



# Flutter

Study



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Senior Technical Consultant  
Google Developer Expert in Flutter & Dart



/Dahabdev

# AGENDA

30-40 MINUTES	<p><b>The Magic of Flutter</b></p> <p>Quick introduction to the basics of the Flutter framework, the widgets system, and various tools to develop with.</p>
90 MINUTE	<p><b>Complete “Build your first Flutter app 1-2 ”</b></p> <p>Create your first Flutter app. If you are familiar with object-oriented code and basic programming concepts such as variables, loops, and conditionals, you can complete this tutorial. You don't need previous experience with Dart or mobile programming.</p>
SHARE FEEDBACK	<p>Share photos, insights using the hashtags <b>#StudyJamMENA #GDGMENA #Flutter #FlutterStudyJam #OnlineFlutterStudyJam #FlutterDev</b></p>



# The Magic of Flutter

write once run everywhere

@dahabdev

# Android



# iOS



OEM Widget (**Material Design - Cupertino**)

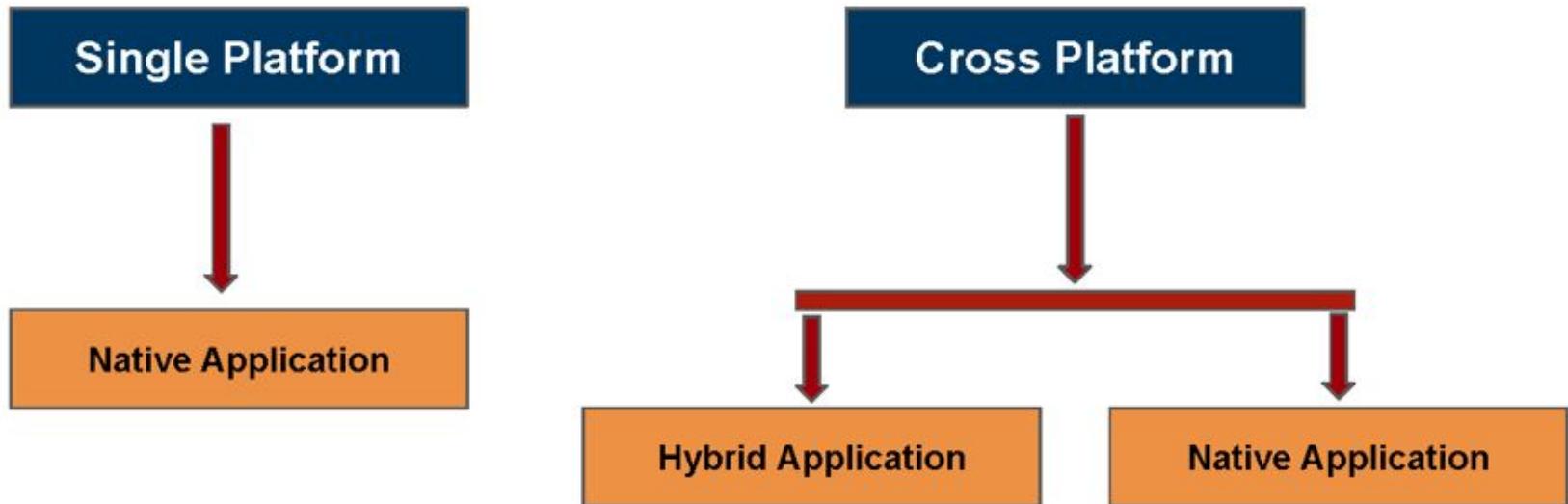
Core Services & Media

Core OS

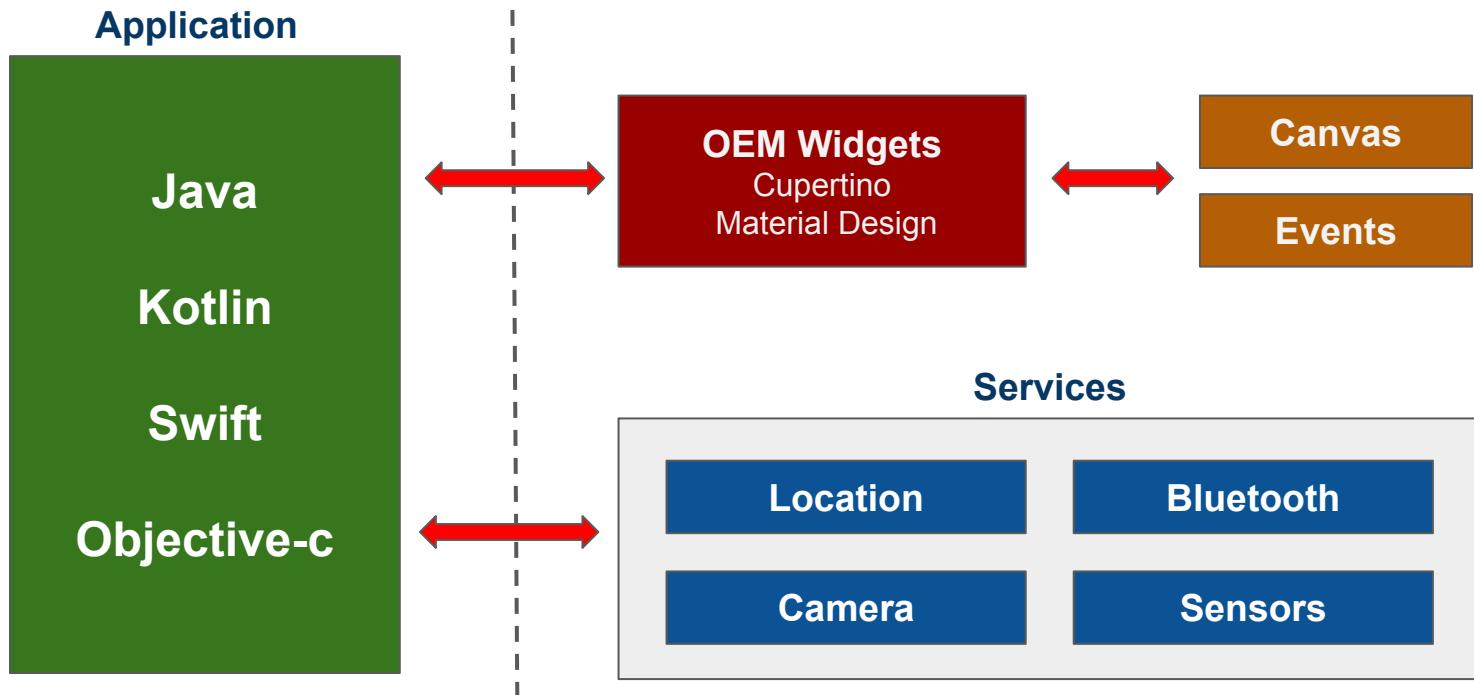
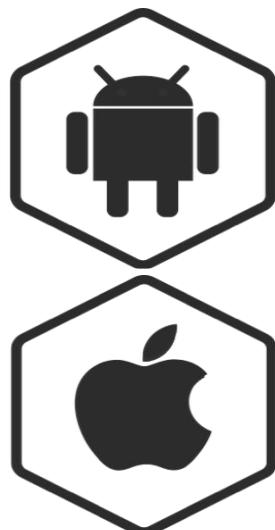
Kernel and Device Drivers



