How is Flutter Differen and Other Cross-platf

An architectural comparison between flu

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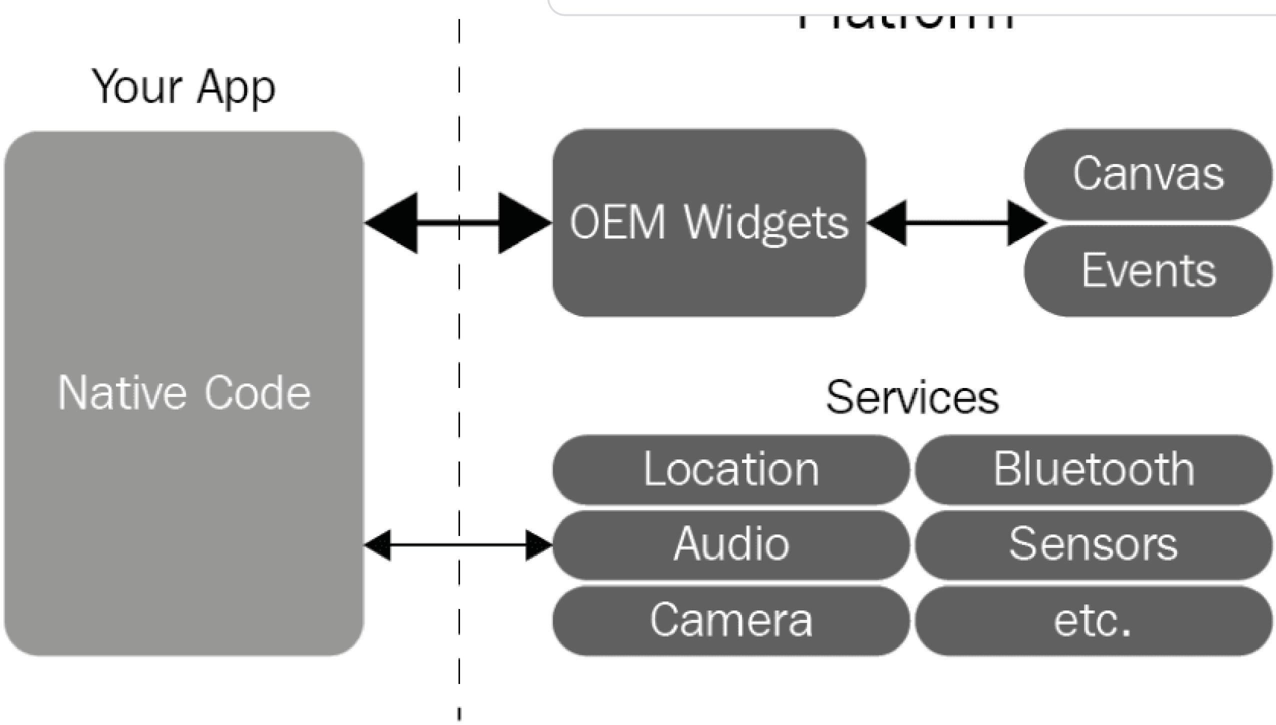
Flutter is an application development framework from Google for creating cross-platform mobile applications (in iOS and Android). As mentioned on the official website, it aims to make the development as easy, quick, and productive as possible. Features such as Hot Reload, a vast widget catalog, very good performance, and a solid community contribute to meeting that objective and make Flutter a pretty good mobile development framework.

> This post is an excerpt from the book Google Flutter Mobile Development Quick Start Guide by Packt Publishing written by Prajyot Mainkar, and Salvatore Giordano. This is a fast-paced guide to get you started with cross-platform mobile application development with Google Flutter.

When speaking of mobile application development, there are many different approaches that we can find, but, in the end, everything comes down to either a native or a cross-platform approach. Let's see how different approaches look and work when compared to Flutter. We will first take a look at the native platforms, and then, before looking at the cross-platform approach, we will take a look at the **WebView** system, and finally we will see where Flutter fits into this mix.

Native Platforms

Native frameworks such as Android ar
stable choice for mobile application de
are deeply tested and have a large con
following diagram displays the workir
frameworks:



As we can see in the preceding diagram, the **app** in this framework talks directly to the system. This makes the native framework the most powerful choice in terms of functionality. However, it does have a drawback: you need to learn two different languages, Kotlin or Java for Android, Obj-C or Swift for iOS and the SDKs. These languages are used to write two different apps with the same functionalities. Every modification must be duplicated on both platforms, and the process might not be that smooth. It is not a good choice for a small team or for someone who needs speed in their development process.

On the other hand, we have the cross-platform approach, which is famous for being productive. In this approach, we can g a single code base, just like in Flutter.

Cordova-, Ionic-, PhoneGap-, and Wel goodexamples of cross-platform frame frontend developers. But these lack in approaches is composed by a WebViev basically a website.

The following diagram shows how a WebView-based framework works:

The system uses a bridge to make the switch between JavaScript to the native system. This process will be too slow, depending on the features you need,which adds another drawback to this system.

