Flutter Meetup

Speaker Bio

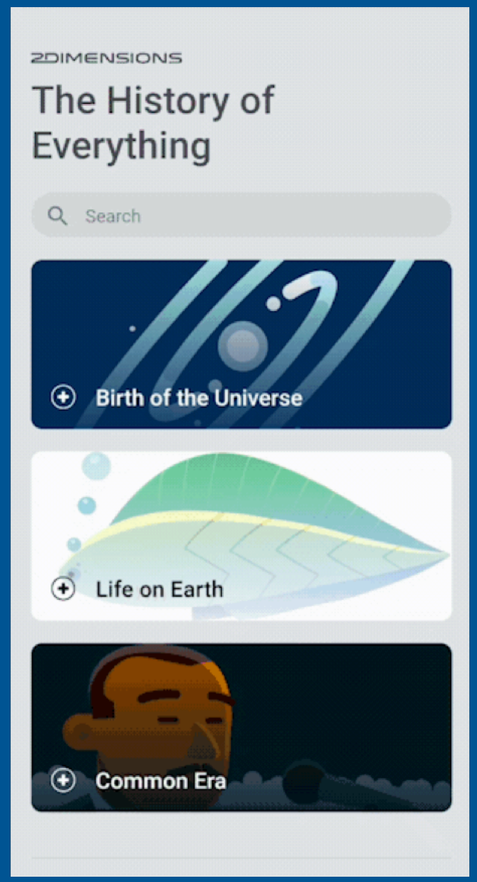
- GitHub, Microsoft
- Tools and services for Mobile DevOps
- AppCenter, Azure DevOps, GitHub Actions
- TestCloud, HockeyApp
- Build, Test, Distribution, Diagnostics, Insights, Push
- iOS, Android, macOS, Linux, …

"Love Flutter or Hate Flutter, you can not ignore it anymore."

— @shashikantjagtap, Xcode Engineer at Apple

Let's talk Flutter

- Show of hands...