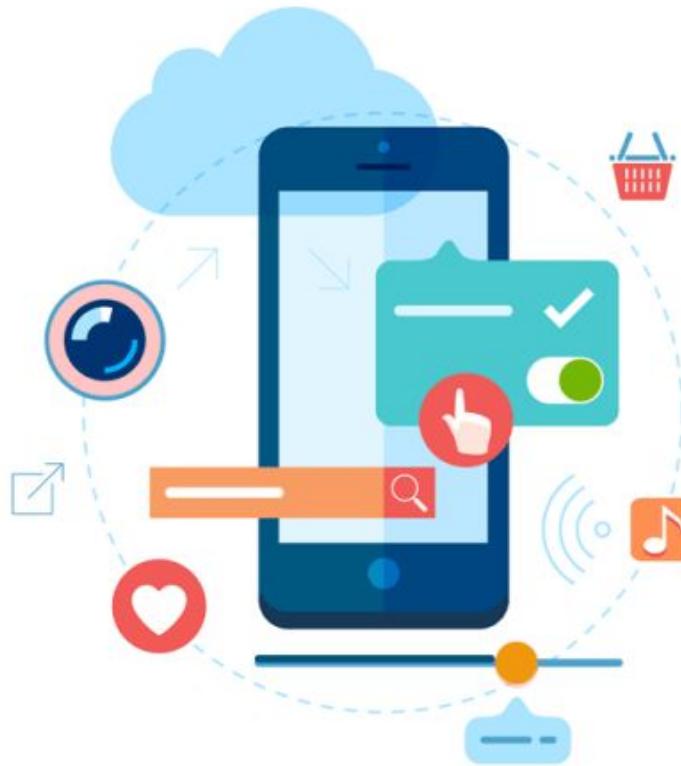
# Mobile Development Approaches



# Native Approach (Single Platform)



# Cross-Platform Approach



# Cross-Platform Approach



Microsoft

Google

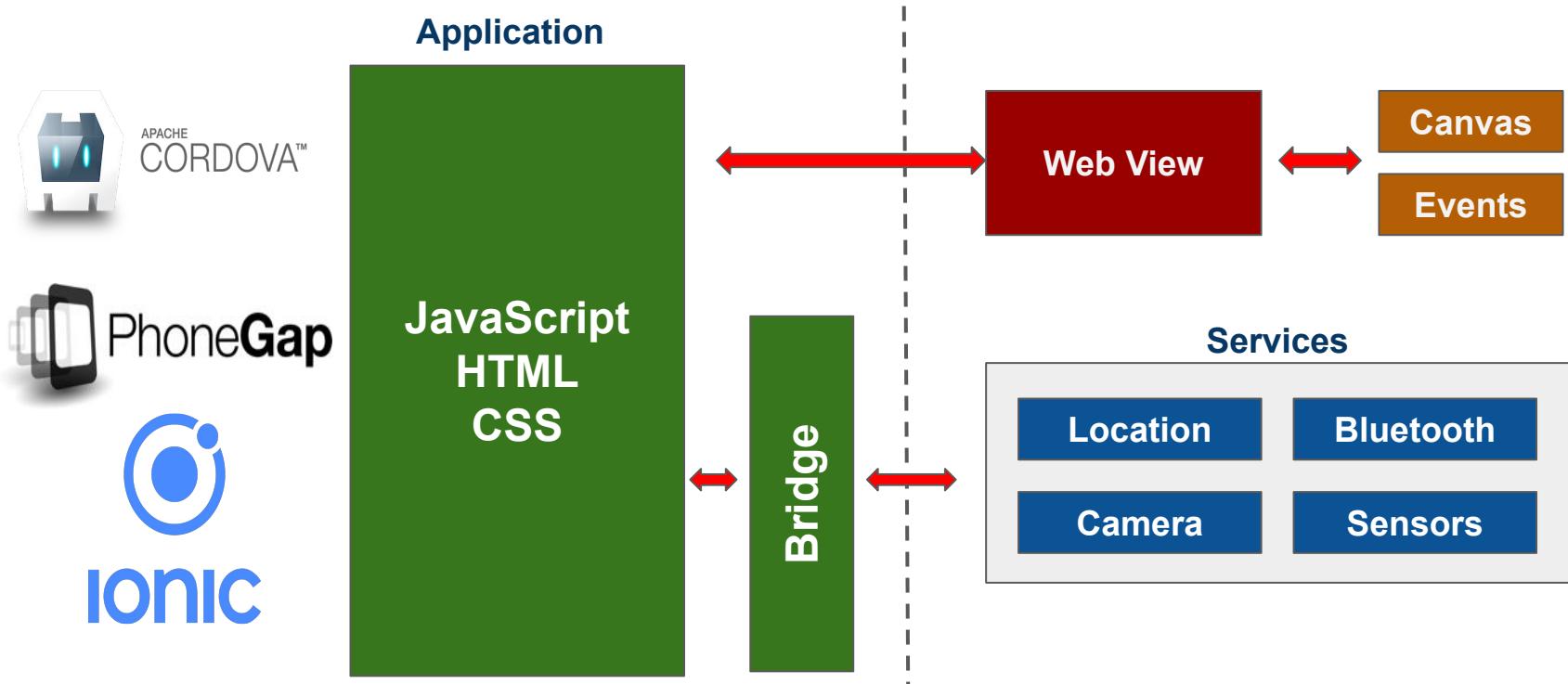


Adobe PhoneGap

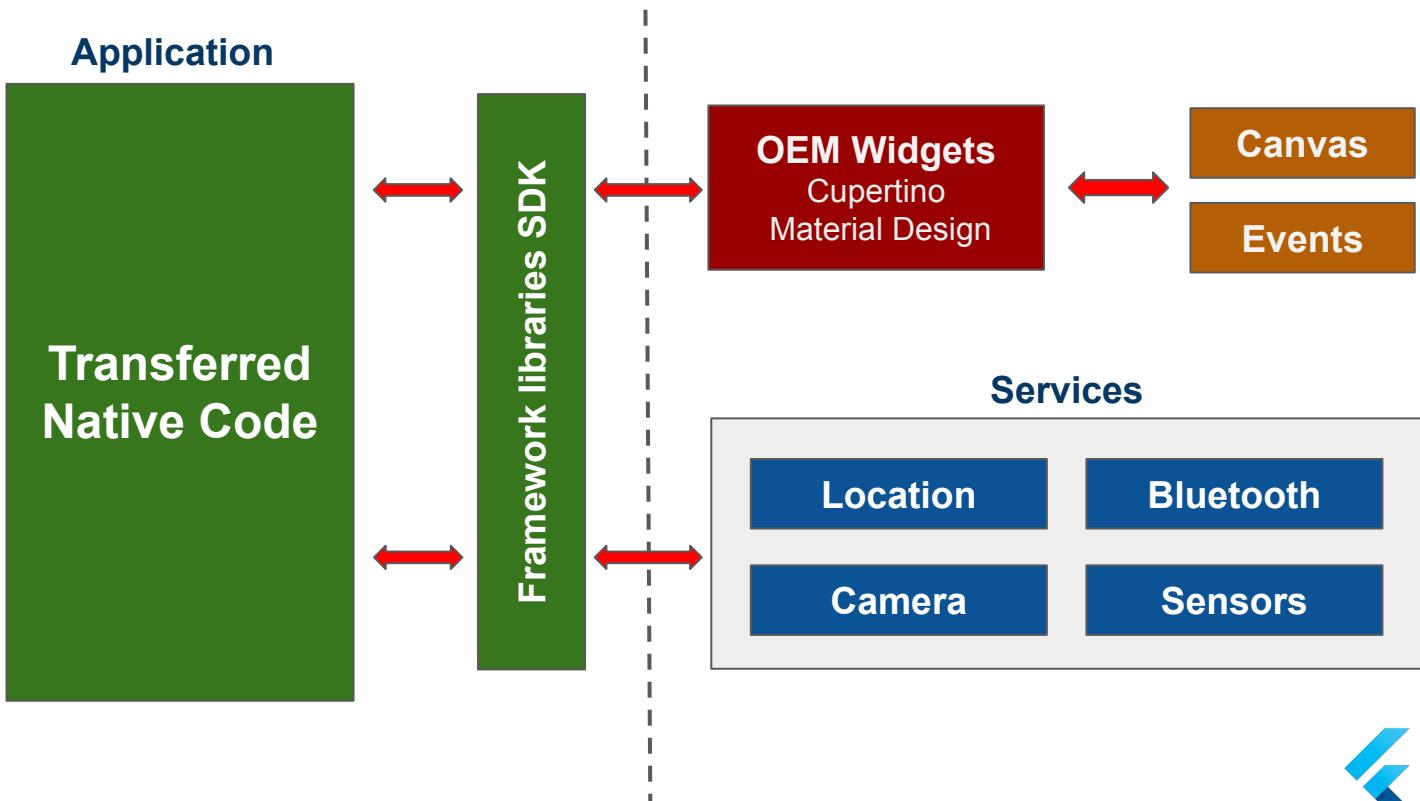
facebook

Progress®

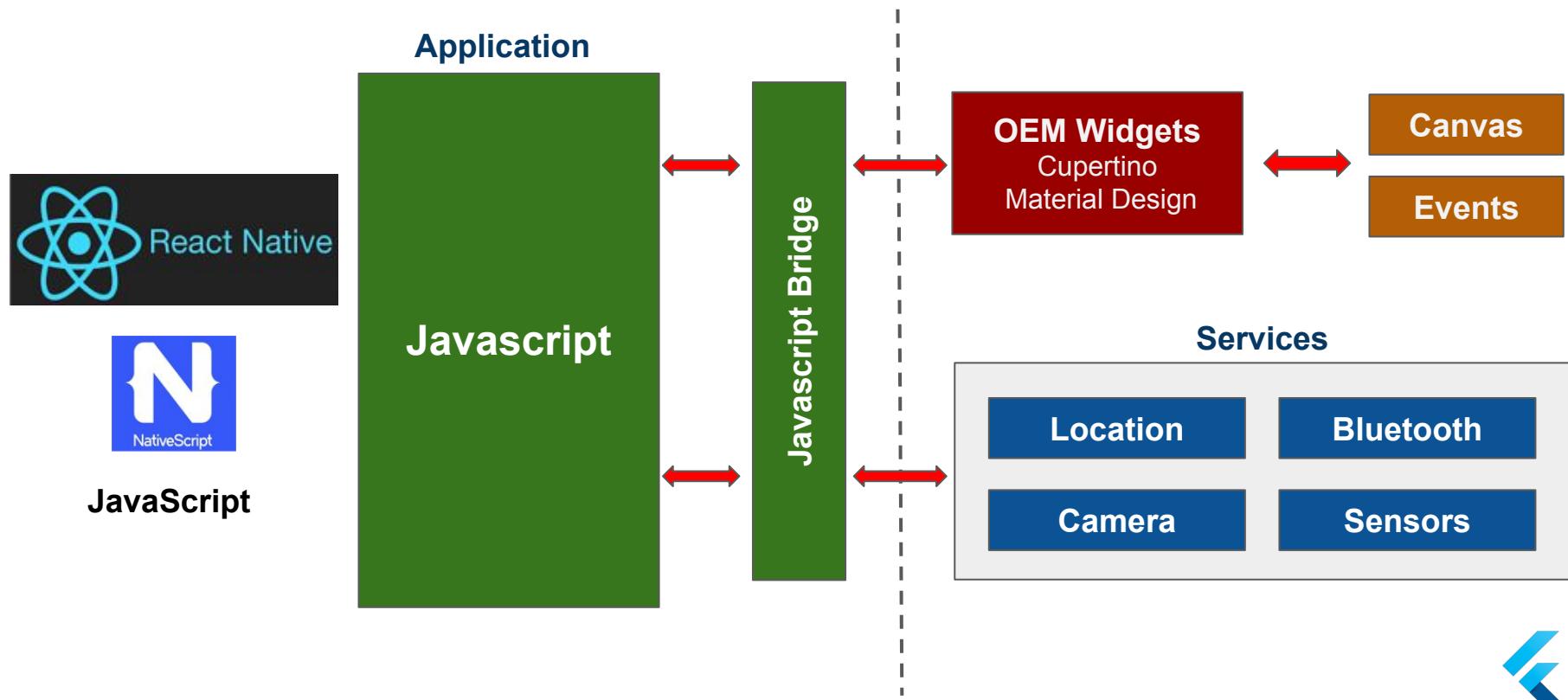
# Hybrid Approach



# Cross-Platform Approach



# Cross-Platform Approach





Flutter

