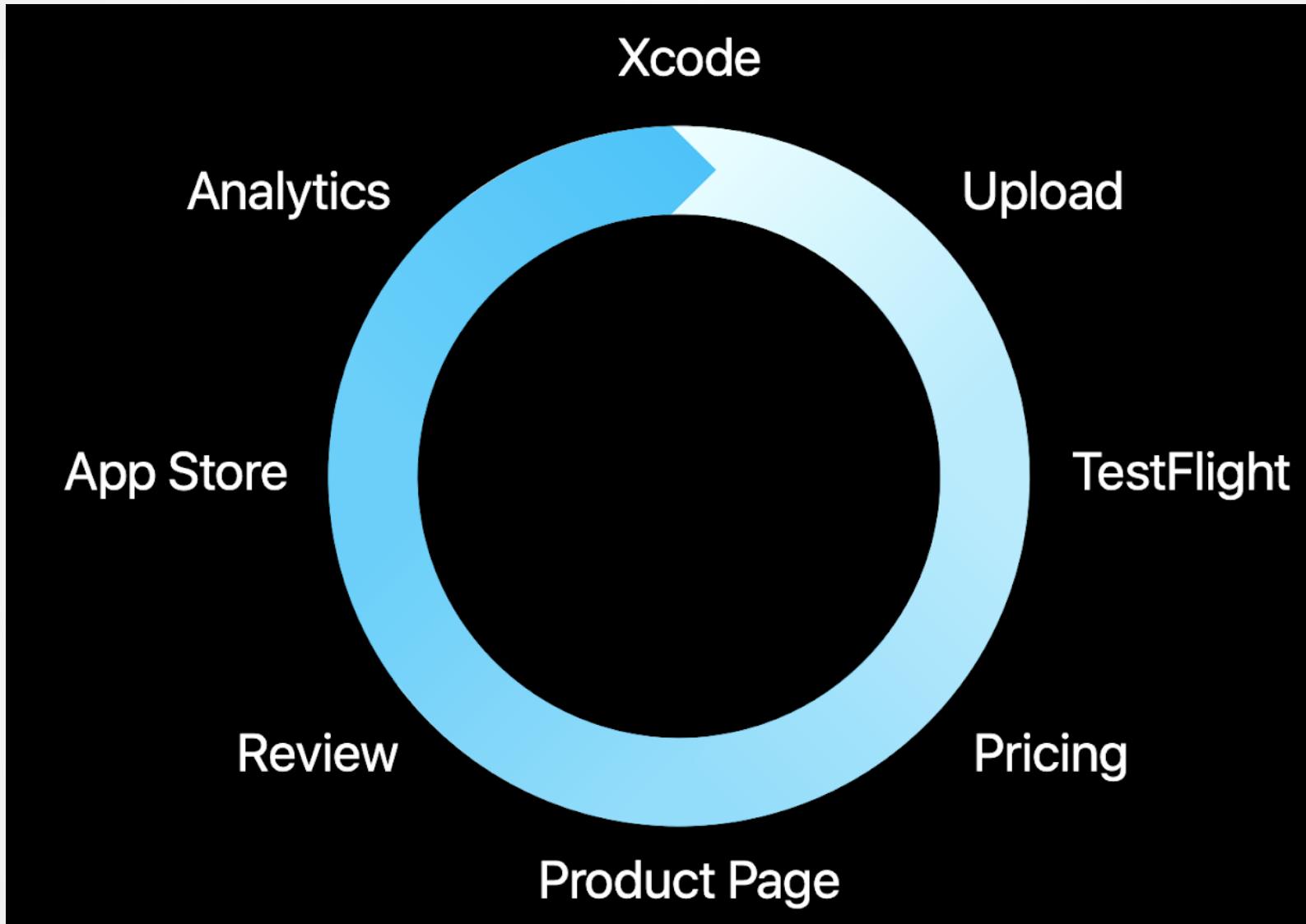


Automatic App Review Process

林培鈞 iOS Developer @91APP
pclin@91app.com

App Lifecycle



送審大量 iOS App 面對的難題

