



مجتمع مطوري
جوجل السحابي
السعودي

Study



Flutter



About me



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Follow us on social media!

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meetup.com/GCDCSaudi

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Study 

#1 Google Developers

Dev Ecosystem Community Programs

Google Developer Groups

Google Developer Groups (GDGs) are local groups of developers who are specifically interested in Google products and APIs. Each local group is called a GDG chapter and can host a variety of technical activities for developers - from just a few people getting together to watch our latest videos, to large gatherings with demos and tech talks, to hackathons.

<https://developers.google.com/programs/community/>



Women Techmakers

Google's Women Techmakers program provides visibility, community, and resources for women in technology. From 2014 to present, Women Techmakers is continually launching global scalable initiatives and piloting new programs to support and empower women in the industry.

<https://www.womentechmakers.com/membership>





Google Developers Communities

Your best friend is always here developers.google.com



Study 

#2 Study Jam Introduction

WHY ARE WE HERE?

- Understand the fundamentals of the Flutter framework.
- Use Flutter's tools to enhance your development process.
- Customize your app with Material Design.
- Incorporate widgets and state into your app.





Study 

#3 Certificate of Attendance

To get your certificate, make sure..

You are registered, and checked-in!





Study 

#4 Communication

Join the conversation

Share the moment online on your favorite social network, use the hashtags [#StudyJamMENA](#)
[#CloudStudyJam](#) [#FlutterStudyJam](#)
[@GCDCSaudi](#)

Join your colleagues on Slack, and keep the conversation going. You can get help there, or assist others with your knowledge, or celebrate achievements!





Study 

The word "Study" is in orange. To its right are three green icons: a vertical bar with an orange semi-circle at the bottom, a triangle with an orange triangle at the bottom-left, and a book-like shape with an orange circle at the bottom-right.

#5 The Magic of Flutter

Mobile Platforms



Mobile Platforms



Mobile Platforms



Mobile Platforms



Mobile Platforms



Android



IOS



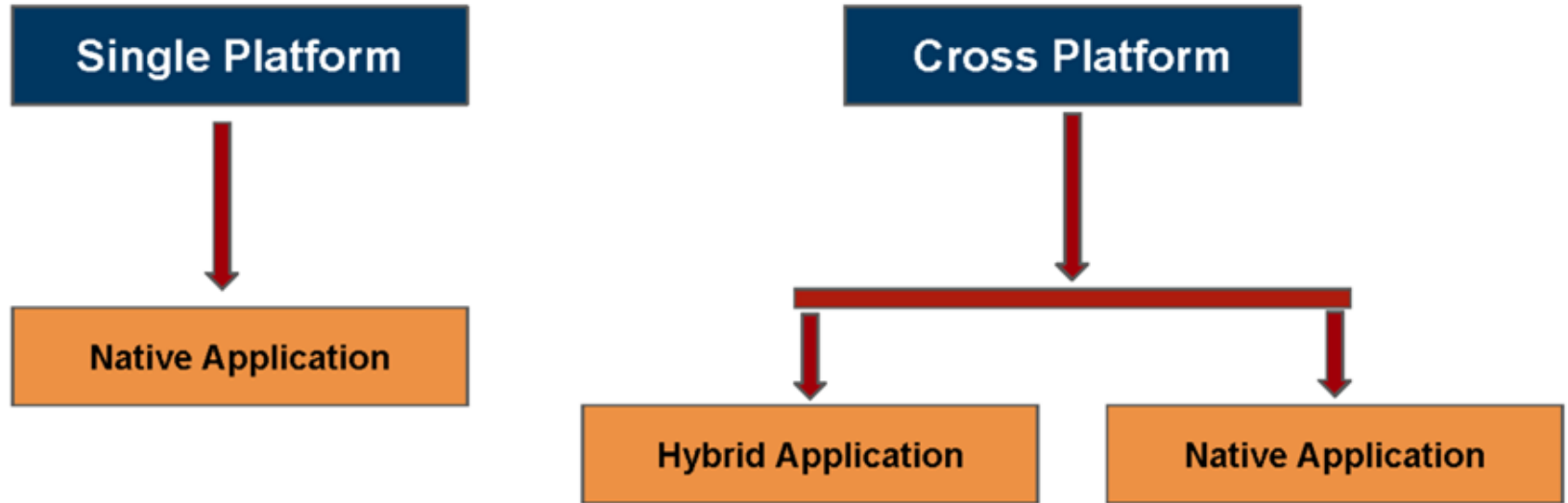
OEM Widget (**Material Design** - Cupertino)

Core Services & Media

Core OS

Kernel and Device Drivers

Mobile Development Approaches



Native Approach (Single Platform)



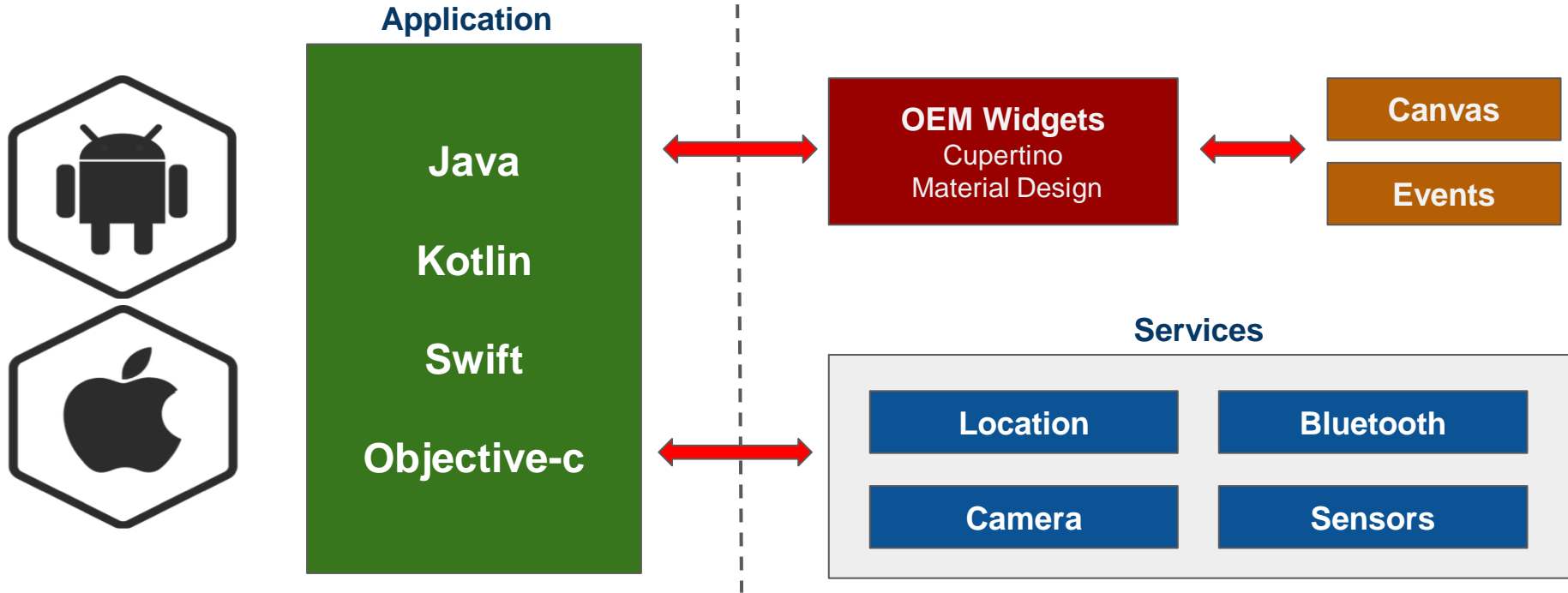
Swift



Kotlin



Native Approach (Single Platform)