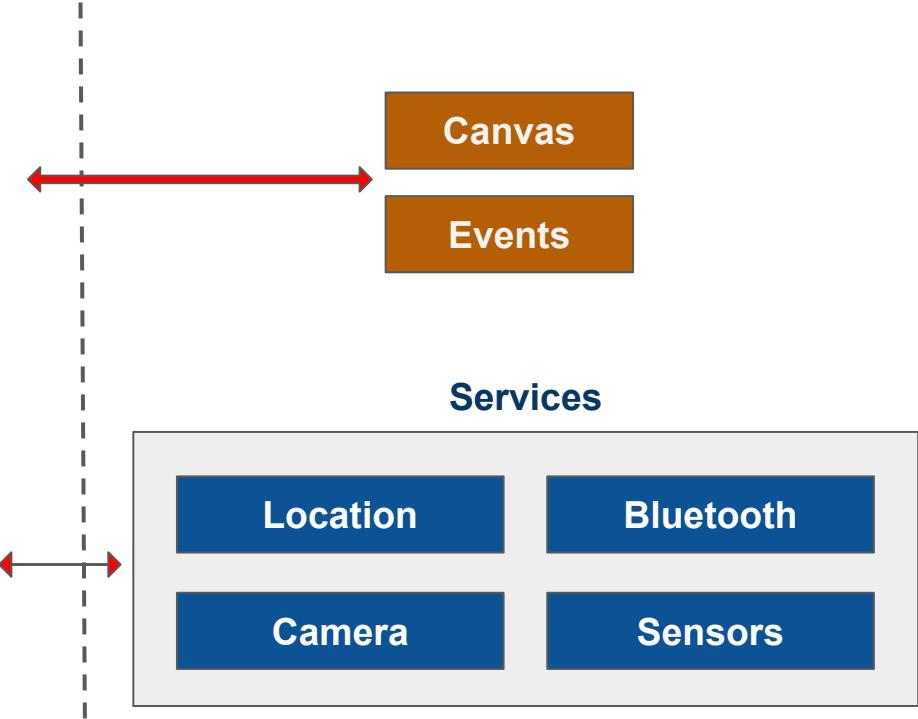


# Flutter Approach

**Native ARM  
Binary  
Code**

**Flutter Widgets**  
Cupertino  
Material Design

**Platform  
Channels**



# What is Flutter?

Flutter is Google's portable UI toolkit for building beautiful, natively-compiled applications for **mobile**, **web**, and **desktop** from a single codebase.