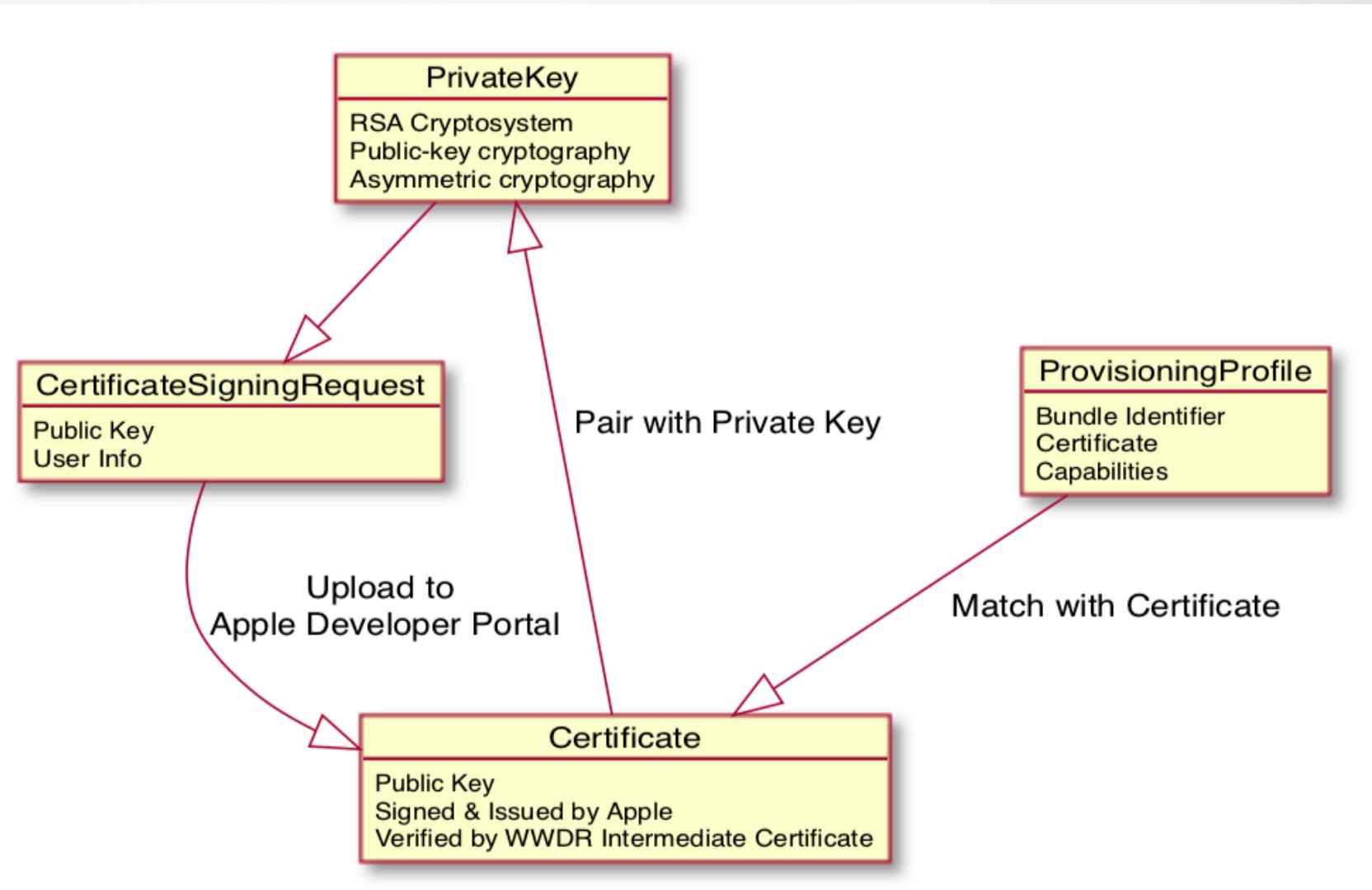
1. Code signing 相關問題要如何處理？
2. 如何使用有效率產出 IPA？
3. 如何有效率的送審 App？
4. Apple 到底埋了多少坑等著開發者們去踩？
5. 上面的步驟要如何節省時間？