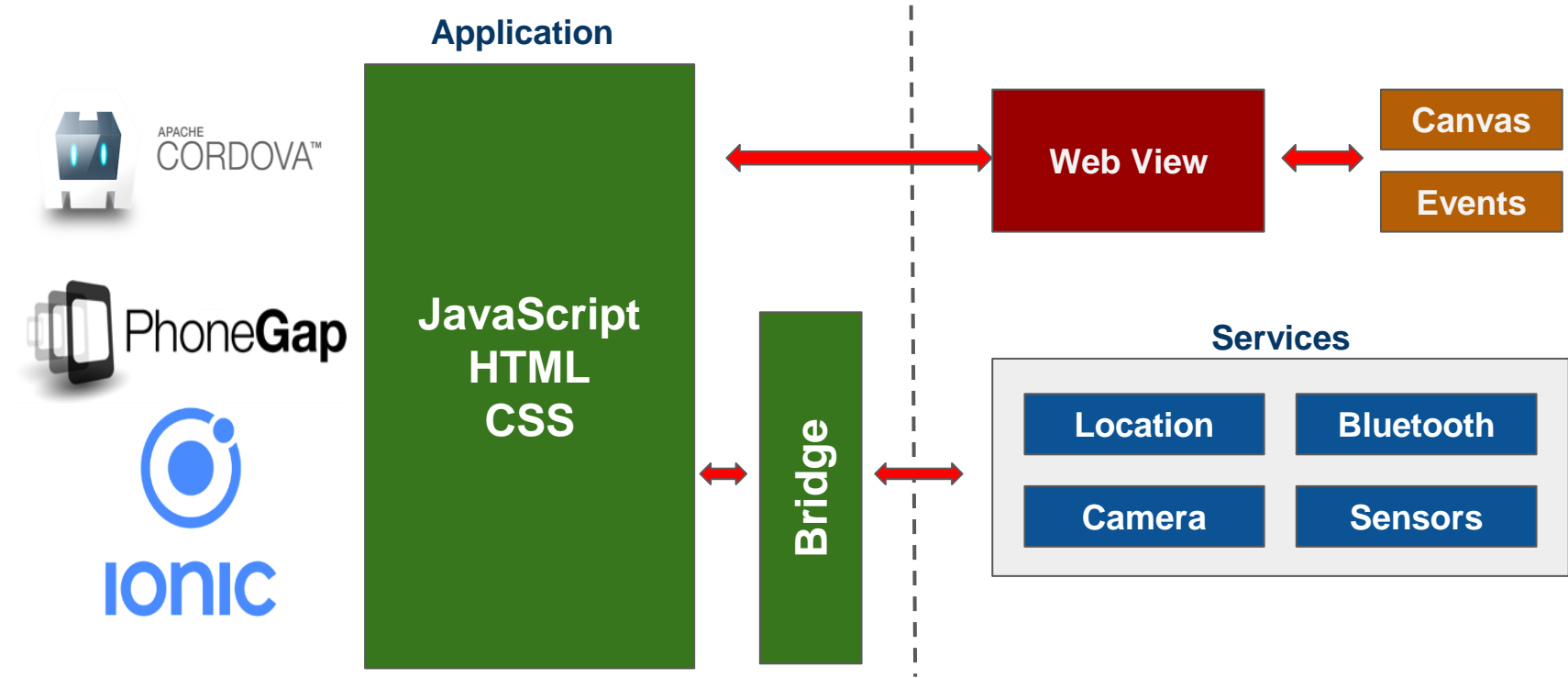
Cross-Platform Approach



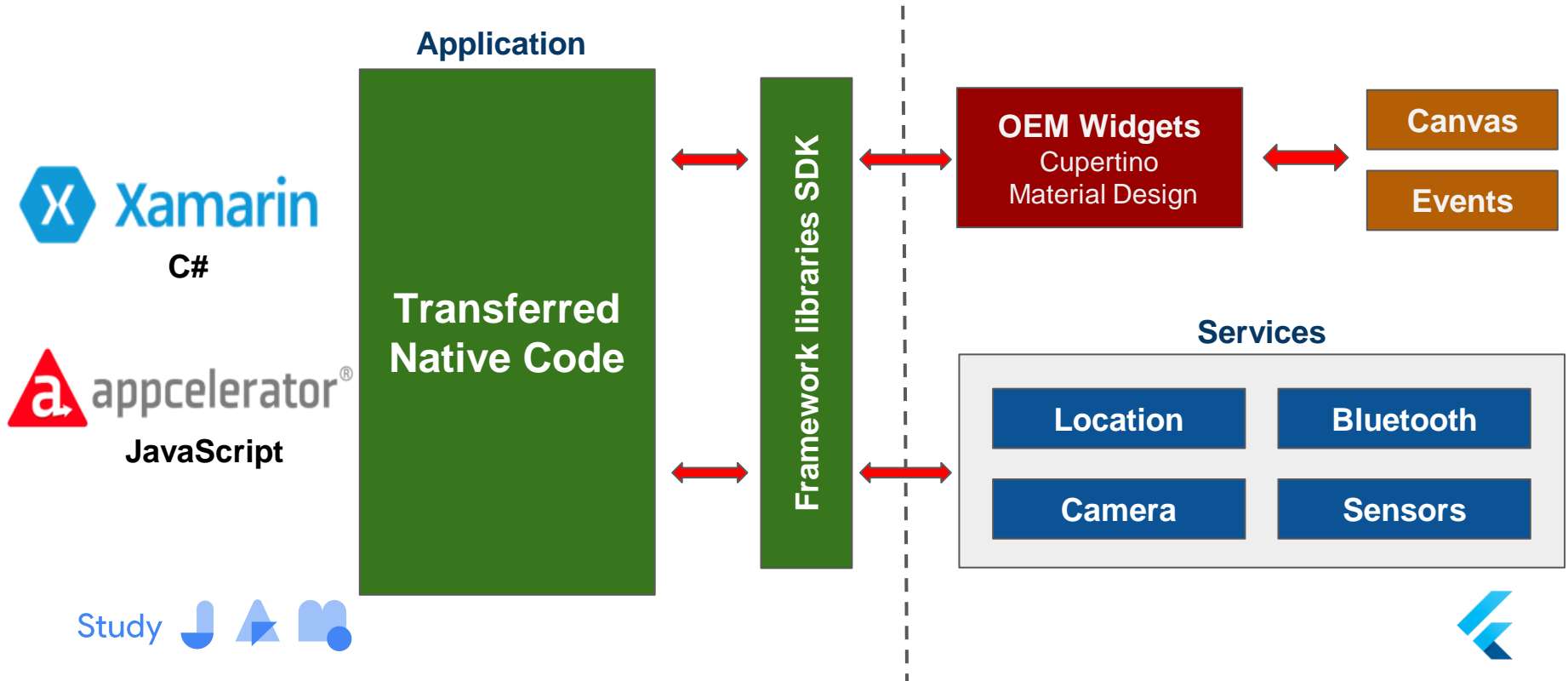
Cross-Platform Approach



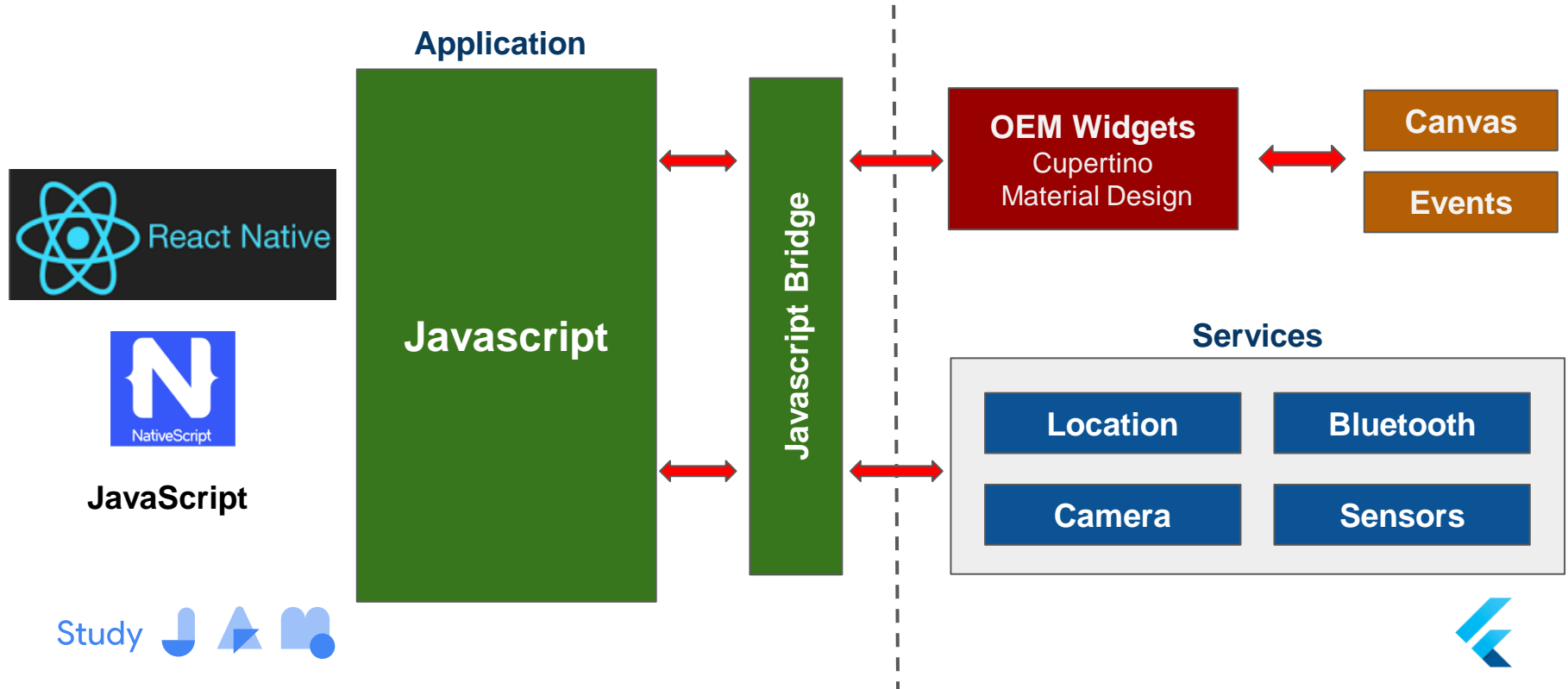
Hybrid Approach



Cross-Platform Approach

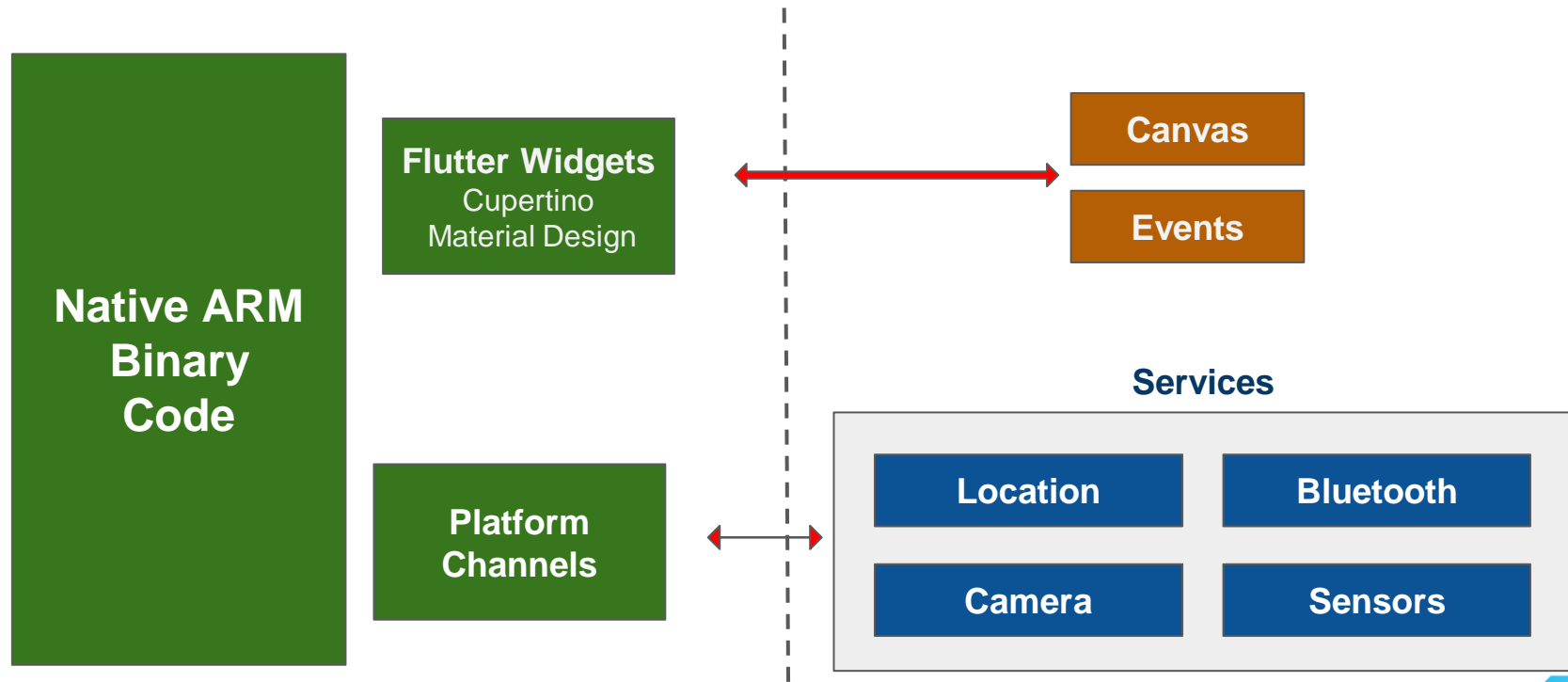


Cross-Platform Approach





Flutter Approach





Flutter

Build
beautiful apps
in record time



Expressive, beautiful UIs

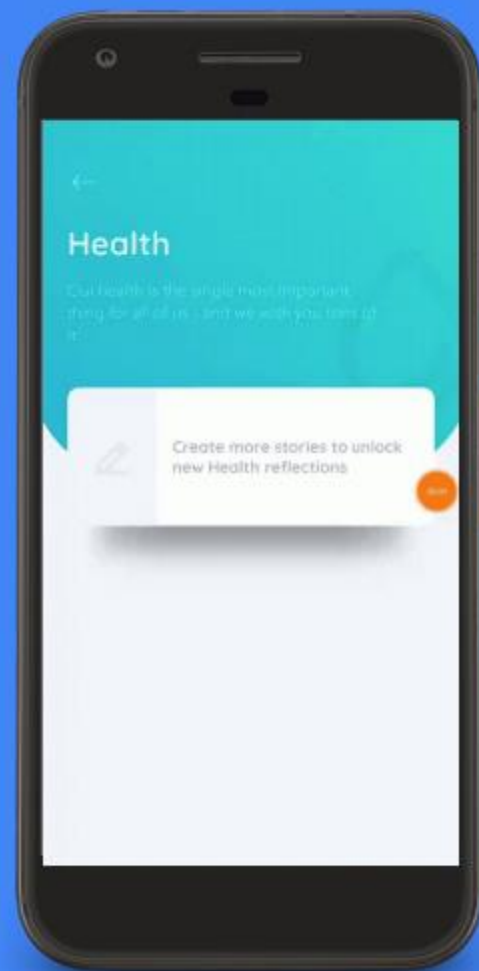
Control every pixel on the screen

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

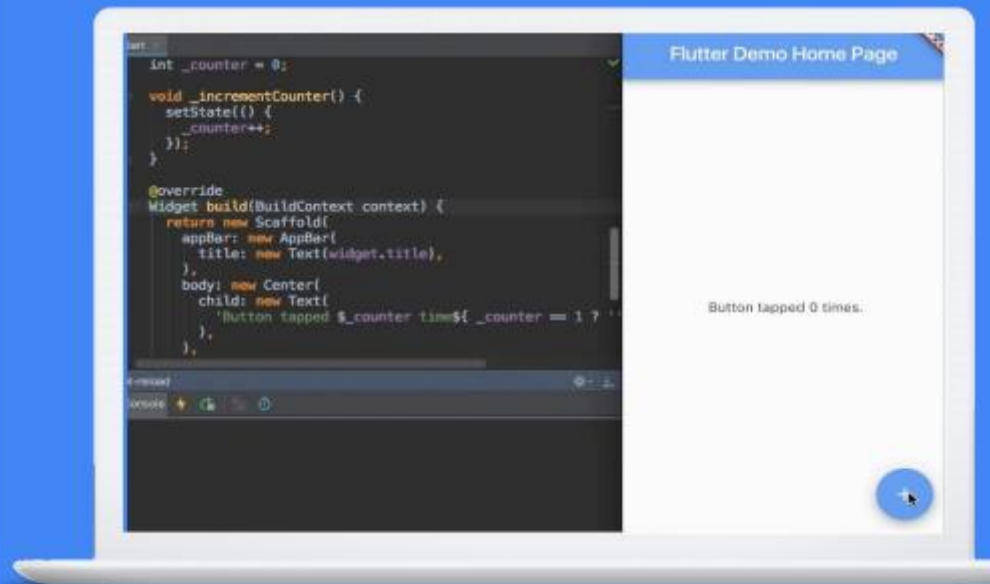