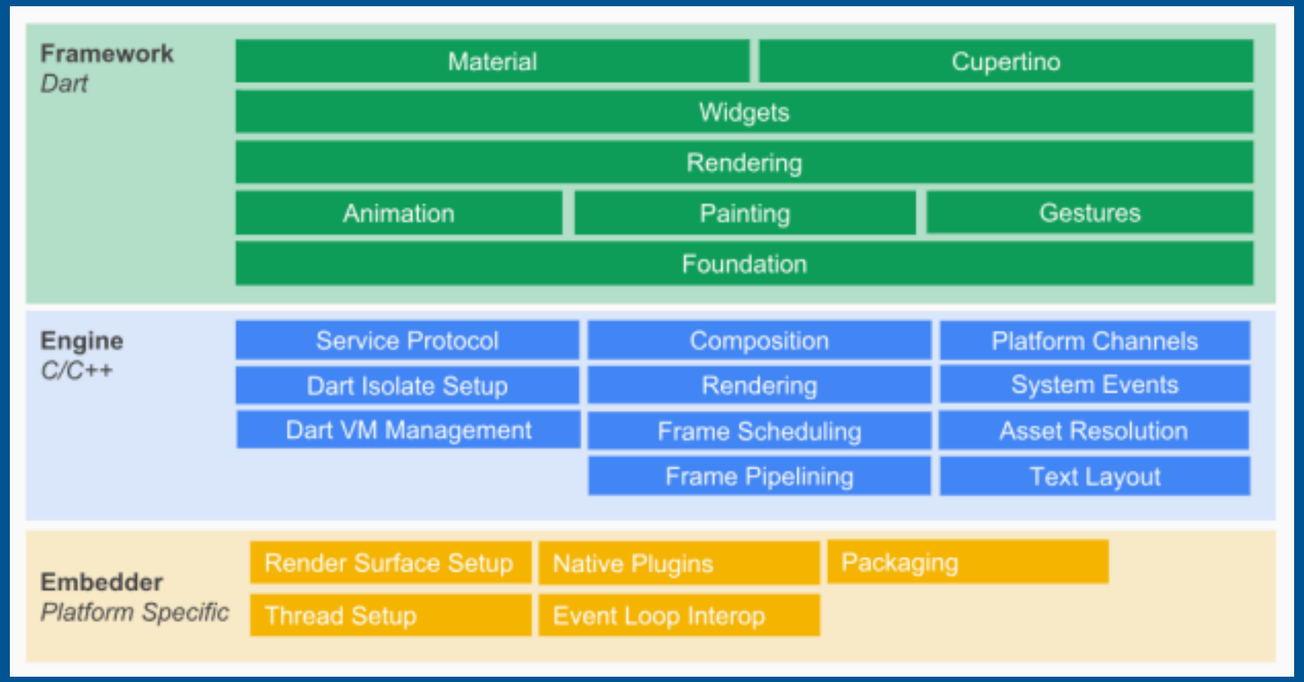


Mobile Frameworks

Lang / IDE	Flutter	React native	Kotlin	Swift	İonic	Xamarin
Using Language	Dart	Ecmascript	Kotlin	Swift	Typescript	C#
Developers	Google	Facebook	JetBrains	Apple	Drifty	Microsoft
Initial release	2017	2015	2011	2014	2013	2011
Using companies	Alibaba , Google	Facebook , Uber	Atlassian, Pinterest	Apple , Lyft	Sellsuki, Zenefits	Storyo, Just Giving
Github stars	71.9 k	79.6 k	28.6 k	48.7 k	38.7 k	-

Advantages

- https://medium.com/flutterpub/i-choose-flutter-why-how-to-install-f1b1a22cb31c
- https://www.appsbee.com/blog/advantages-and-disadvantages-of-flutter/



Advantages

- Cross platform
- Open Source
- Extremely Fast App Development
- Faster Running of Applications
- Reduced Efforts of Testing
- Access of Native Features
- Excellent User Interfaces
- Reactive Framework
- Good for MVP

Disadavantages

- Needs Continuous Support
- Limited Libraries
- No direct migration path
- Not really portable
- Bespoke language

Despite its disadvantages, Flutter stands out to be the best cross-platform SDK in terms of its speed and performance.

With the recent release of the stable version, we anticipate Flutter to go a long way and revolutionize mobile app development by opening new perspectives for application development in the coming years.

-- **Mobile app development in Utah**, incorporating Flutter on a large-scale for developing Android and iOS Applications

Porting a Native iOS App to Flutter

By Gary Hunter (Oct 2018) - https://medium.com/@ghunter99

Easy Diet Diary iOS App - Australia (1.2M downloads)

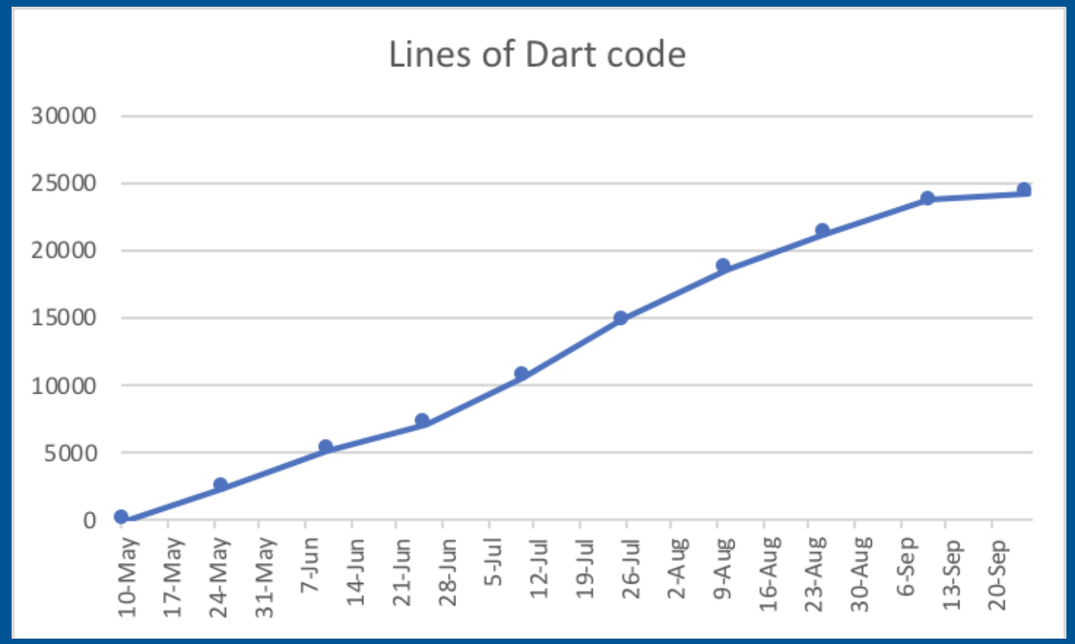
- Objective-C & Swift
- Amazon AWS Back-end
- Contains 75,000 lines of code as per `cloc`
- 15 Storyboards, 47 nib files, 92 View Controllers

Reasons behind the Port

- Less Lines of Code
- Increased Development Speed
- Architecture
- Community
- Runtime Performance
- Language benefits
- Batteries included (enough to build with what's there)