處理單一 App 注意事項

1. Apple Developer Portal
 - Distribution Certificates
 - App ID
 - Provisioning Profiles
 - APN Service
2. xcodebuild
 - archive
 - exportArchive
3. IPA upload
 - Application Loader
 - altool
 - iTMSTransporter
4. App Store Connect
 - Testflight

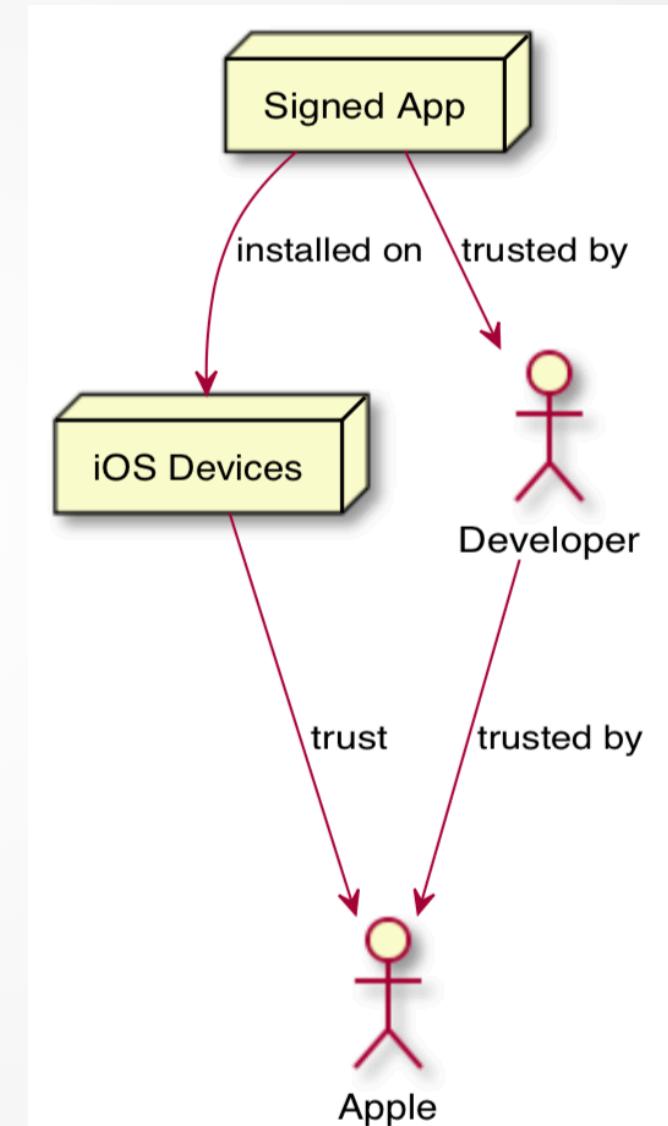
Code Signing

1. Private Key
2. Certificate Signing Requests
3. Distribution Certificate
4. Provisioning Profile

