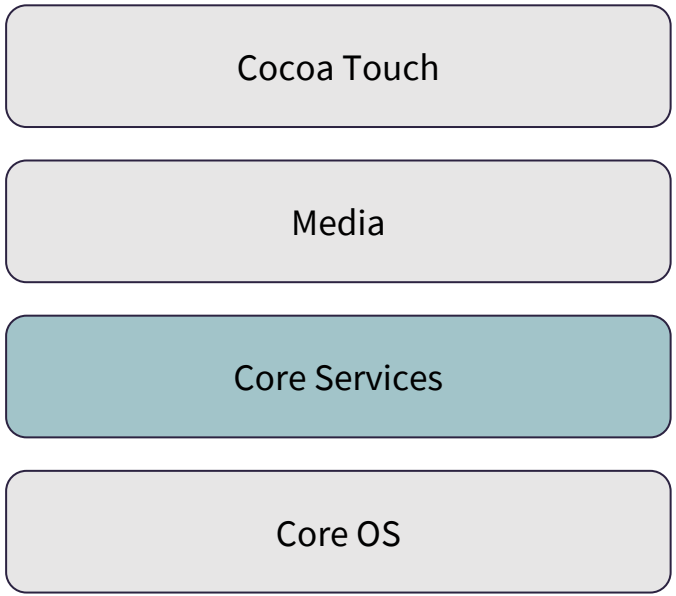


iOS architecture



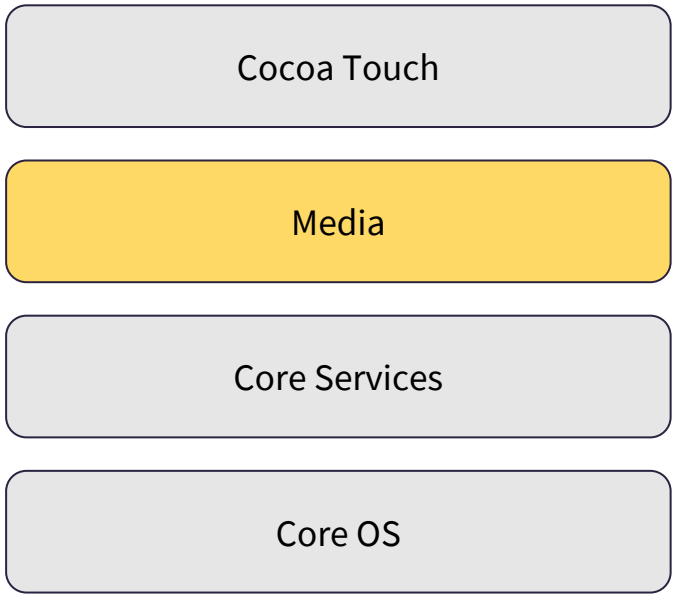
- OS X Kernel (XNU)
  - Mach 3.0
  - BSD
- Sockets
- Threading
- Security
- Power management
- File system

iOS architecture



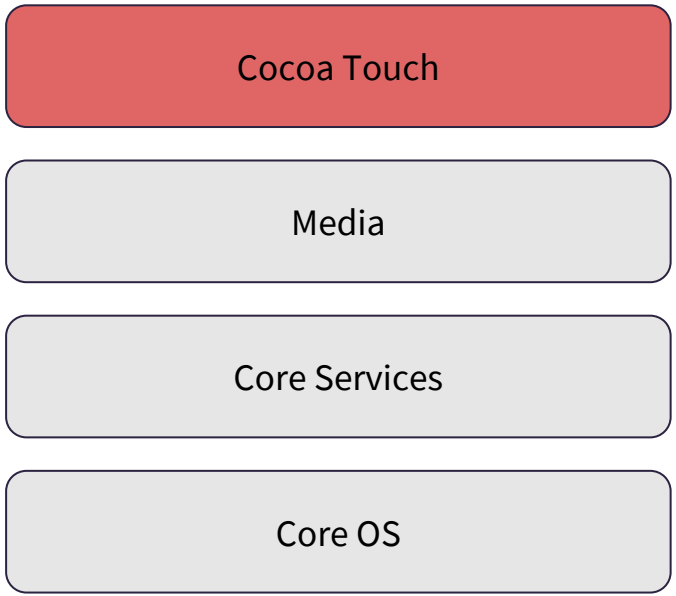
- Address book
- Location
- Database (SQLite)
- Foundation
  - Networking
  - Threading
  - File access