# Flutter

Build  
beautiful apps  
in record time



# Expressive, beautiful UIs

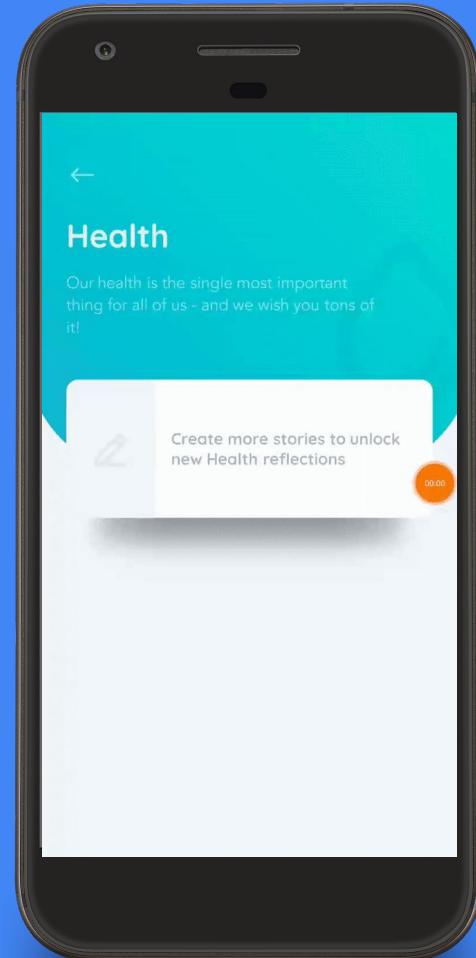
Control every pixel on the screen

Make your brand come to life

Never say "no" to your designer

Stand out in the marketplace

Win awards with beautiful UI



# Fast

Brings the power of a games engine to user experience development

60fps, GPU accelerated

Compiled to native machine code



# Productive

Sub-second reload times

Paint your app to life

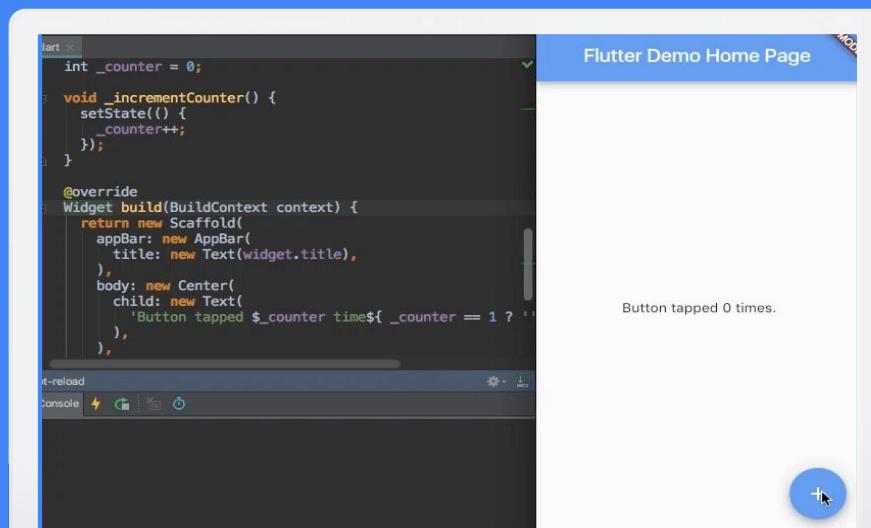
Iterate rapidly on features

Test hypotheses quicker than ever

More time to experiment & test  
features

Single-codebase for faster collab

3X Productivity Gains



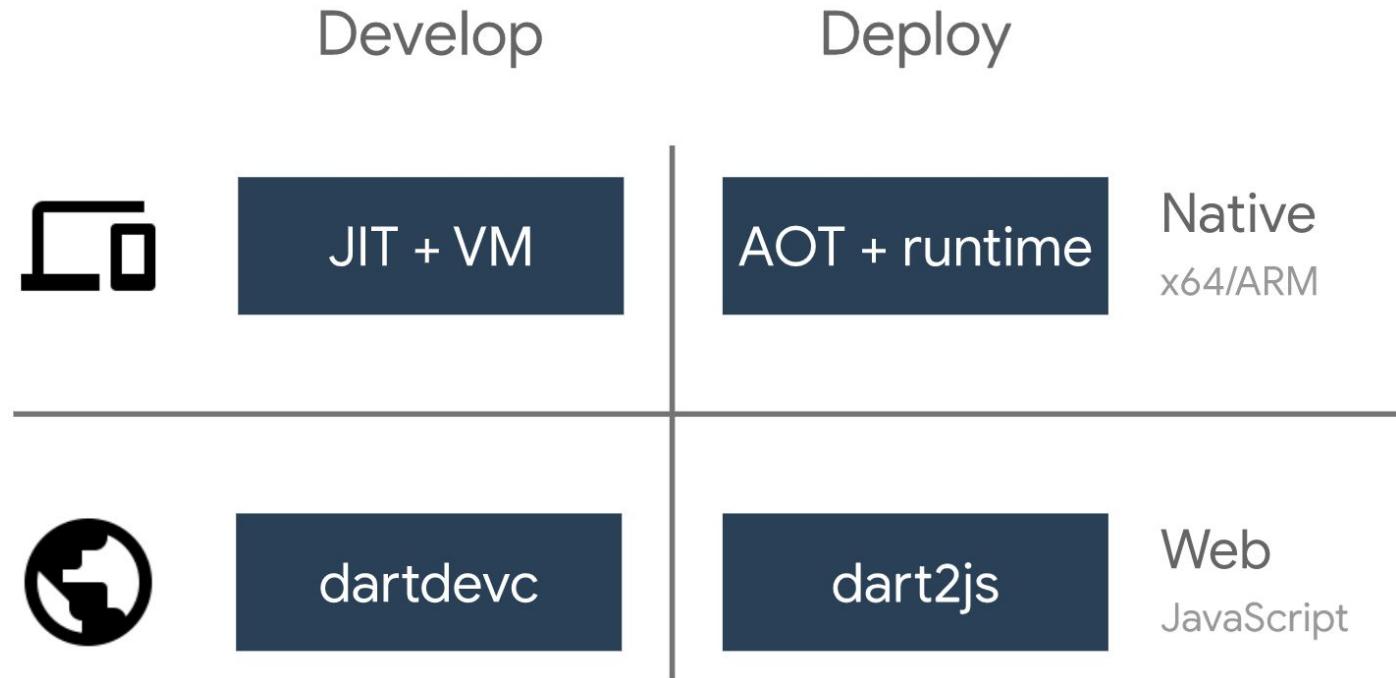
# What makes Flutter unique?



- Compiles to Native Code (ARM Binary code)
- No reliance on OEM widgets
- No bridge needed
- No markup language (only Dart)



# What makes Flutter unique?





# Flutter Architecture





# Flutter Architecture

Framework  
(Dart)



Browser (C++, JS)

Canvas

JS Engine

DOM



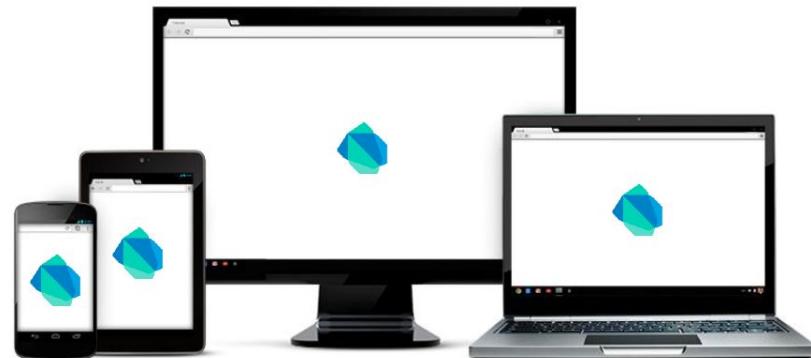


# Dart

Made by **Google**

Dart is a client-optimized language for fast apps on any platform!  
(Web - Desktop - Mobile - Embedded)?

- Language and Libraries
- Packages manager <https://pub.dev>
- Virtual machine
- Compile to Javascript dart2js





Dart



Google Fuchsia



Tencent 腾讯



Google

Google Ads



# HTML/CSS Analogs in Flutter

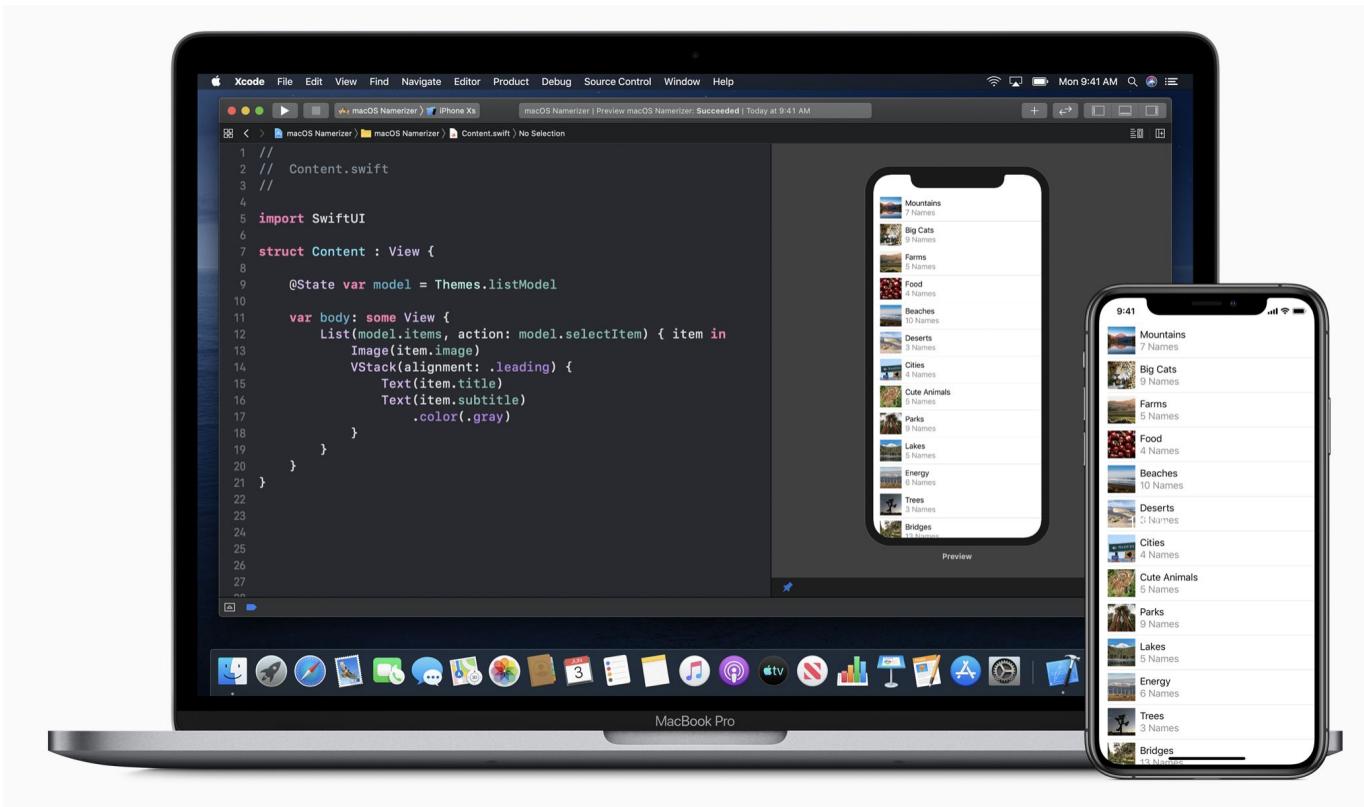
```
<div class="greybox">  
    Lorem ipsum  
</div>
```

```
.greybox {  
    background-color: #e0e0e0; /* grey 300 */  
    width: 320px;  
    height: 240px;  
    font: 900 24px Georgia;  
}
```

```
var container = new Container( // grey box  
    child: new Text(  
        "Lorem ipsum",  
        style: new TextStyle(  
            fontSize: 24.0  
            fontWeight: FontWeight.w900,  
            fontFamily: "Georgia",  
        ),  
    ),  
    width: 320.0,  
    height: 240.0,  
    color: Colors.grey[300],  
);
```