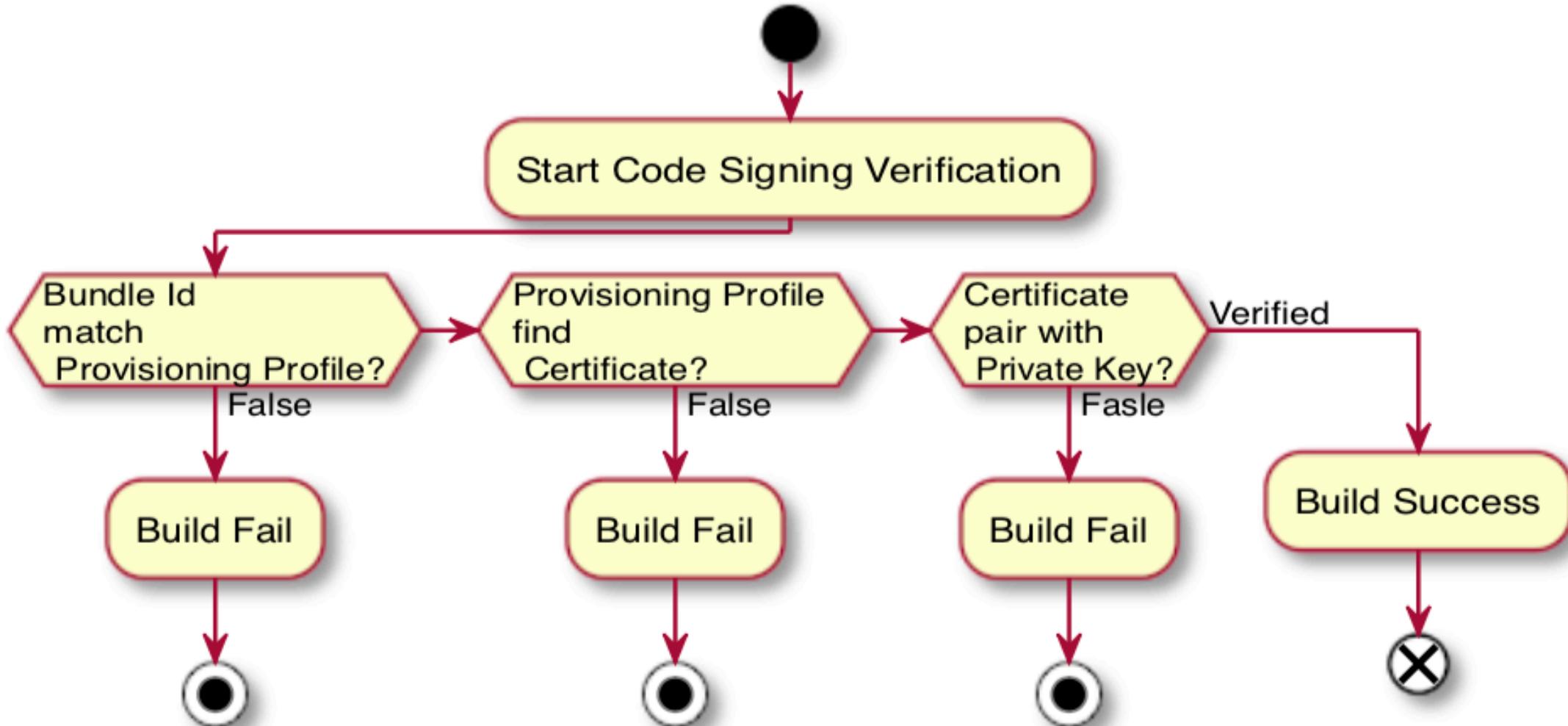


Validation Chain

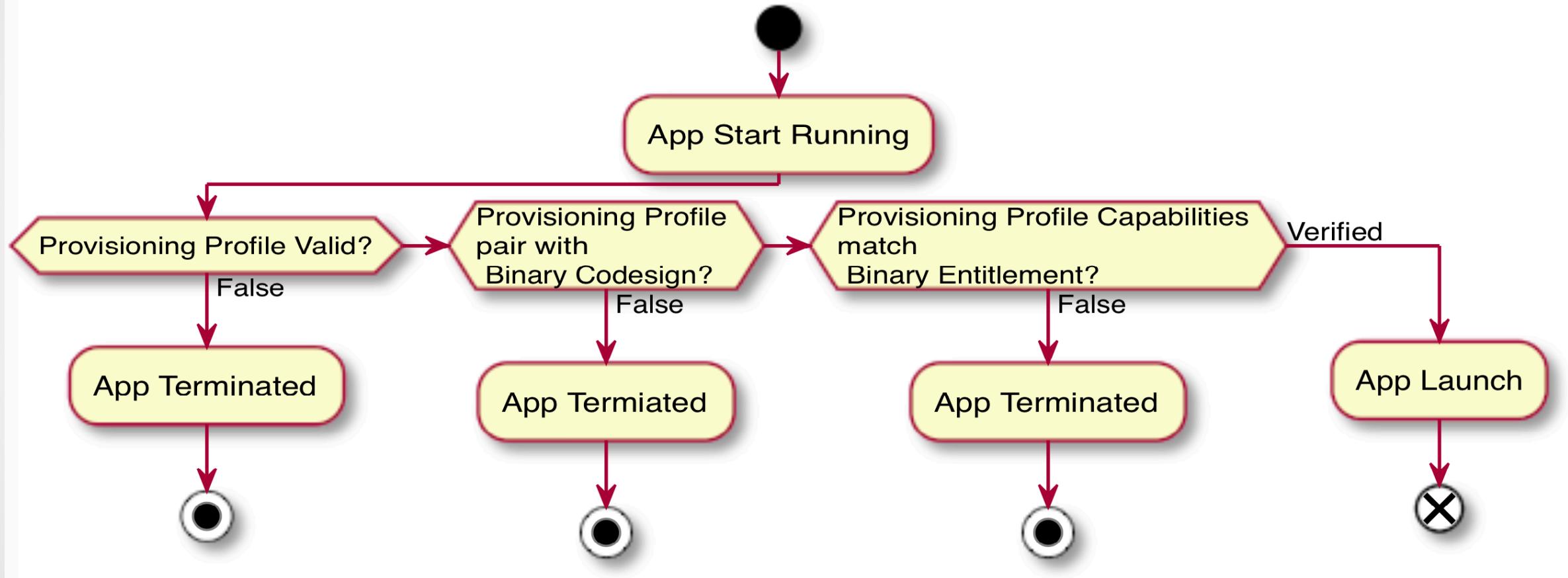
1. Signed App installed on the device
2. Signed App trusted by the developer
3. The developer is trusted by Apple
4. The device trust Apple



Build Validation



App Launch Validation



App ID

1. Bundle Identifier
2. Capabilities
 - Provisioning Profiles
 - Entitlements

Distribution Certificates

1. Created with CSR
2. Paired with Private Key
 - Certificate + Private Key = PKCS12
3. Expire in 1 year
 - Revoked automatically after expiration date
4. Included in Provisioning Profiles
5. Import Certificate/Private Key into Keychain Access

Provisioning Profiles

1. Bind with Bundle Identifier
2. Expire in 1 year
3. Copy to ***~/Library/MobileDevice/Provisioning\ Profiles/***
4. Include information
 - Distribution Certificates
 - Capabilities
 - Team ID
 - Profile Name

