# Comparison between Android and IOS

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Security:

In the aspect of encryption, Android can support full device encryption. Apple provides guides to the implementation of cryptographic tools. As for guidelines, Android offers some very basic guidelines. Apple offers a Secure Coding Guide.

Openness:

As for licenses, Android is open source, but Apple does not provide open licenses for IOS. In the case of vertical and horizontal openness, we can replace core Android features and change the platform itself, and Android apps can be run in the emulator of some platforms. Apple restricts developers from accessing system features and IOS apps cannot run on any other devices. In the aspect of timely support, Google provides more code-level supports than Apple. Both of Android and IOS update regularly. But only latest and most popular devices are usually merged with the newest Android version. Updates of IOS are usually device-independent and can be extended to almost any device. Additionally, Android ecosystem has huge fragmentation. In contrast, there are few fragments in IOS, besides the old devices and some devices not updated.

Technology:

Android is written in Java, XML (user interface), LUA (Corona). IOS can be written in Objective-C and Swift. In the case of libraries and SDK, Google provides a free Android SDK that includes all of Android's features as well as debuggers, libraries and emulators. In addition, there are many third-party libraries. The IOS libraries and SDK licenses are strict and not free. The app scalability of Android is usually good. But there is no information about app scalability in IOS. Thanks to the good usability of libraries, the interface support of Android is good. There is no interface confusion in IOS because of the closed ecosystem. As for patch and release, Android can release updates or apps through different app stores or online. But IOS only release updates or apps in Apple App Store. Google has been studying novel concepts. Apple has always been committed to adopting the most advanced technology. In the aspect of hosting, Google and Apple both do not provide hosting services, but Apple can support external hosting services.

Testing:

In the case of code reviews, Android Studio has integrated some code review tools and there are also some third-party tools can be used. There are some mechanisms and tools for refactoring code in Apple’s IDE. As for devices and emulators, Android emulator provides very crude device emulation and developers have to test their apps on different devices and platforms. IOS developers need to rent devices to test the new version IOS and Apple integrates a well-functioning emulator in Apple’s IDE. The Android SDK involves a debugger for further debugging. Apple’s IDE has a nice debugger and there are some third-party debuggers.

Distribution:

Google uses a decentralized portal strategy, Android apps can be published by Google Play or other app stores. Apple follows a centralized portal strategy, IOS apps are only distributed in Apple App Store. In the case of time to deploy, Android apps often can be deployed quickly and the deployment of an IOS app may need a long time. As for MDM, developers can choose an MDM solution from Google’s MDM solutions, developers’ own MDM solution and third-party MDM solutions in Android. In IOS, developers only can use third-party MDM solutions or Apple’s own MDM solutions.

Miscellaneous:

In the detailed documentation provided by Google and Apple, some Android code examples can sometimes be abstract or difficult to understand, and many IOS code examples are sometimes hard to find. Android and IOS both have large communities which provide help and information. As for IDE, Android’s IDE is Android Studio and Xcode is IOS’s IDE. Both Google and Apple have released design and responsive guidelines. For platform integration, incompatibility is common in Android. In contrast, Apple has a complete platform integration. In the case of reputation, Android is widely recognized, but there are some issues. Apple has a good reputation. Google does not have official enterprise cooperation. IBM is Apple's largest corporate partner.