**Why Android use Virtual Machine?**

Android makes use of a virtual machine as its runtime environment in order to run the APK files that constitute an Android application. Below are the advantages:

· The application code is isolated from the core OS. So even if any code contains some malicious code won’t directly affect the system files. It makes the Android OS more stable and reliable.

· It provides cross compatibility or platform independency. It meaning even if an app is compiled on platform such as a PC, it can still be executed on the mobile platform using the virtual machine.

<https://android.jlelse.eu/closer-look-at-android-runtime-dvm-vs-art-1dc5240c3924>

# ****Just In Time (JIT)****

With the Dalvik JIT compiler, each time when the app is run, it dynamically translates a part of the Dalvik bytecode into machine code. As the execution progresses, more bytecode is compiled and cached. Since JIT compiles only a part of the code, it has a smaller memory footprint and uses less physical space on the device.

# ****Ahead Of Time (AOT)****

ART is equipped with an Ahead-of-Time compiler. During the app’s installation phase, it statically translates the DEX bytecode into machine code and stores in the device’s storage. This is a one-time event which happens when the app is installed on the device. With no need for JIT compilation, the code executes much faster.

<https://www.xda-developers.com/google-pixel-fastest-android-phone-eas/>

<https://www.arm.com/files/pdf/big_LITTLE_Technology_the_Futue_of_Mobile.pdf>

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