APN Service

1. Push Certificate

- Expire in 1 year
- Bind with App ID
- P12 format

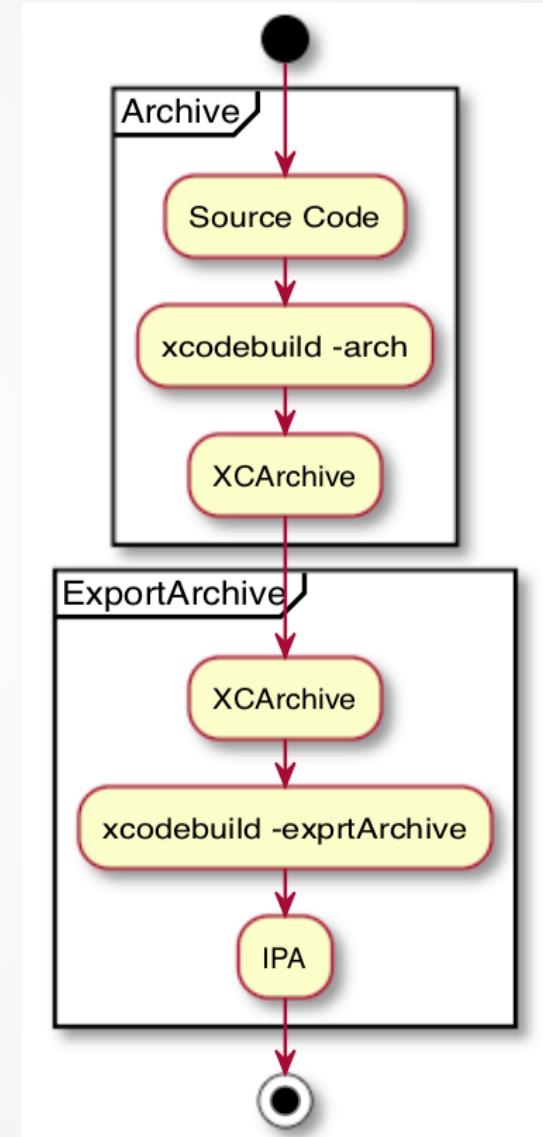
2. Push Key

- Never expire
- Account level
- P8 format

xcodebuild

1. Xcode Toolchain
2. Command line tool
3. Build iOS App Store Package(IPA) process

- ***xcodebuild -archive***
- ***xcodebuild -exportArchive***



Build Fail !!!

1. Expired Certificates/Provisioning Profiles
2. Certificate does not pair with Private Key
3. The Certificate in Provisioning Profile does not exist
4. Multi-certificates from same developer team installed in Keychain Access
5. Enabled Capabilities in Provisioning Profile and Entitlements not match

IPA Upload

1. Application Loader

- macOS only GUI tool
- Deprecated in Xcode 11

2. altool

- macOS only command line tool
- xcrun altool

3. iTMSTransporter

- Supports: macOS, Windows, and Linux
- Java based command line tool
- Upload digital contents to iTunes Store, Apple Books and App Store

Upload Fail !!!

1. Apple Account and Apple ID not match
2. Build version is equal to or less than live version
3. Same build version and build number
4. Processing fail
 - Bundle Identifier collision
 - Incorrect IPA content

Upload to Testflight

1. App processing time: at least 20 ~ 30 min
2. Build version & build number
3. Expires in 90 days
4. Export compliance information
 - Add
`<key>ITSApplUsesNonExemptEncryption</key><false/>`
to Info.plist

處理大量 App 注意事項

1. Build time optimization
2. Two-Factor Authentication
3. App Rejected
 - Review Guideline
 - License Agreement

Build Time Optimization

1. Reduce total compile time
 - Dependency libraries
 - Interface builder
 - Swift syntax
 - Support CPU architecture
 - Multi-core CPU
2. Re-sign IPA
 - Replace existing codesign settings
 - Zero build time

Build Time Statistics

macOS 10.14 + Xcode 10.1 new build system

Target/Device	Mac mini 2018 3GHz i5 6C	Mac mini 2014 2.6GHz i5 2C4T	Macbook Pro 2015 13' 2.7GHz i5 2C4T	Macbook Pro 2012 15' 2.4GHz i7 4C8T
Simulator	187 sec	495	636	345
Generic Device	180	483	578	299
Archive	107	209	303	155

Two-Factor Authentication

1. Must be enabled by "Account Holder"
2. 6-digits verification code will be sent to a trusted device or phone number
3. Automation tools will be interrupted
 - Web session with **Fastlane spaceauth**
 - Session should be valid for 30 days
4. Needs to generate **App-specific password** for IPA upload



Review Guideline

1. Metadata Reject

- App Information
- Incorrect screenshot
- Version Description
- Apple or Google Play reference

2. Binary Reject

- Functionality incompleteness
- IPv6

Review Guideline

3. Commercial Template
4. Latest Apple Policies
 - Latest iOS SDK version
 - Screenshot for latest devices
 - Launch Storyboard
 - Split Screen with iPad App
 - Sign in with Apple

I Am Your Father.

- ~~Darth Vader~~

- Worldwide Developer Relations Department

Renew License Agreement

 **Developer**

Program Resources

-  **Overview**
-  Membership
-  Certificates, IDs & Profiles
-  iTunes Connect
-  CloudKit Dashboard
-  Code-Level Support

Additional Resources

-  Documentation

Account

The Apple Developer Program License Agreement has been updated.
In order to access certain membership resources, you must accept the latest license agreement.