Iterate rapidly on features

Test hypotheses quicker than ever

More time to experiment & test features

Single-codebase for faster collab

3X Productivity Gains

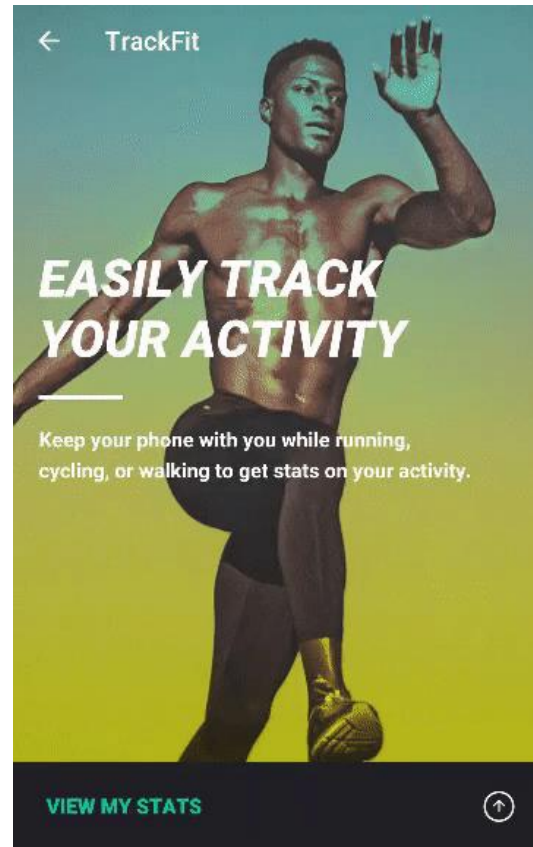


What is Flutter?

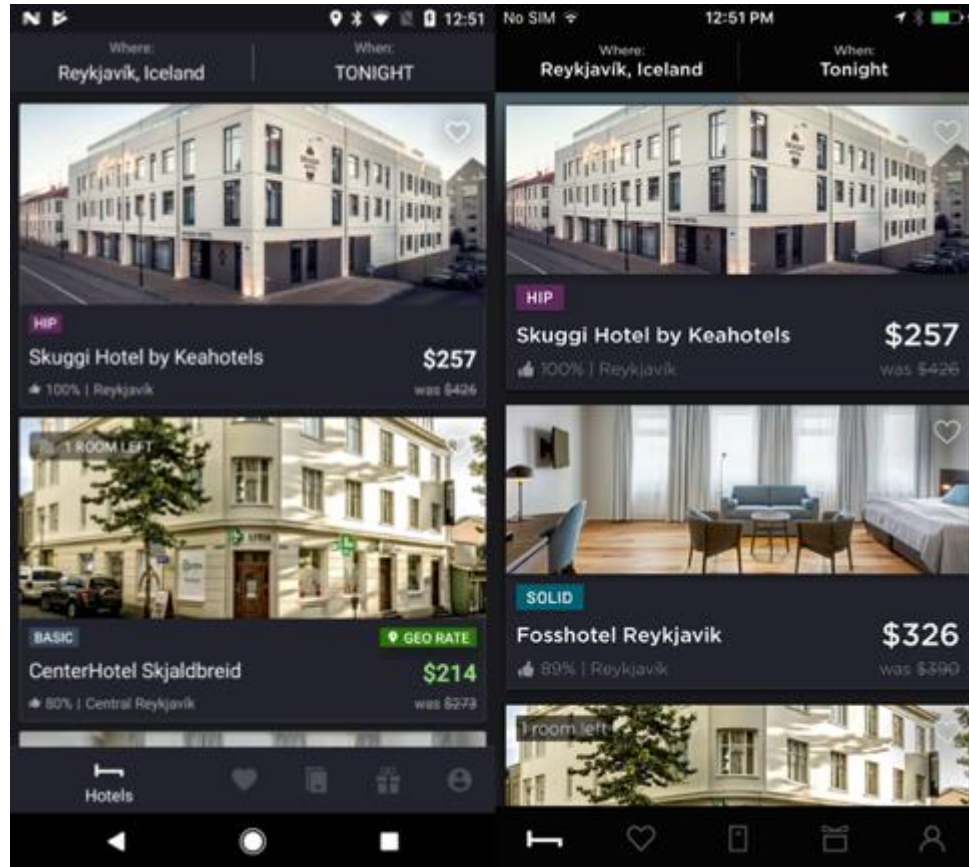


Flutter is the next step in
App development

- ✓ **Speed and performance**
Fast , smooth performance
- ✓ **Flexibility**
Customize anything - Brand
first design
- ✓ **Native look and feel**
Familiarity , ease of use
- ✓ **Rapid Development**
Easy to learn , predictable