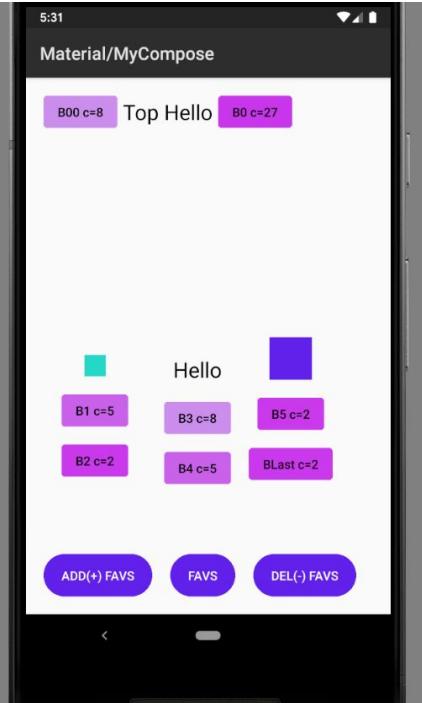
# Swift UI



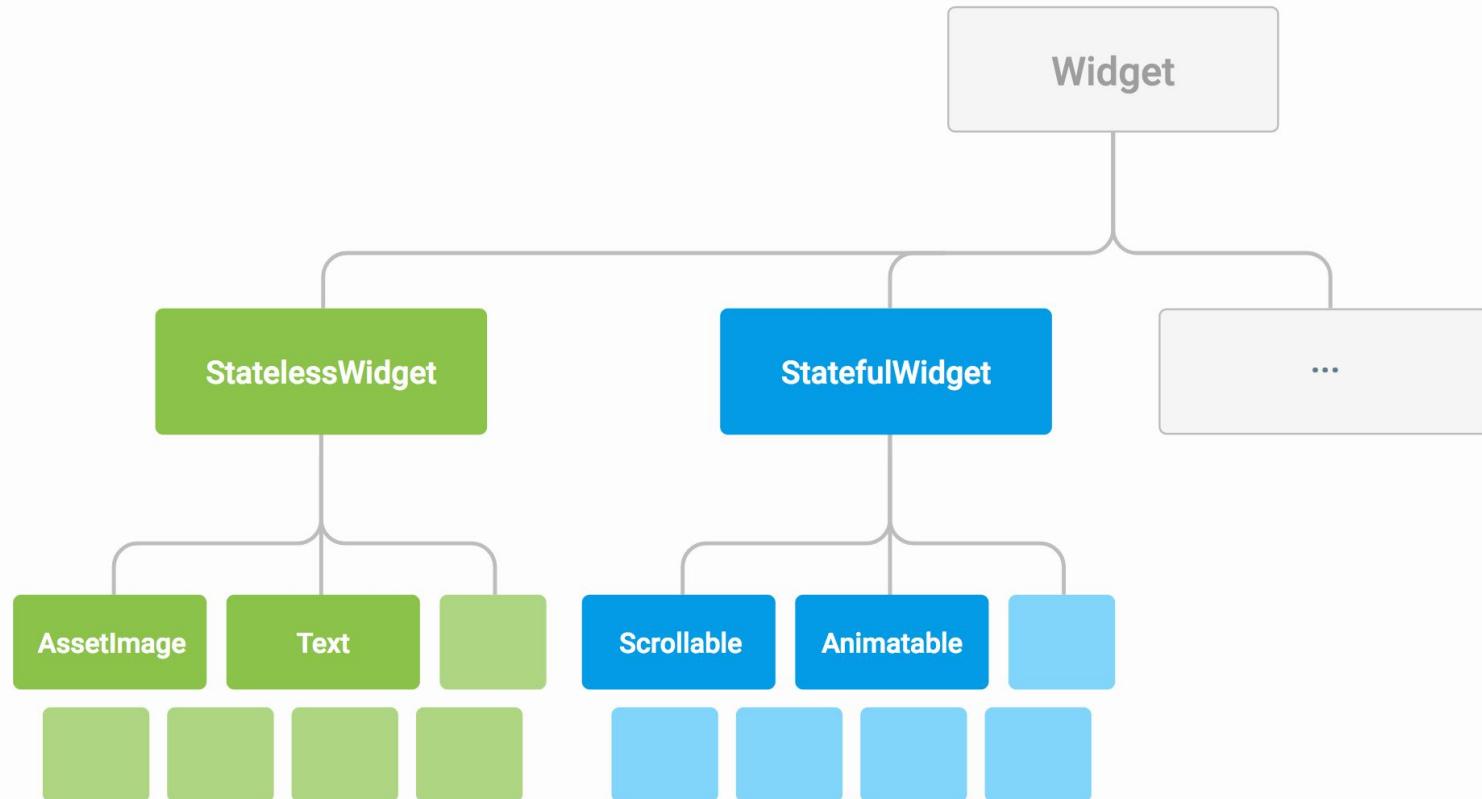
# Jetpack Compose



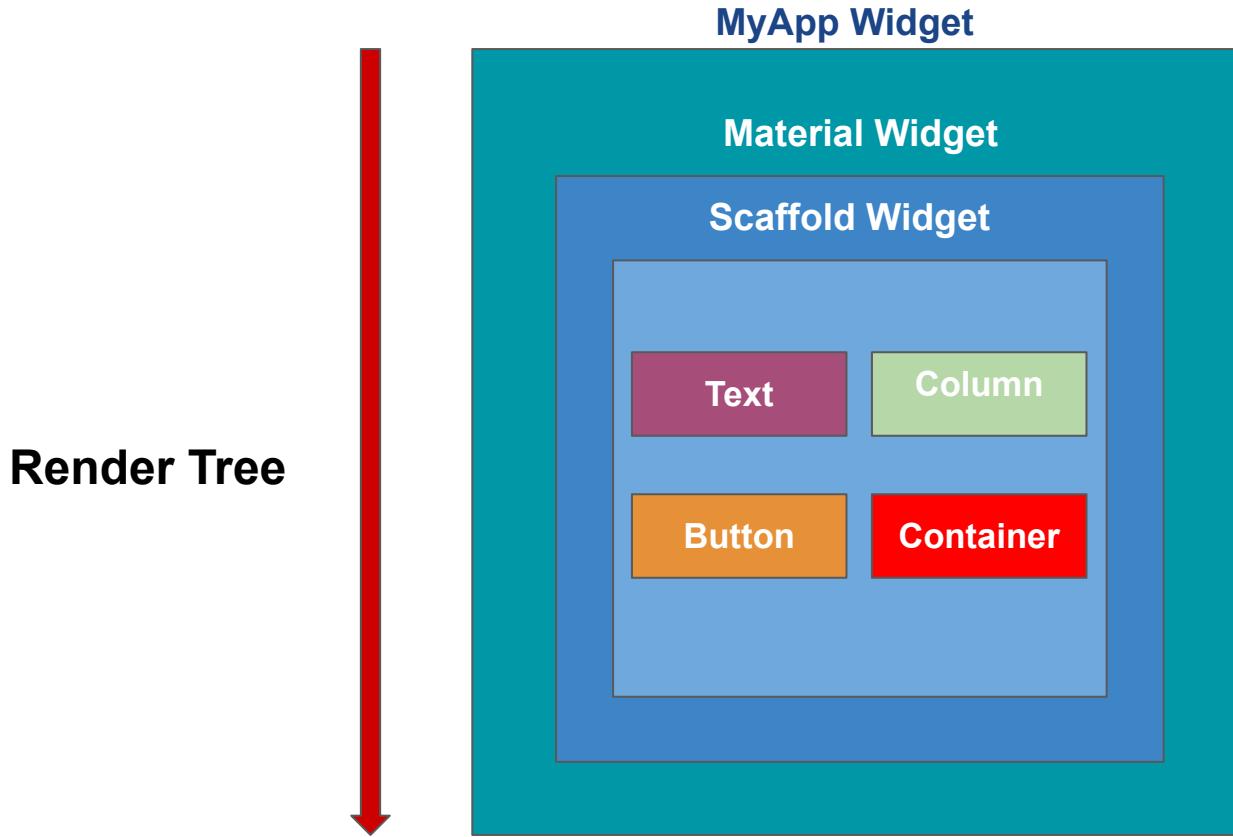
```
@Composable
fun MyApp() {
    MaterialTheme {
        Align(Alignment.TopCenter) {
            Padding(padding = EdgeInsets(left = 20.dp, top = 20.dp)) {
                Row {
                    myButton(bTxt: "B00")
                    myText(txt: "Top Hello")
                    myButton(bTxt: "B0")
                }
            }
        }
        Align(alignment = Alignment.CenterLeft) {
            ConstrainedBox(constraints = DpConstraints.tightConstraints()) {
                Padding(padding = EdgeInsets(left = 20.dp)) {
                    rowOfColumns()
                }
            }
        }
        Align(Alignment.BottomCenter) {
            Padding(padding = EdgeInsets(left = 20.dp, bottom = 20.dp)) {
                rowOfFabs()
            }
        }
    }
}
```