[Review Agreement](#)



Certificates, Identifiers & Profiles
Manage the certificates, identifiers, profiles, and devices
you need to develop and distribute apps.

Process Analysis

1. Steps

- Generate code signing related files
- Build App
- Upload IPA
- Submit App

2. Running on macOS only

- xcodebuild
- Keychain Access
- altool

3. Prefer command line interface

Automation Tools

1. Jenkins

- Service for CI/CD
- Run fastlane based build script
- Dispatch build jobs to macOS machines



2. Spaceship

- Apple Developer Portal
- App Store Connect



3. App Store Connect API

- Official REST API
- Authentication via JSON Web Token
- Currently not available for Enterprise Program



TestFlight



Users and Access



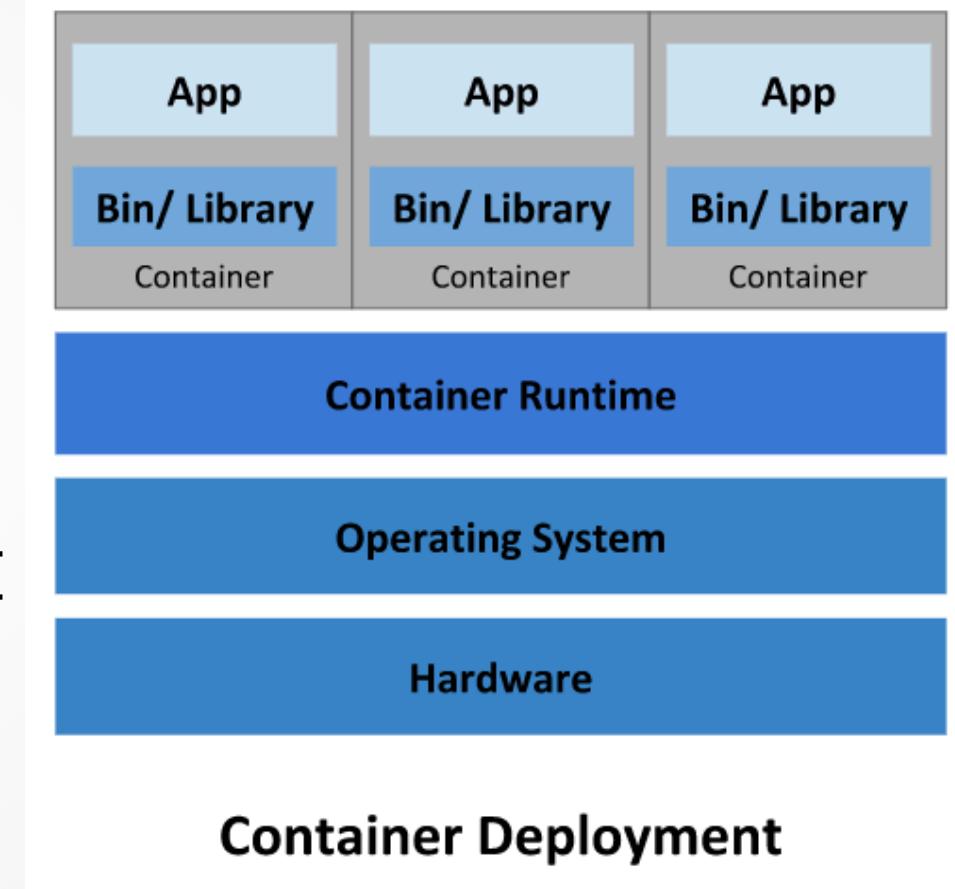
Reporting



Provisioning

Containerize Services

1. Process could run on non-macOS environment
 - Spaceship
 - Data storage
 - Jenkins
2. Microservice
 - Keep simple
 - Communicate services with API
3. Declarative configuration



Automate Flow

1. Code signing
2. App build process
3. IPA upload
4. App submit
5. App status



Thank you for your attention.