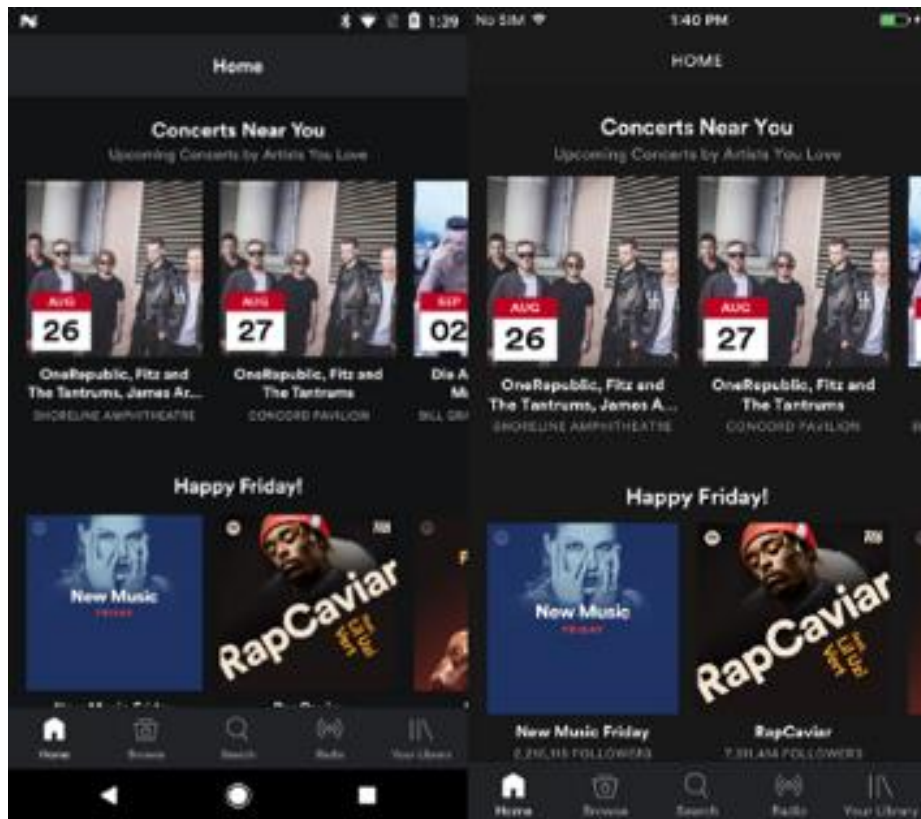
Android



iOS

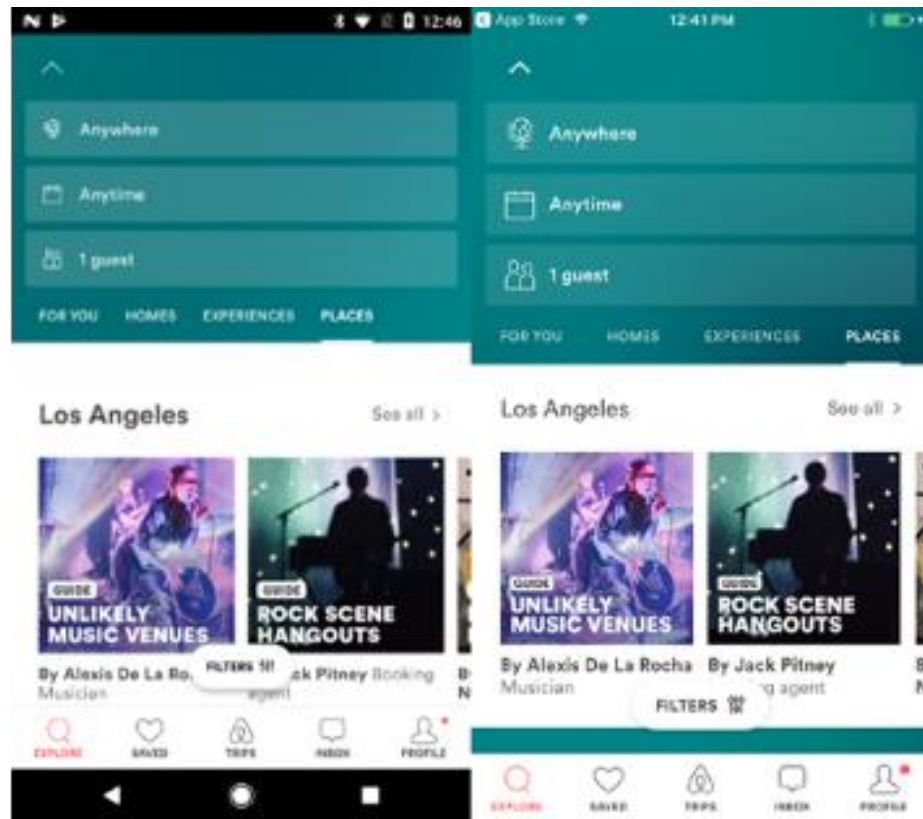
Android

iOS

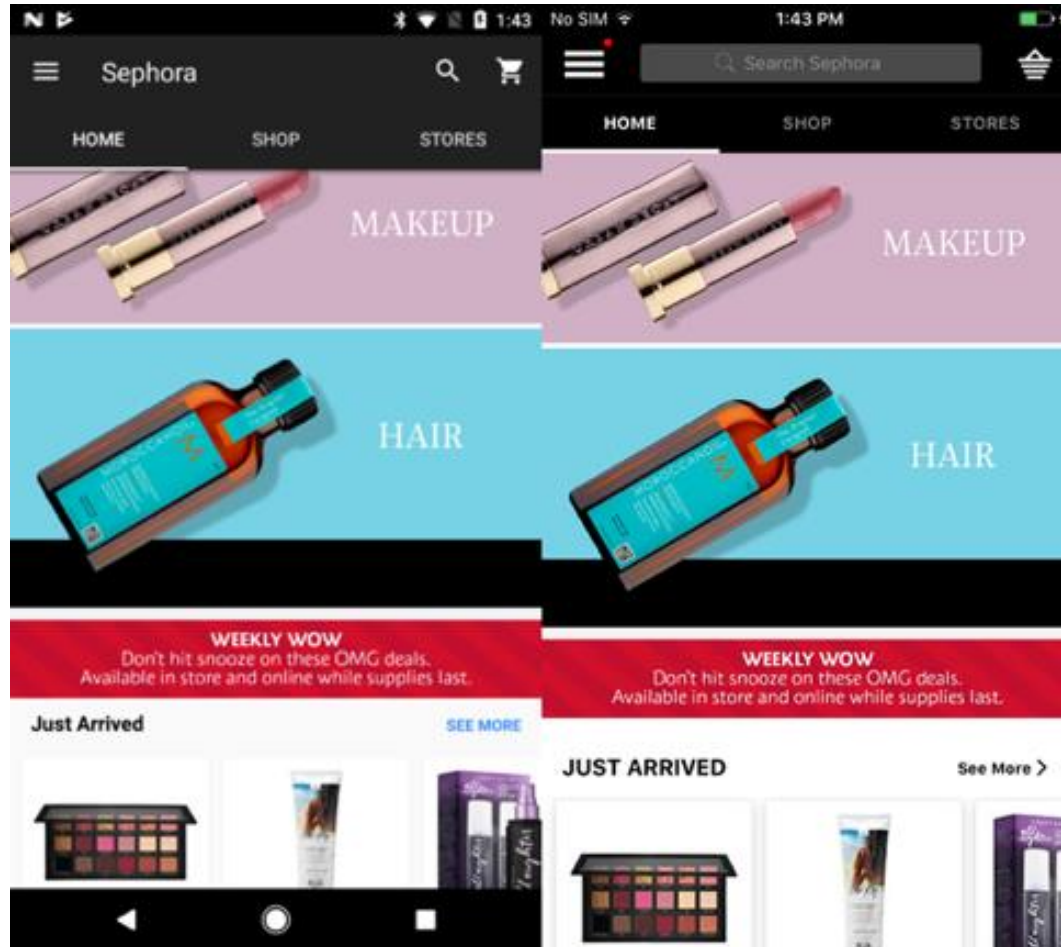


Android

iOS



Android

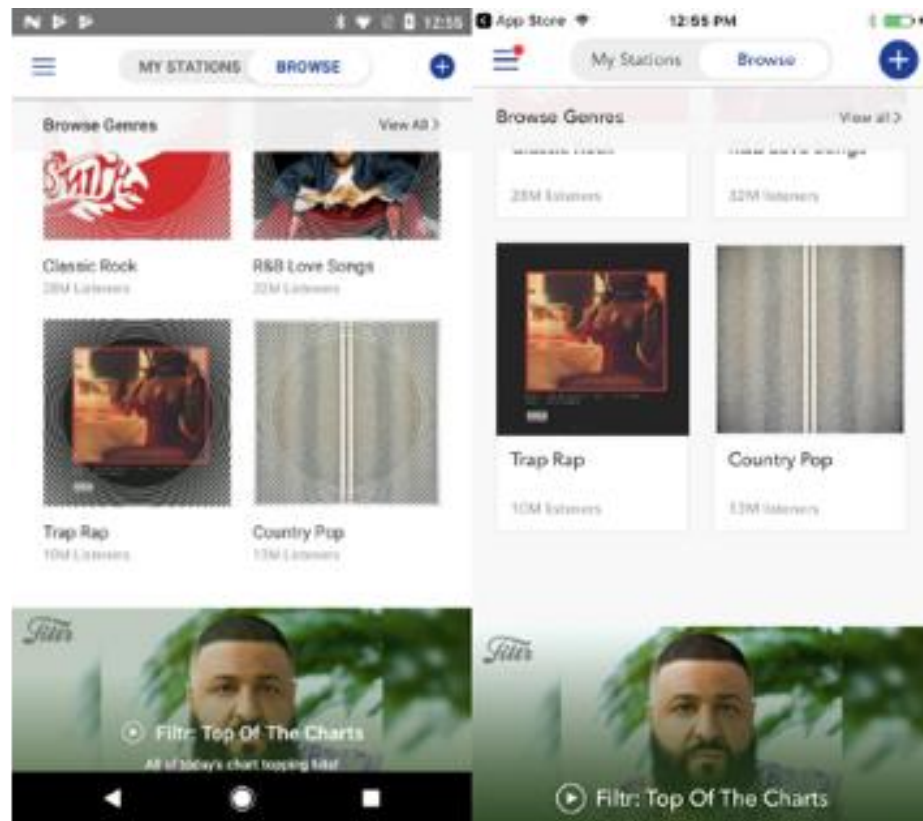