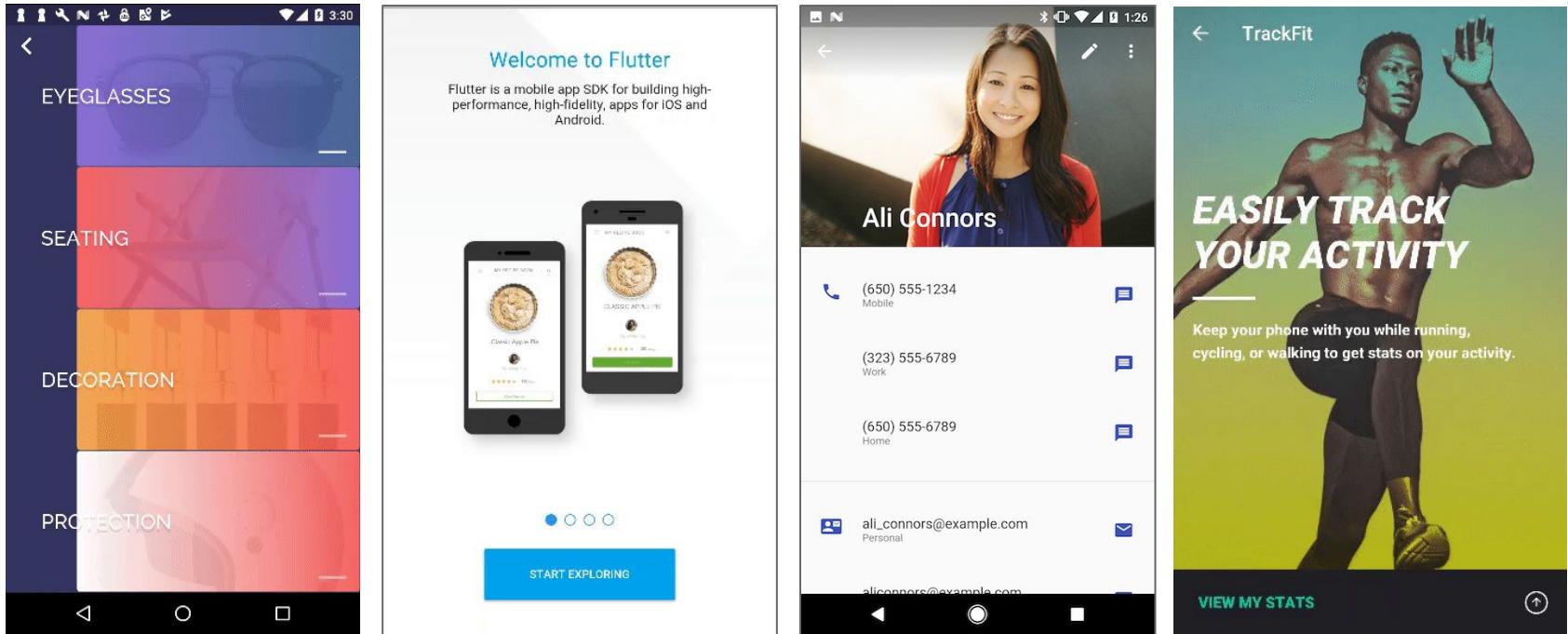
# Everything is a Widget



# Everything is a Widget



# Great looking and fast Widgets



## Accessibility

Make your app accessible.

[Visit](#)

## Animation and Motion

Bring animations to your app.

[Visit](#)

## Assets, Images, and Icons

Manage assets, display images, and show icons.

[Visit](#)

## Async

Async patterns to your Flutter application.

[Visit](#)

## Basics

Widgets you absolutely need to know before building your first Flutter app.

[Visit](#)

## Cupertino (iOS-style widgets)

Beautiful and high-fidelity widgets for current iOS design language.

[Visit](#)

[flutter.dev/docs/development/ui/widgets](https://flutter.dev/docs/development/ui/widgets)

## Input

Take user input in addition to input widgets in Material Components and Cupertino.

[Visit](#)

## Interaction Models

Respond to touch events and route users to different views.

[Visit](#)

## Layout

Arrange other widgets columns, rows, grids, and many other layouts.

[Visit](#)

## Material Components

Visual, behavioral, and motion-rich widgets implementing the [Material Design guidelines](#).

## Painting and effects

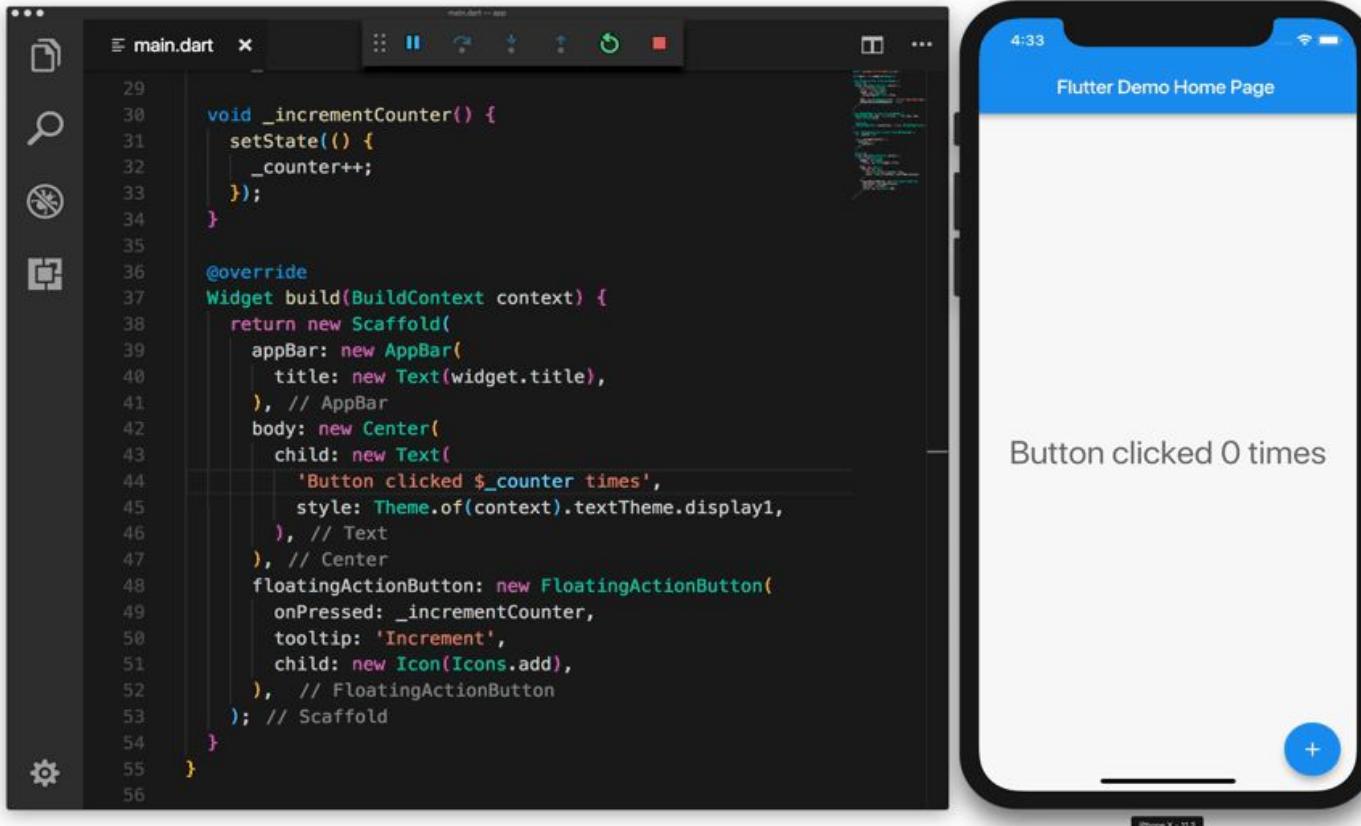
These widgets apply visual effects to the children without changing their layout, size, or position.

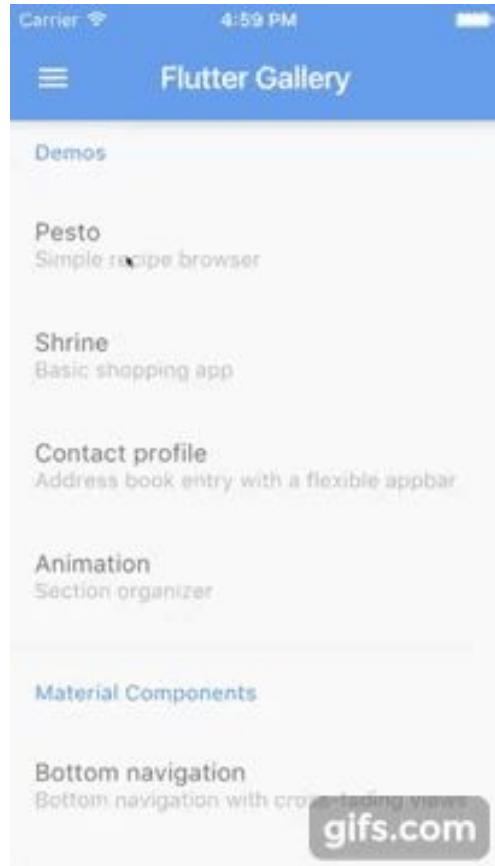
## Scrolling

Scroll multiple widgets as children of the parent.