Porting to Flutter

- LOC: >60K Native vs <30K Dart, ~50% reduction of UI code
- Cross-platform shared code: 0% before, 90% after
- Emphasis on quality, not quantity



Architecture

- Brian Egan - Keep it Simple, State: Architecture for Flutter Apps (DartConf 2018)
- Eric Windmill - Using Flutter Inherited Widgets Effectively
- Flutter architecture Samples at http://fluttersamples.com

Community

- StackOverflow
  - Günter Zöchbauer, Rémi Rousselet, Collin Jackson
- GitHub
  - flutter_slidable package, by Romain Rastel
  - https://github.com/jarontai/html2md
  - https://github.com/flutter/flutter_markdown
  - https://github.com/facundomedica
  - https://github.com/PonnamKarthik/FlutterHtmlView

Notes

- The Flutter UI was virtually indistinguishable from native Android and iOS UIs
- Due to Flutter UI structures they were able to build new functionality in Flutter more quickly than in native code
- No performance degradation noticed by Testers when using the ported app
- The code base shared between the iOS and Android versions of the app was >90%. This is pre-Apple HealthKit or Google Fit integration
- Using an architecture pattern called Lifting State Up which is a first step along the way to Redux
- With a tight development schedule, learning and experimenting with Redux just seemed too daunting

Mobile DevOps

- DevSecOps for Mobile: people, process, tools
- Platform and vendor agnostic practice
- Mobile Infrastructure Automation
- Mobile DevOps tooling
- CI/CD infrastructure
- Test automation
- Signing and distribution

Example

- Setting up DevOps practices for iOS app deployment
- Setup the Continuous Deployment with Fastlane tools
- Setup iOS CI servers provisioning with Ansible
- Test automation with Swift (XCTest, FitNesse)
- Xcode UI Test with XCUITest
- Continuous Integration with Xcode Server
- Delivery and build pipelining for iOS with Fastlane Tools

Mobile DevOps 🛠 Flutter

```
#!/bin/bash

# https://flutter.dev/docs/get-started/install


git clone https://github.com/flutter/flutter.git

export PATH="$PATH:`pwd`/flutter/bin"


flutter doctor

# flutter precache
```

Mobile DevOps 🛠️ Flutter

```
echo "My First Flutter App"

flutter create my_app

cd my_app


# flutter devices

flutter run
```

Mobile DevOps 🛠️ Flutter

```
echo "My First Flutter Build"

flutter build apk

    # --debug / --release
    # --target-platform [android-arm, android-arm64, android-x86, android-x64]
    # --split-per-abi


flutter build ios

    # --debug / --release
    # --[no-]simulator
    # --[no-]codesign
```

Mobile DevOps 🛠️ Flutter

```
analyze                 Analyze the project's Dart code
assemble                Assemble and build flutter resources
attach                  Attach to a running application
build                   Flutter build commands
channel                 List or switch flutter channels
clean                   Delete the build/ and .dart_tool/ directories
config                  Configure Flutter settings
create                  Create a new Flutter project
devices                 List all connected devices
doctor                  Show information about the installed tooling
drive                   Runs Flutter Driver tests for the current project
emulators               List, launch and create emulators
format                  Format one or more dart files
generate                run code generators
install                 Install a Flutter app on an attached device
logs                    Show log output for running Flutter apps
make-host-app-editable  Moves host apps from generated to non-generated directories
precache                Populates the Flutter tool's cache of binary artifacts
pub                     Commands for managing Flutter packages
run                     Run your Flutter app on an attached device
screenshot              Take a screenshot from a connected device
test                    Run Flutter unit tests for the current project
upgrade                 Upgrade your copy of Flutter
version                 List or switch flutter versions
```

Demo - CI/CD

- Flutter Pipelines
  - Code to cloud
  - Build, Archive, Sign and Release for iOS & Android
  - Cloud build, test and release pipelines
- Flutter on Azure DevOps
- GitHub Actions - YAML & Workflow
- AppCenter (https://appcenter.ms)

Demo - Testing

- Better tests for your Flutter App
- Appium Tests
- UI Automation, XCUITest, Espresso
- Cloud testing - emulator & device tests on pipelines
- Semantics

```
showSemanticsDebugger: true
semanticsLabel: "Title"
```

Links

- https://flutter.dev, https://dartpad.dev
- Widget Category, https://flutterstudio.app/
- FlutterBook.net
- Flutter by Mahmud Ahsan
- Video: Dart Programming Language
- Video: Flutter - Creating First App
- Video: How to Create a Profile Page App
- Video: What is Future and Async

Thanks!

Flutter ❤️ DevOps

DevOps ❤️ Flutter