iOS

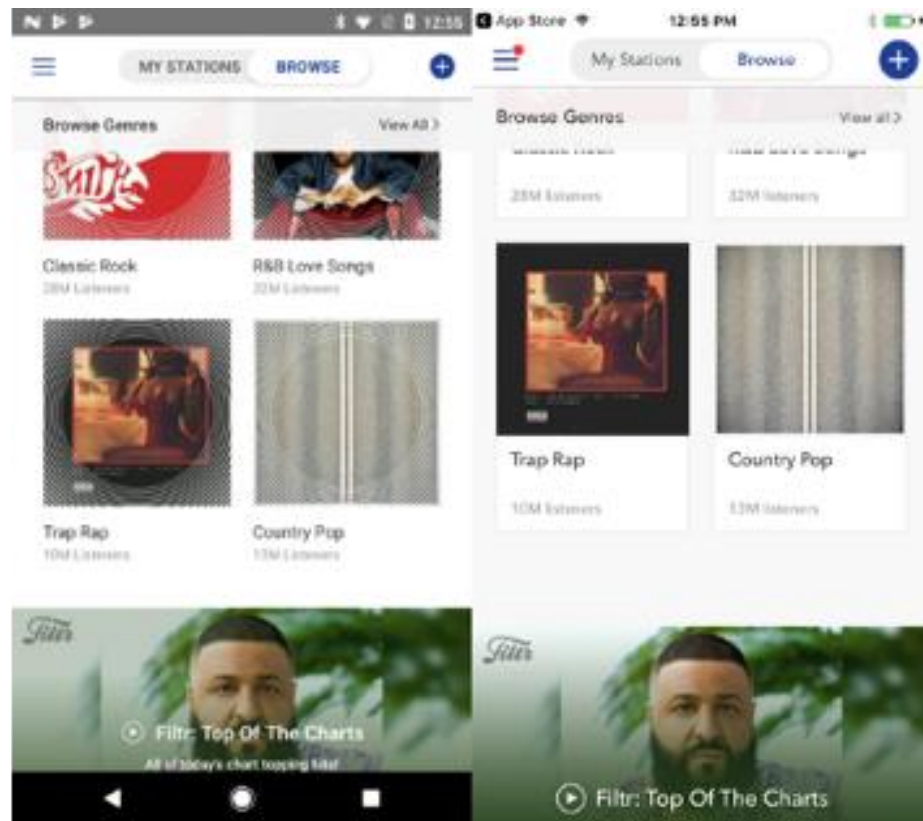
Android



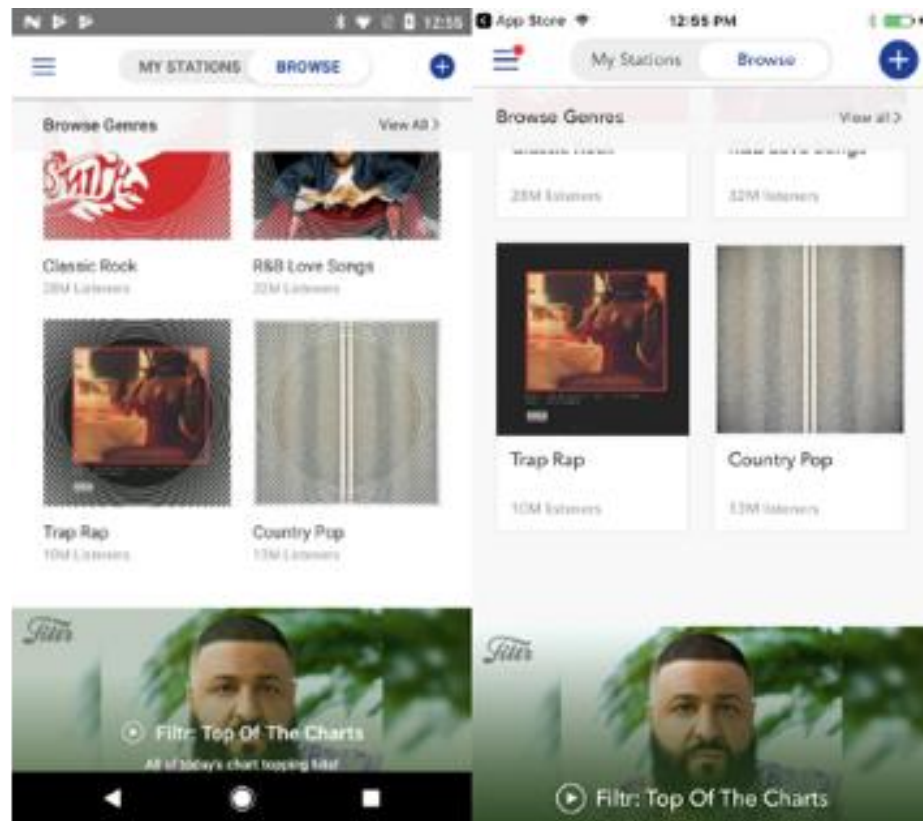
iOS



Android



iOS



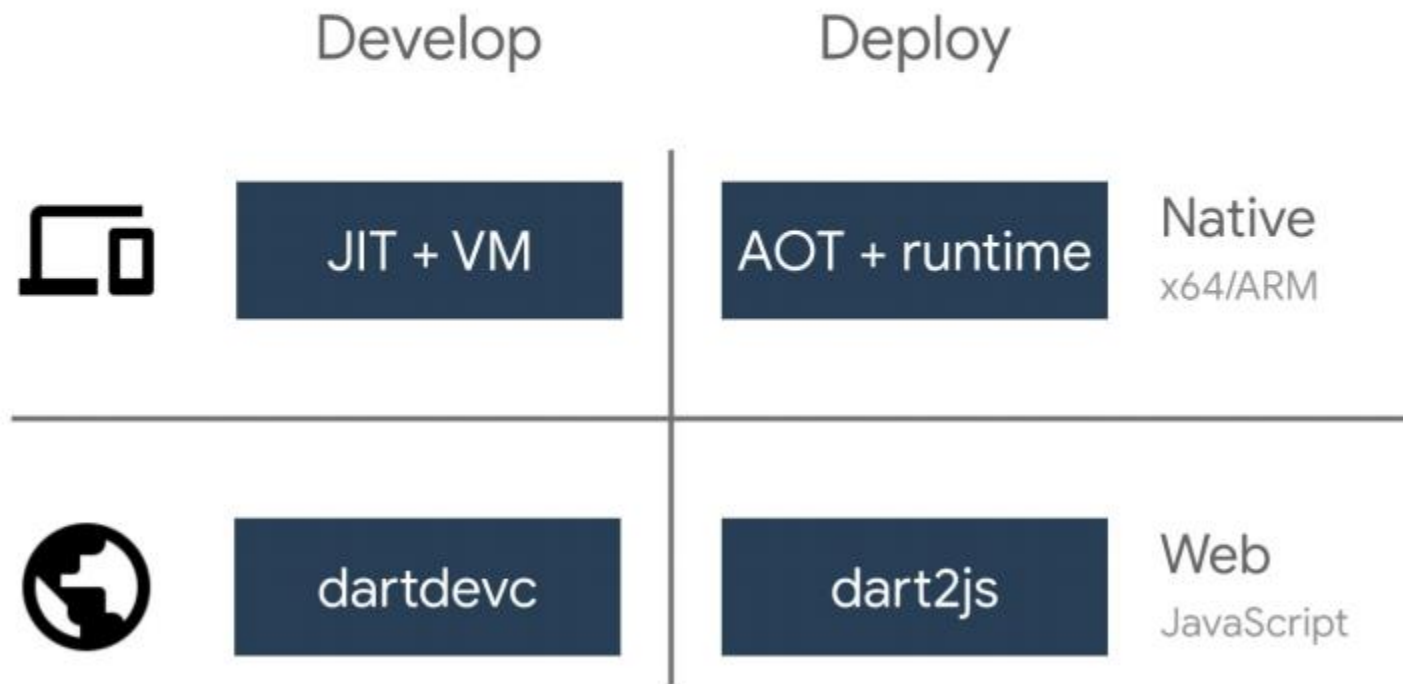
What makes Flutter unique?