# Hot Reload

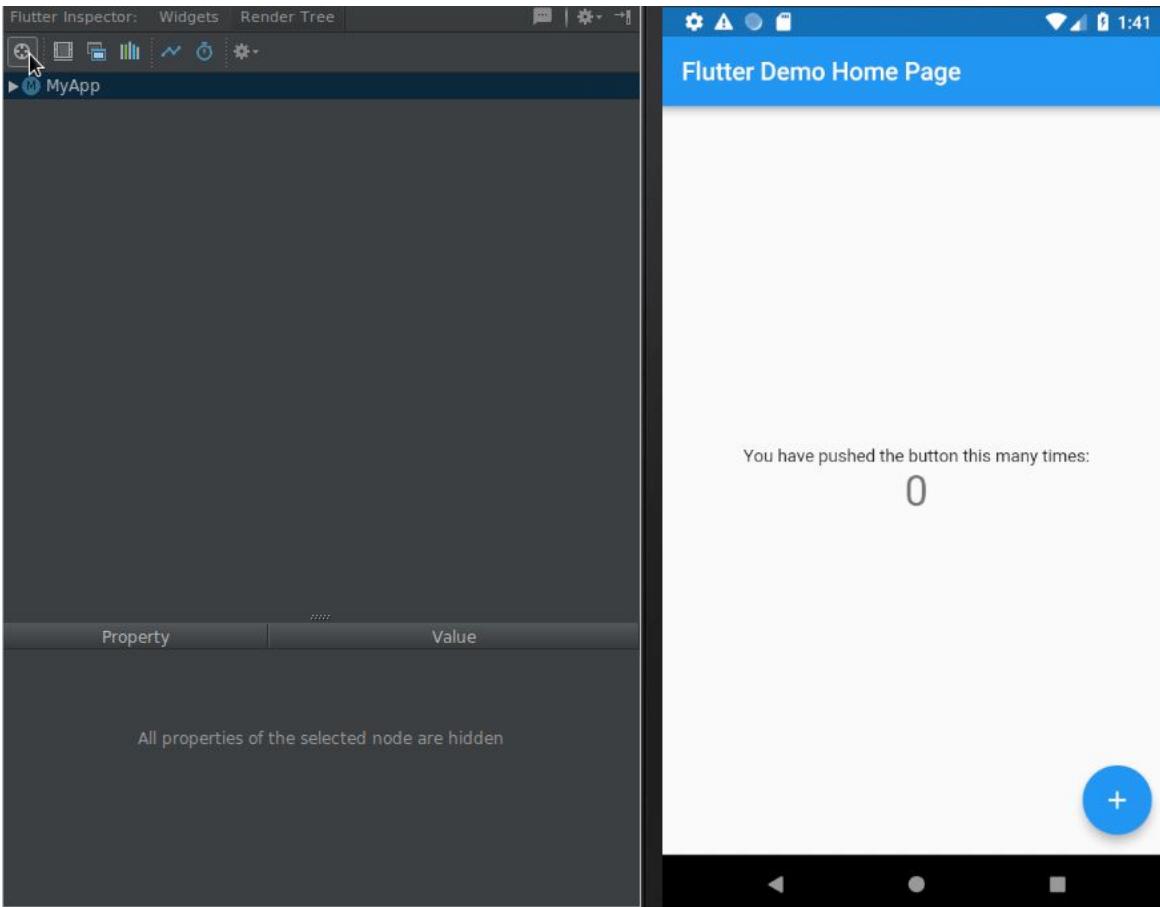




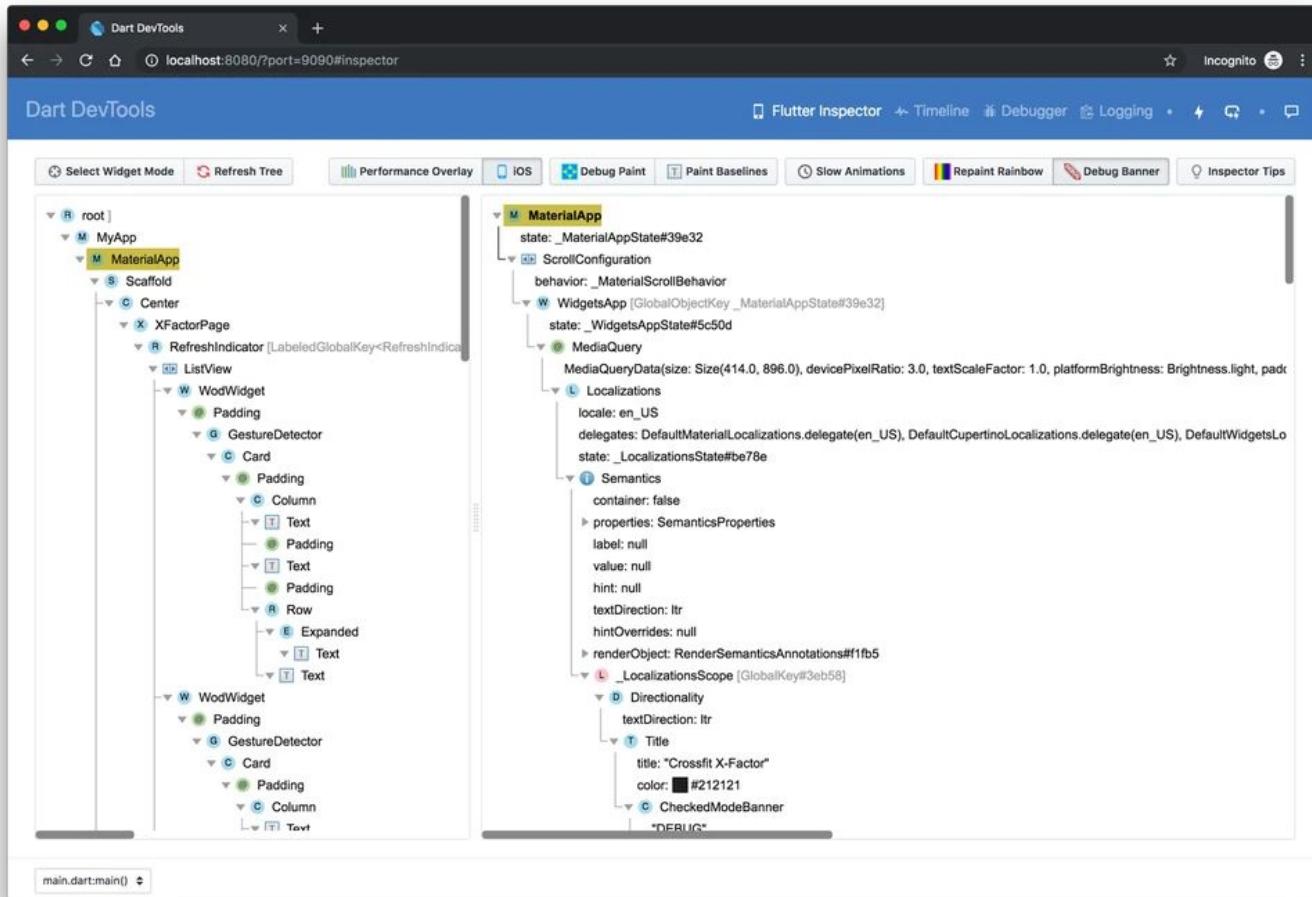
With Flutter no limit to  
your imagination!



# Flutter Widget Inspector



# Flutter Widget Inspector



```
$ flutter doctor
```

```
➔ ioextended flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, v1.5.4-hotfix.2, on Mac OS X 10.14.5 18F132, locale en-EG)
[✓] Android toolchain - develop for Android devices (Android SDK version 28.0.3)
[✓] iOS toolchain - develop for iOS devices (Xcode 10.2.1)
[✓] Android Studio (version 3.4)
[✓] IntelliJ IDEA Ultimate Edition (version 2019.1.3)
[✓] IntelliJ IDEA Community Edition (version 2018.2.7)
[✓] VS Code (version 1.35.1)
[✓] Connected device (1 available)

• No issues found!
➔ ioextended
```

```
$ flutter upgrade
```



# Unit test vs. Integration test



## Test

- Unit testing
- Widget testing
- Integration testing

<https://flutter.dev/docs/testing>



# How To install ?

## Get Started: Install

[Edit Source](#) [File Issue](#)

Please select the operating system on which you are installing Flutter:

[INSTALL ON  
WINDOWS](#)

[INSTALL ON  
MACOS](#)

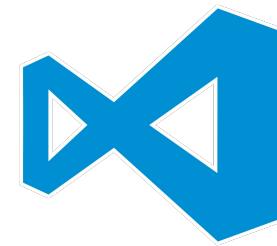
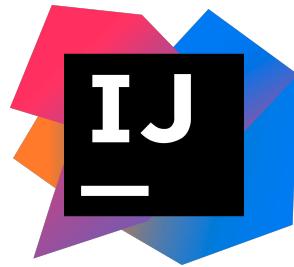
[INSTALL ON  
LINUX](#)