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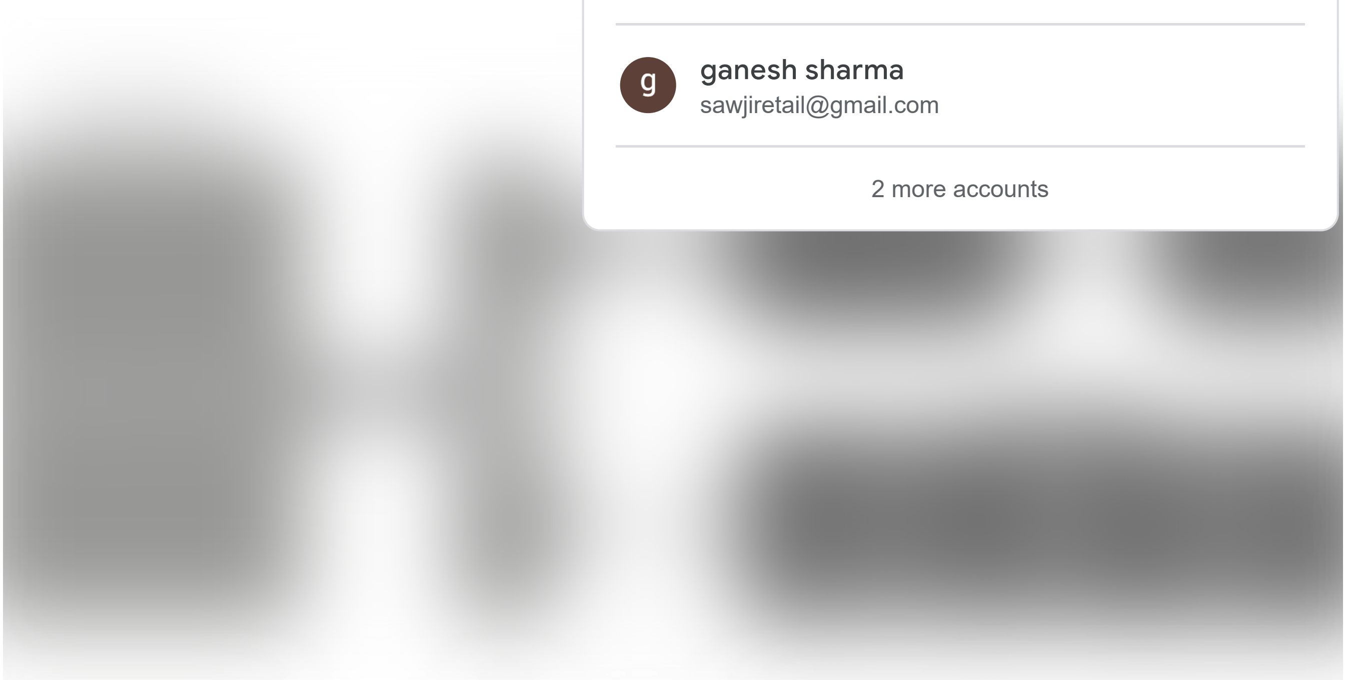
Other Cross-Platform Approaches

Let's take an example of another cross-platform approach to see what could be the

When looking at other platforms, React Native could be considered as one of the best cross-platform frameworks, but it hea

Let’s take a look at the workings of Re



React Native expands the bridge concept in the WebView systems, and uses it not only for services, but also to build widgets. This is really dangerous in terms of performance; for example, a component may be built hundreds of times during an animation, but due to the expanded concept of the bridge, this component may slow down to a great extent. This could also lead to other problems, especially on Android, which is the most fragmented operating system.

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In the previous sections, we took a look at different approaches to mobile application development. We have briefly seen ho

Now let's take a look at Flutter.

Flutter performs much better in comp is compiled AOT (Ahead Of Time) inst solutions. It also eliminates the conce platform. It does allow custom compo does this mean? It basically means tha Android and iOS.

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We did take a look at the workings of other approaches, so let's take a look at the workings of Flutter as well. You can see the way the Flutter framework works as shown in the following diagram:

Now you can see the difference between other cross-platform approaches and Flutter. As stated before, Flutter eliminated the bridge and the OEM platform and uses **Widgets Rendering** instead to work with the canvas and events. And it uses **Platform Channels** to use the services. In addition, it is not difficult to use platform APIs with an asynchronous messaging system, which means if you need to use a specific Android or iOS feature, you can do it easily.

In this post we compared Flutter to existing mobile development frameworks — native, WebView, and cross-platform. To furt
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Wajahat Karim is a graduate from NUST, Islamabad, an experienced mobile developer, an active open source contributor, and co-author of two books Learning Android Intents and Mastering Android Game Development with Unity. In his spare time, he likes to spend time with his family, do experiments on coding, loves to write about lots of things (mostly on blog and medium) and is passionate contributor to open source. In June 2018, one of his library became #1 on Github Trending. His libraries have about 2000 stars on Github and are being used in various apps by the developers all around the globe. Follow him on Twitter and Medium to get more updates about his

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