iOS architecture



- Images
- Video
- Animations
- Graphics
  - Quarz
  - OpenGL ES
  - Metal
- Audio
  - OpenAL

iOS architecture



- UIKit
- Multi-touch
- Webview
- Maps
- Camera

Limitations

- Access to low level APIs
- Device resources
- Background execution
- Sandboxing
- App Review process

… and how to get around them

- Permissions
  - Location
  - Camera
  - Microphone
- Push notifications
  - Creates the illusion that apps works in background
  - Triggered by the backend
  - Can wake up our app to do stuff
- Background execution
  - Finite length tasks
  - Background download
  - Long-running tasks - Music playback, VoIP, Location updates, more categories

How to make an iOS app

Tools

- Xcode

Languages

- Swift
- Objective-C

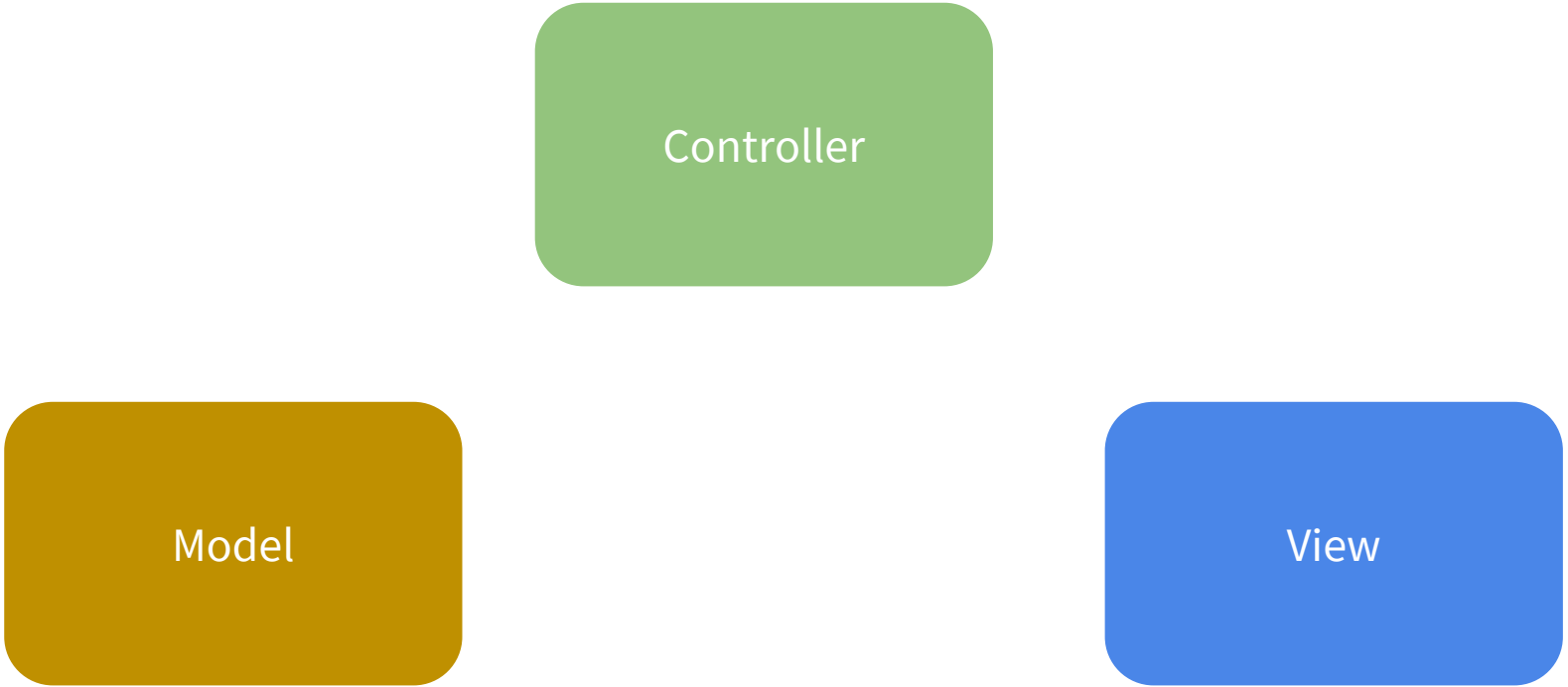
Framework

- UIKit, Core Location, etc.