- 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

Framework
(Dart)

Material

Cupertino

Widgets

Rendering

Animation

Painting

Gestures

Foundation

Engine
(C++)

Skia

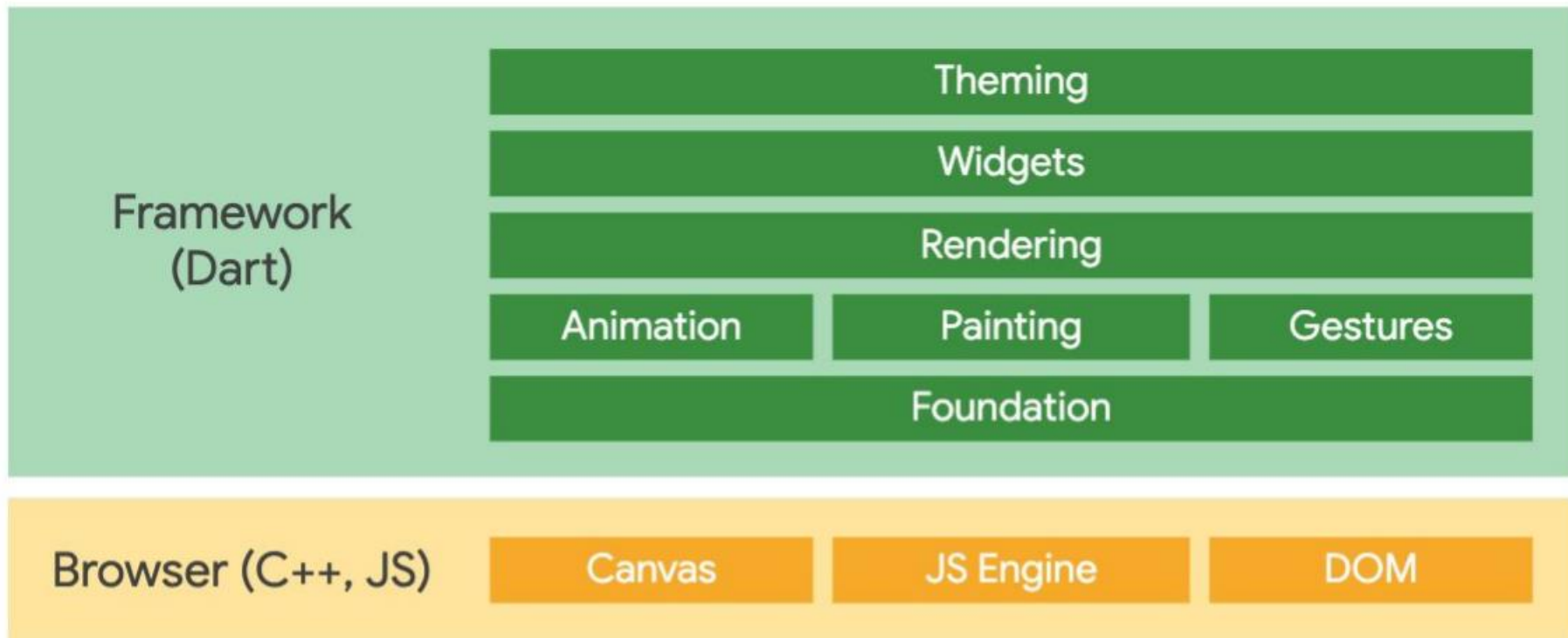
Dart

Text





Flutter Architecture





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





Who use Dart?

Google AdWords

Google Fuchsia

Google Fiber

**AdSense
performance reports**

Mandrill

**AdWords for
video**

**Google internal
sales tool**

**Google internal
CRM**

Adobe

Study



<https://www.dartlang.org/community/who-uses-dart>





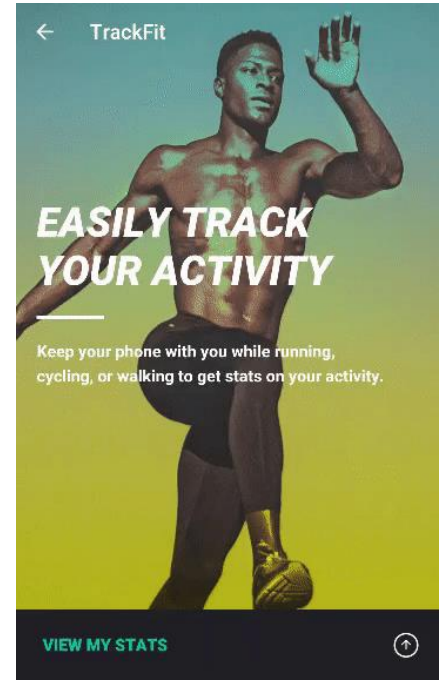
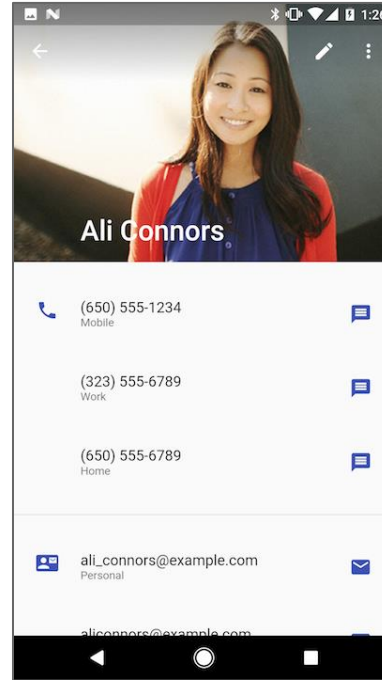
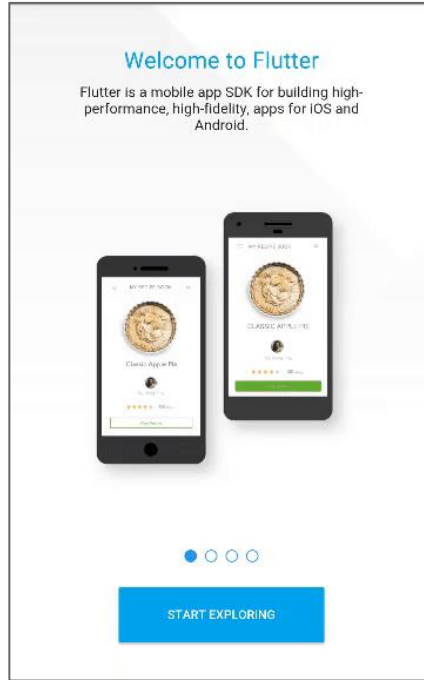
Google Fuchsia

Fuchsia is a capability-based, real-time operating system (RTOS) currently being developed by Google.