**Note:** If you're in China, please read [this wiki article](#) first.

<https://flutter.dev/docs/get-started/install>



# IDE Support?

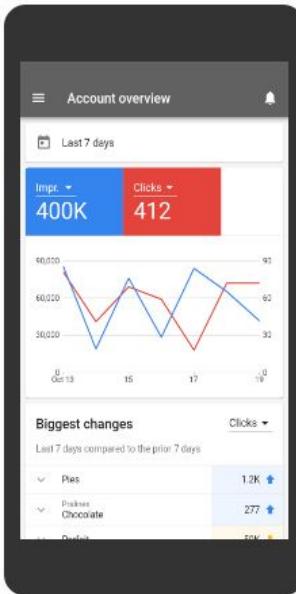


# Flutter Showcase

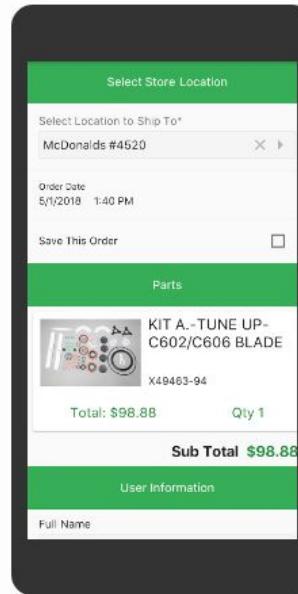
Alibaba



Google Ads



AppTree



Topline

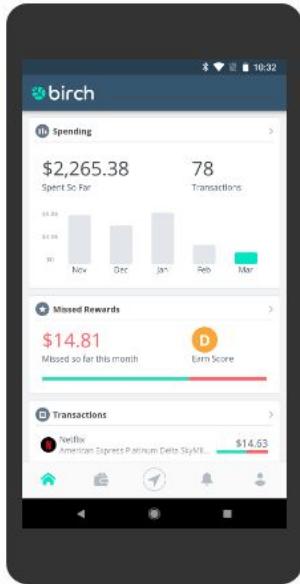


<https://flutter.dev/showcase> & <https://itsallwidgets.com>

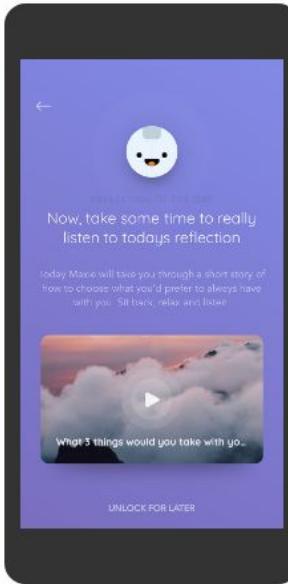


# Flutter Showcase

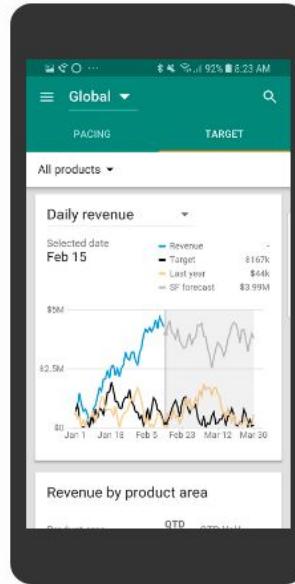
Birch Finance



Reflectly



Google Greentea



Hamilton Musical

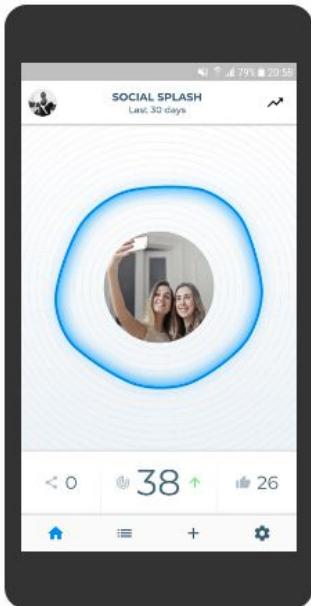


<https://flutter.io/showcase> & <https://itsallwidgets.com>

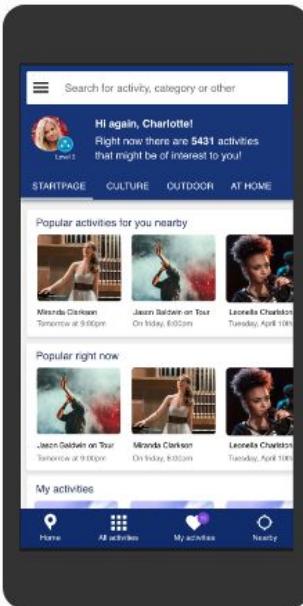


# Flutter Showcase

Hookle



OfflinePal



VivaBem UOL



BetaBubs



<https://flutter.io/showcase> & <https://itsallwidgets.com>



# Key component of the Google Developer family

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Flutter offers a portable, high-quality UI toolkit, and a fast, expressive way to build native app UIs.



# Four ways to use Flutter today

---

## Start a new app from scratch

Build your new idea in Flutter, and reach both iOS and Android at the same time.

## Prototype a new app idea

Use Flutter to test out an app concept or idea in record time.

## Bring your app to the other platform

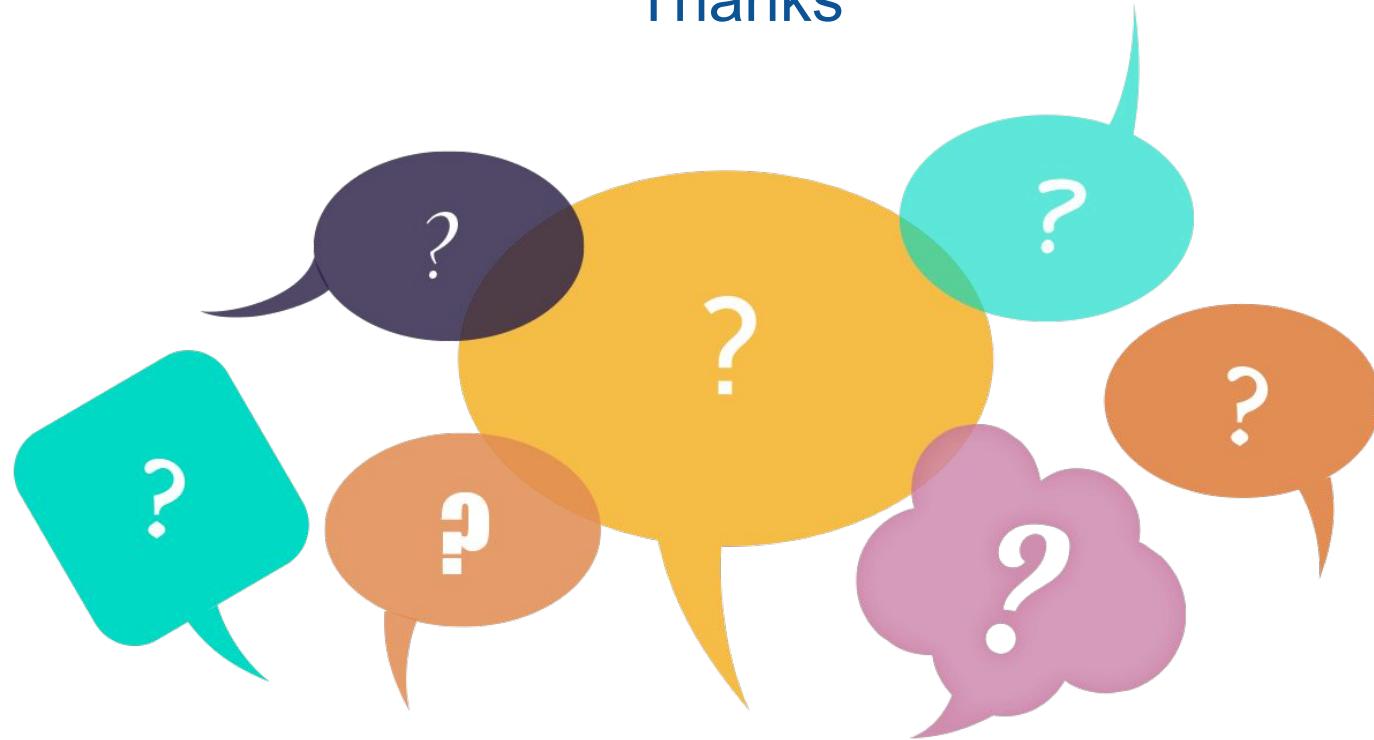
You already have an iOS or Android app? Use Flutter to build for the other platform. Combine codebases when you've proven your Flutter app.

## Use Flutter for a part of your app

Test Flutter in production with one or two screens in your existing app.



# Thanks





Flutter

Study



We will be back in 10 minutes