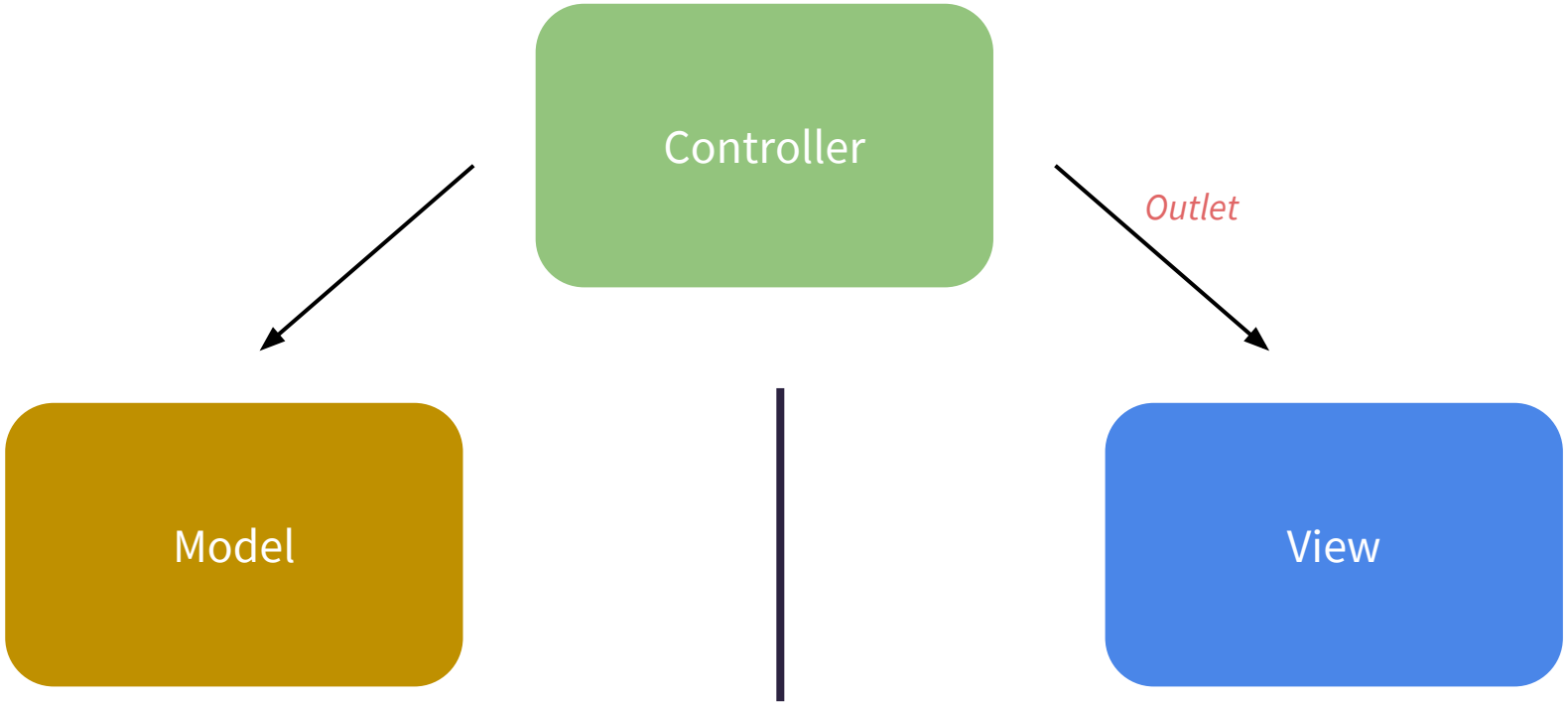
Architecture

- OOP
- MVC

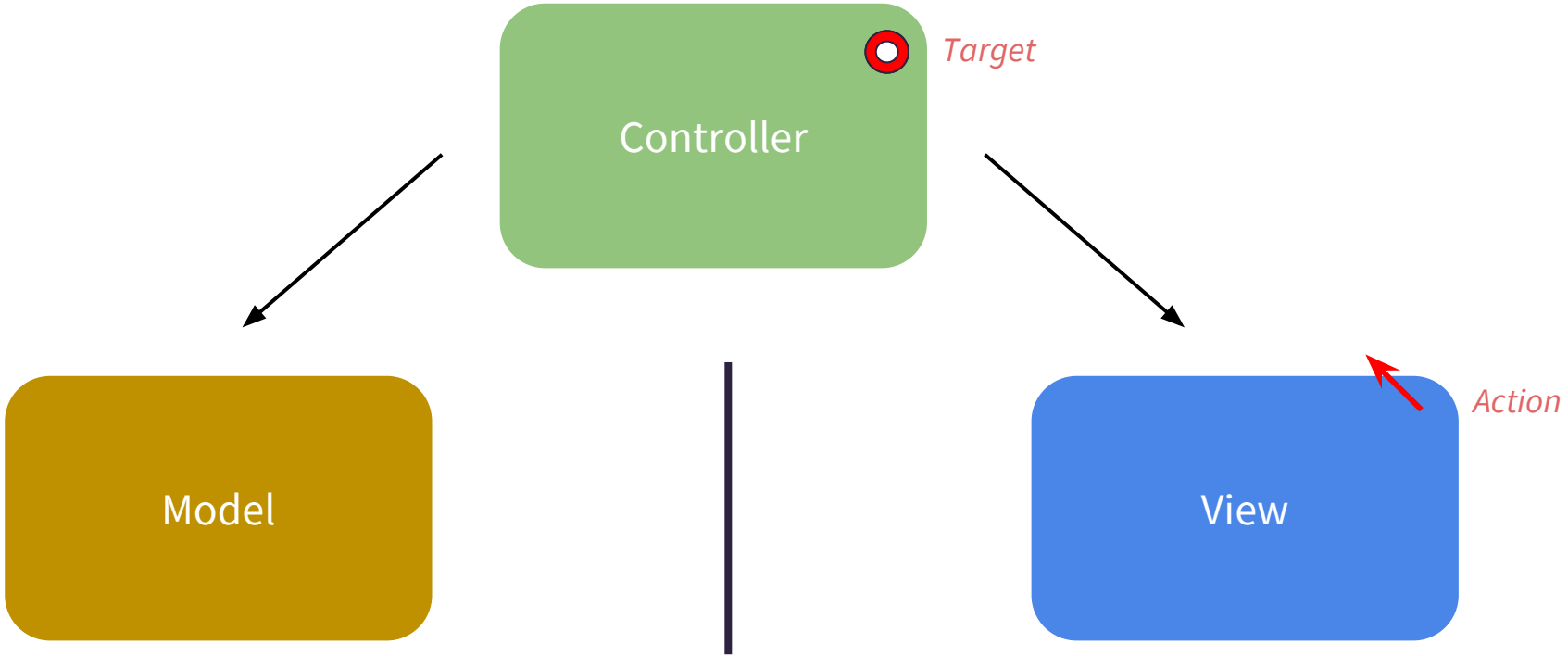
Apple MVC



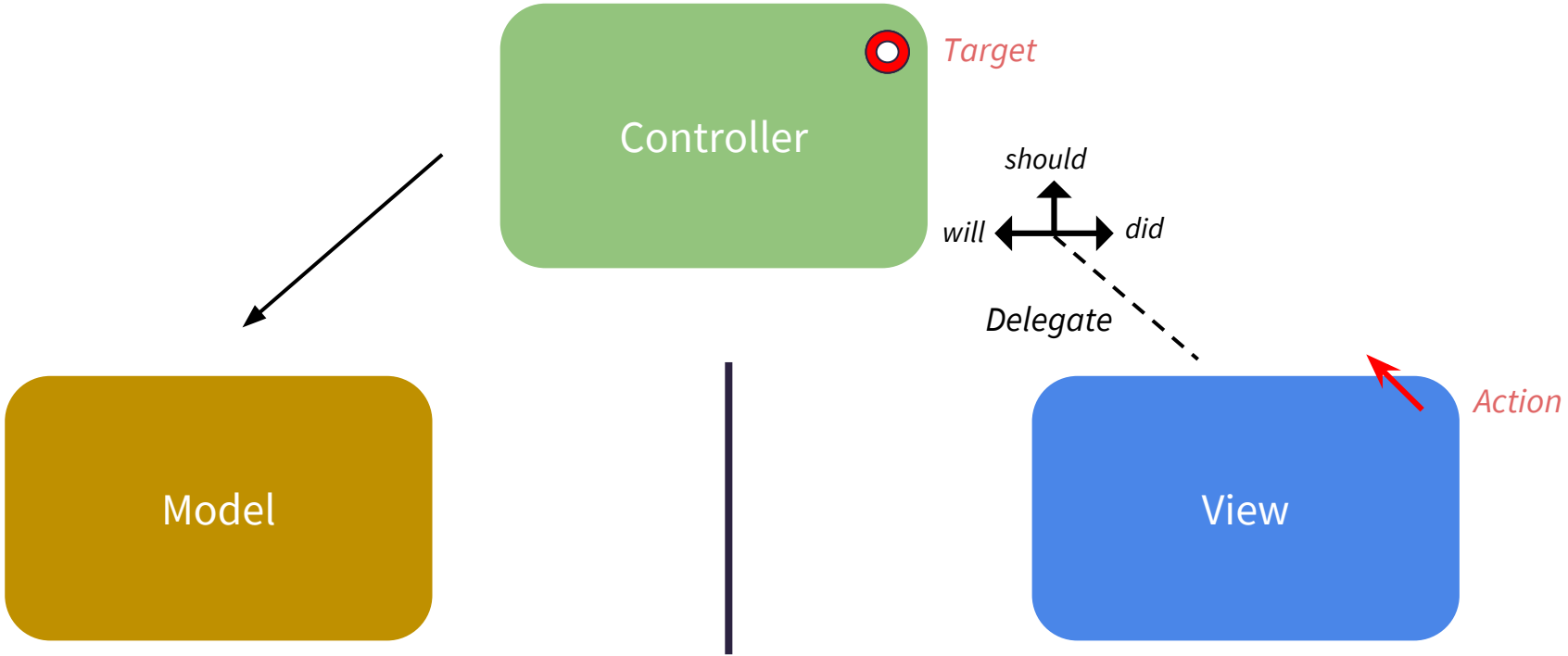
Apple MVC



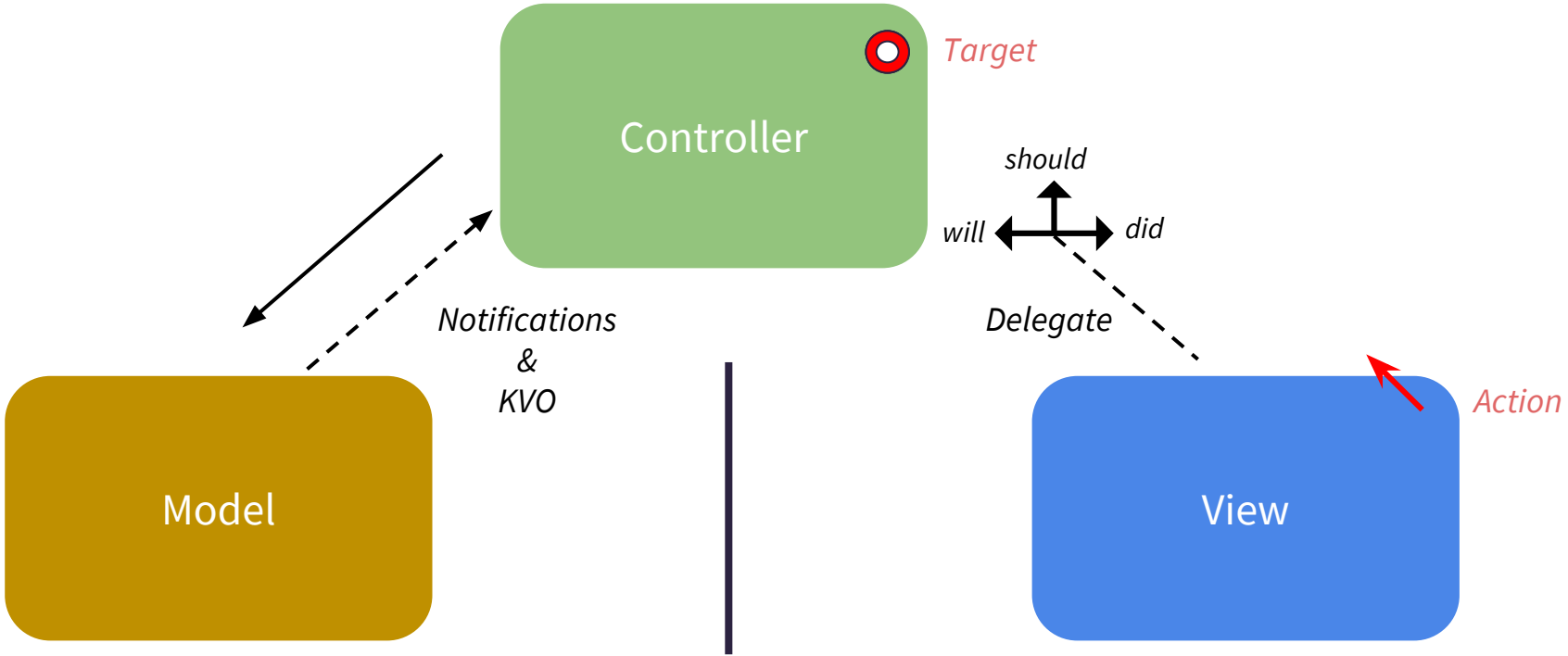
Apple MVC



Apple MVC


Controller
Target
should
will
did
Delegate
Model
View
Action

Apple MVC


Controller
Target
should
will
did
Notifications
&
KVO
Delegate
Model
View
Action

Swift

- Open source
- Fast
- Type inference
- Generics
- Functional programming patterns
- Native error handling
- Optionals
  - The billion dollar mistake - NULL pointer - Sir Tony Hoare
  - String vs String?

Swift - Optionals


```
var firstName: String
```

Swift - Optionals


```
var firstName: String = "Ivan"
```

Swift - Optionals


```
var firstName: String?
if firstName != nil {
     // firstName is still String?
     firstName!.count // 4
     firstName?.count // Int? (4)
}
if var notOptionalFirstName = firstName {
     // notOptionalFirstName is String here
     notOptionalFirstName.count // 4
}
```

Demo

Resources

- Developing iOS 11 Apps with Swift

  https://itunes.apple.com/us/course/developing-ios-11-apps-with-swift/id1309275316
- Apple App Store Review Guidelines

  https://developer.apple.com/app-store/review/guidelines/
- Swift programming language

  https://swift.org/
- Link to the Exchange Calculator app we just built

  https://github.com/itskoBits/ExchangeCalculator

Questions