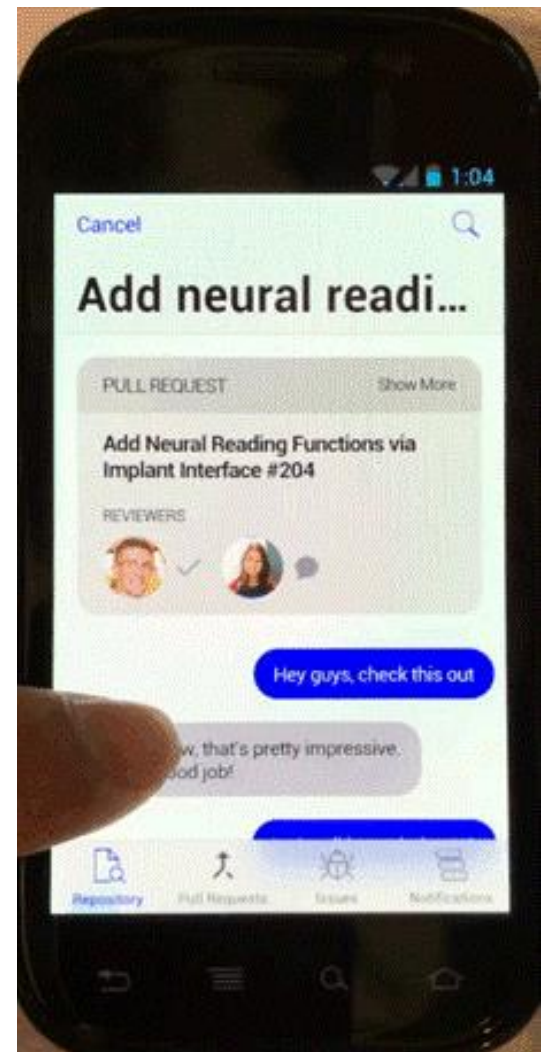
<https://github.com/fuchsia-mirror/>



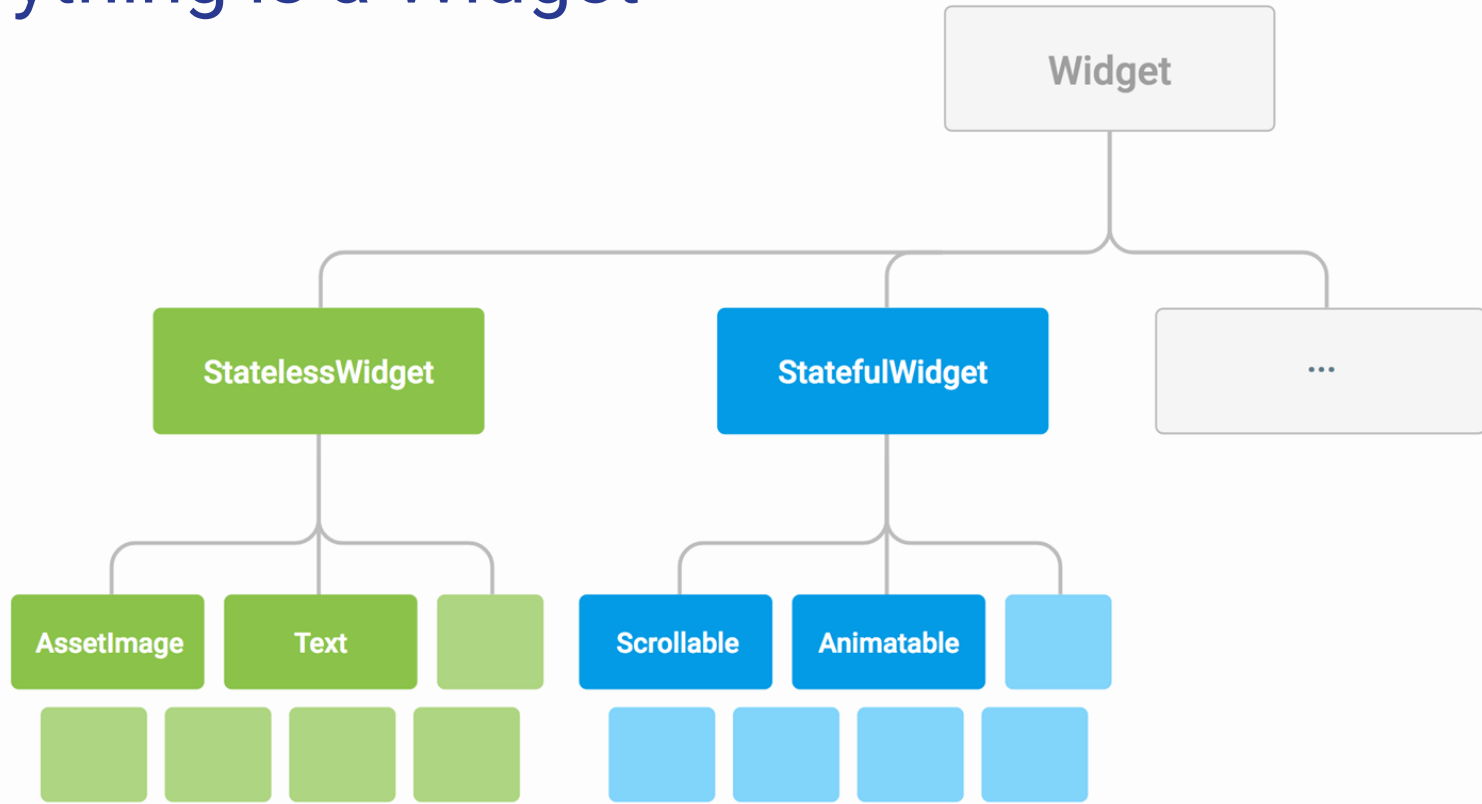
Great looking and fast Widgets



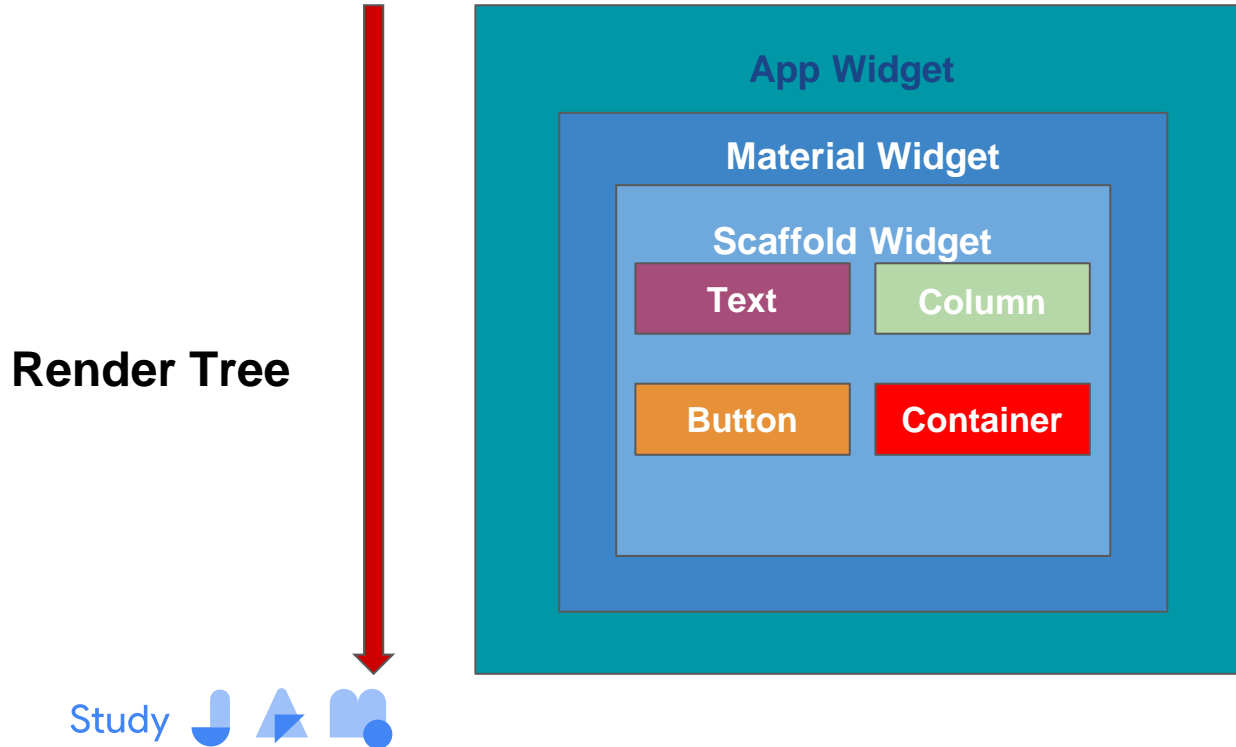
iOS Design on Android Device



Everything is a Widget



Everything is a Widget



Basics

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

[VISIT](#)

Material Design

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

[VISIT](#)

Cupertino (iOS-style widgets)

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

[VISIT](#)

Layout

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

[VISIT](#)

Text

Display and style text.

[VISIT](#)

Assets, Images, and Icons

Manage assets, display images, and show icons.

[VISIT](#)

Input

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

[VISIT](#)

Animation and Motion

Bring animations to your app. Check out [Animations](#) in Flutter for an overview.

[VISIT](#)

Interaction Models

Respond to touch events and route users to different views.

[VISIT](#)

Styling

Manage the theme of your app, makes your app responsive to screen sizes, or add padding.

[VISIT](#)

Painting and effects

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

[VISIT](#)

Async

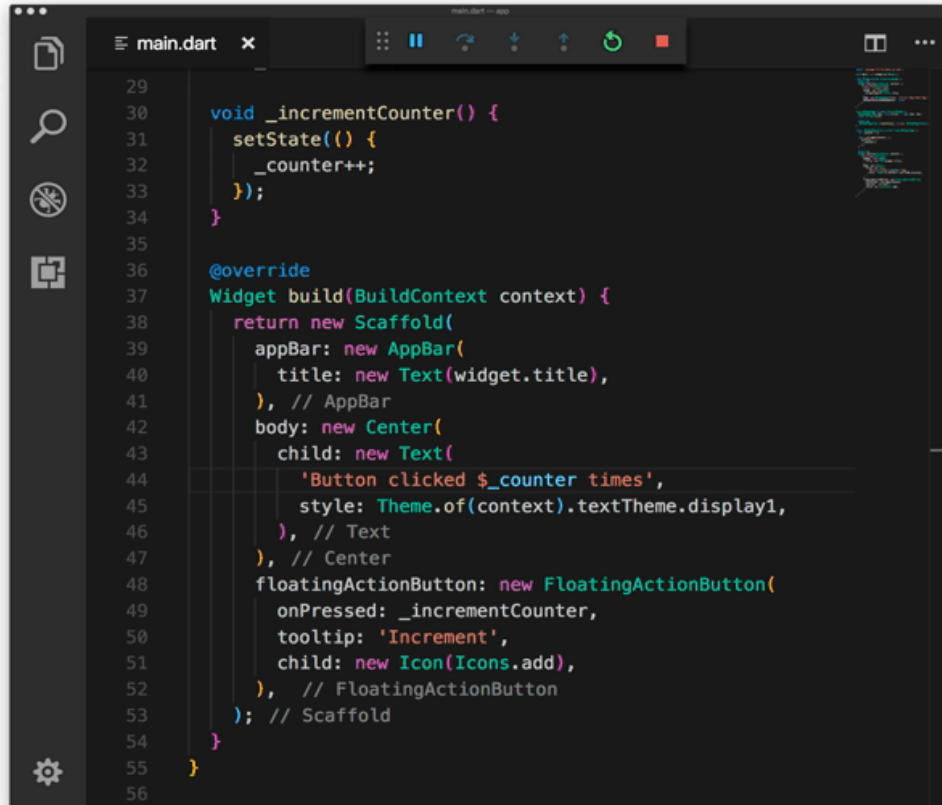
Async patterns to your Flutter application.

[VISIT](#)

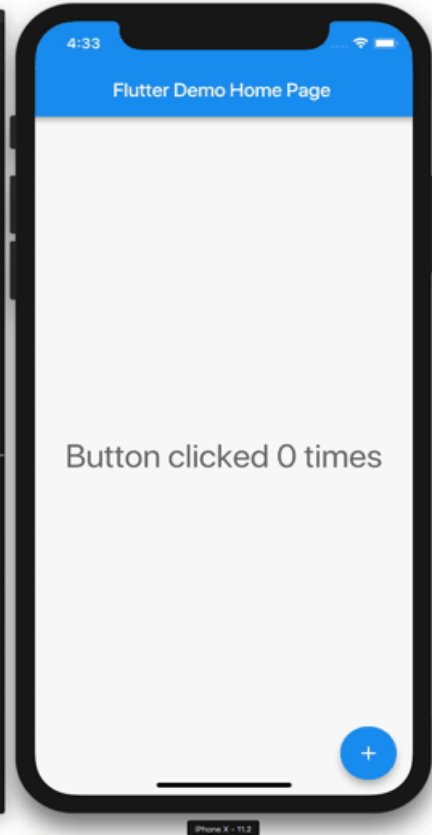
<https://flutter.io/widgets/>



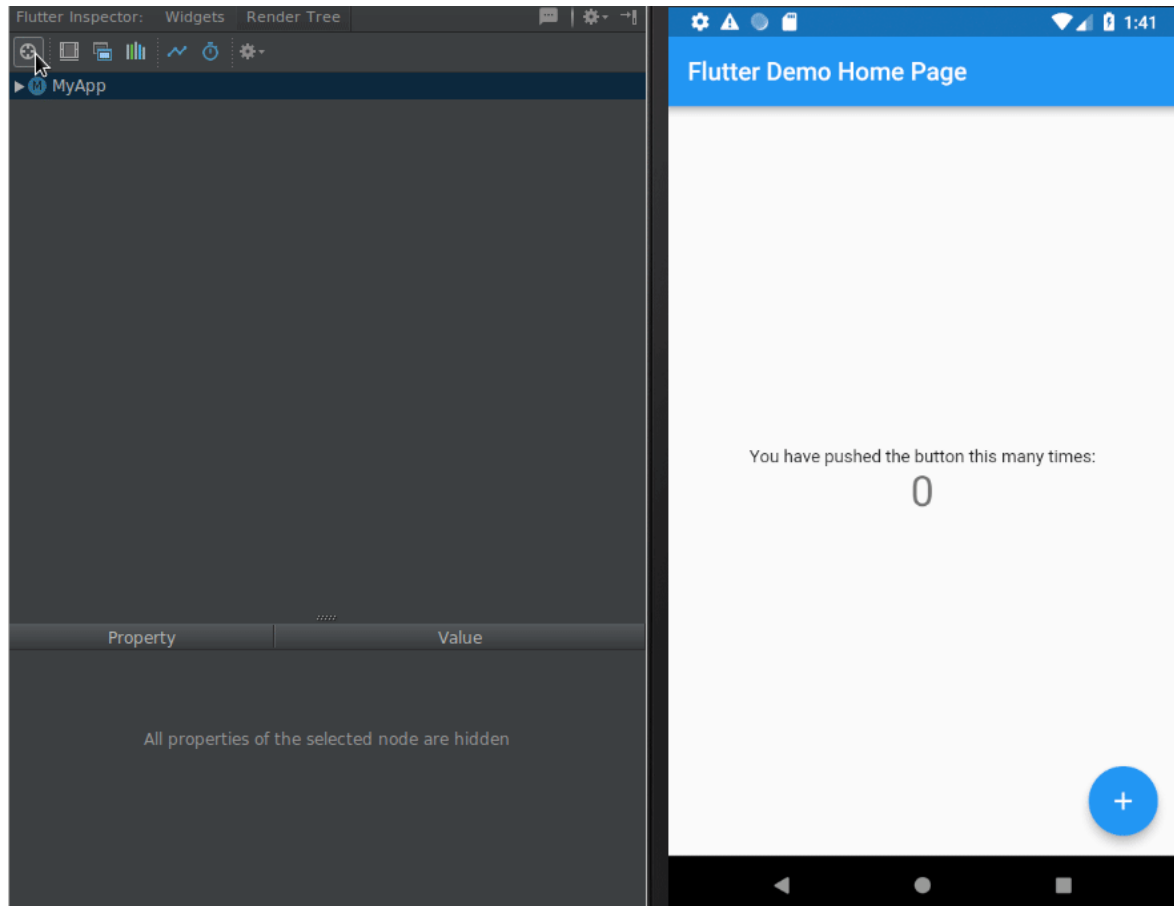
Hot Reload



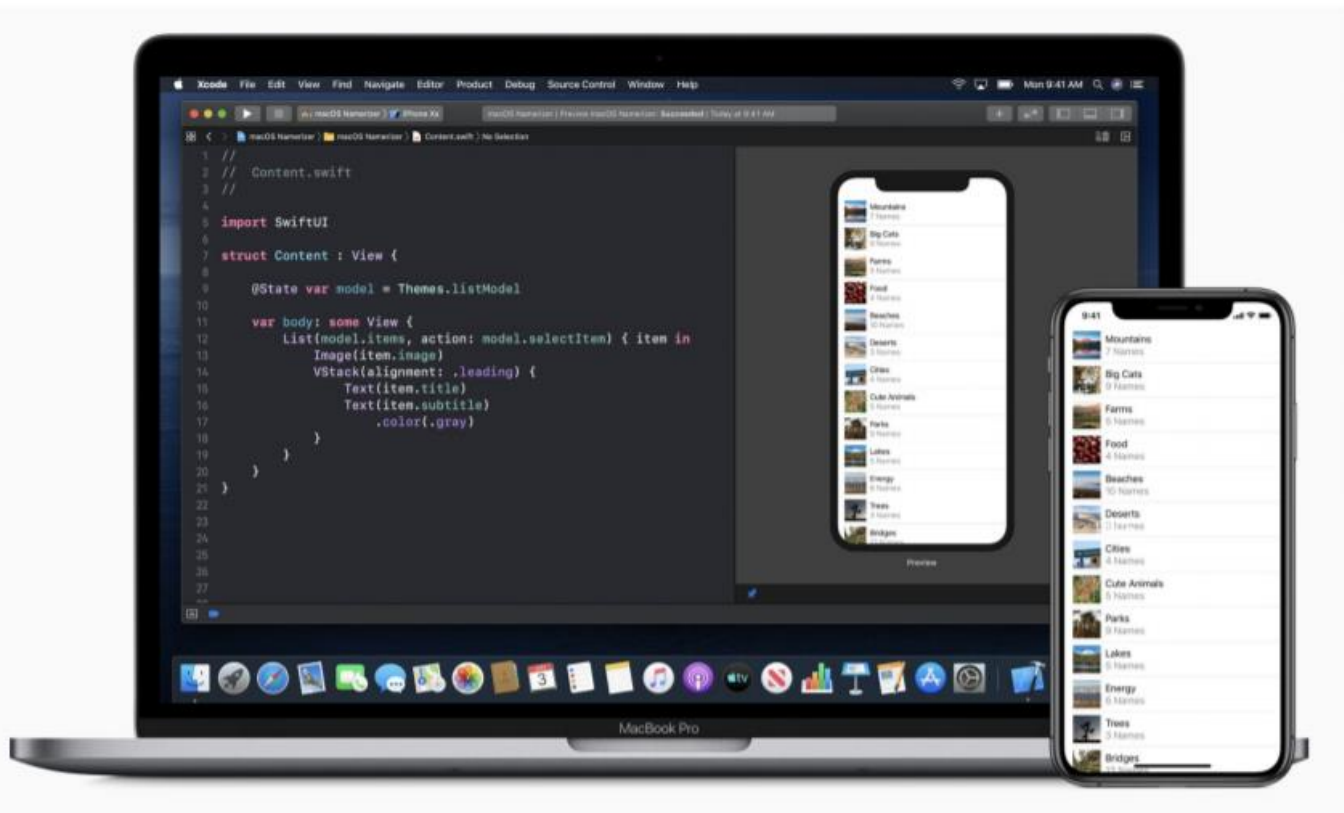
```
main.dart x
29
30 void _incrementCounter() {
31   setState(() {
32     _counter++;
33   });
34 }
35
36 @override
37 Widget build(BuildContext context) {
38   return new Scaffold(
39     appBar: new AppBar(
40       title: new Text(widget.title),
41     ), // AppBar
42     body: new Center(
43       child: new Text(
44         'Button clicked $_counter times',
45         style: Theme.of(context).textTheme.display1,
46       ), // Text
47     ), // Center
48     floatingActionButton: new FloatingActionButton(
49       onPressed: _incrementCounter,
50       tooltip: 'Increment',
51       child: new Icon(Icons.add),
52     ), // FloatingActionButton
53   ); // Scaffold
54 }
55 }
56
```



Flutter Widget Inspector



Swift UI



Jetpack Compose



```
@Composable
fun MyApp() {
    MaterialTheme {

        Align(Alignment.TopCenter) {
            Padding(padding = EdgeInsets(left = 20.dp, top = 20.
            Row {

                myButton( bTxt: "B00")
                myText( txt: " Top Hello ")
                myButton( bTxt: "B0")

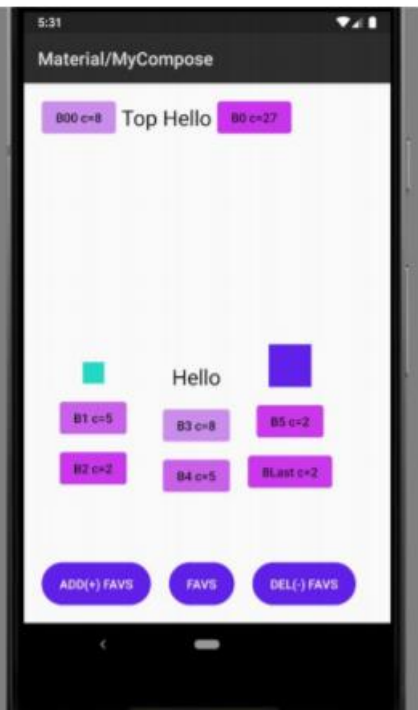
            }
        }

        Align(alignment = Alignment.CenterLeft) {
            ConstrainedBox(constraints = DpConstraints.tightCons
            Padding(padding = EdgeInsets(left = 20.dp)) {
                rowOfColumns()

            }
        }

        Align(Alignment.BottomCenter) {
            Padding(padding = EdgeInsets(left = 20.dp, bottom =
                rowOfFabs()

            }
        }
    }
}
```



Unit test vs. Integration test

Test

- Unit testing
- Widget testing
- Integration testing

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



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],  
);
```



Alibaba

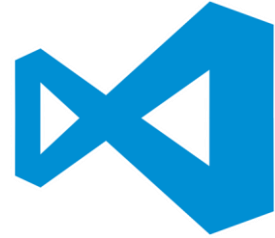
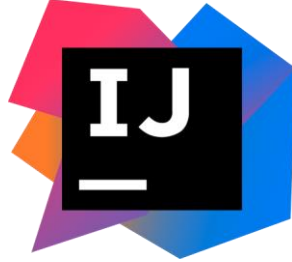


ANDROID



iOS

IDE Support?



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.

Study



<https://flutter.io/get-started/install/>



\$ 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



Thanks



Study



That's all,
Thank you!

