# Android 系統架構

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### Android 系統架構

**Applications** 

**Application Framework** 

Binder Inter-Process-Communication (IPC) Proxies

**System Services** 

Hardware Abstraction Layer

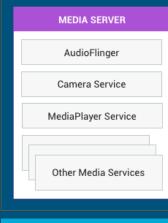
Linux Kernel

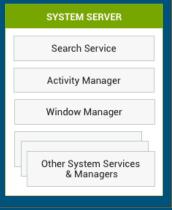


#### APPLICATION FRAMEWORK

#### **BINDER IPC PROXIES**

#### ANDROID SYSTEM SERVICES





#### HAL

Camera HAL Audio HAL

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Other HALs

#### LINUX KERNEL

Camera Driver

Audio Driver (ALSA, OSS, etc.)

Display Drivers

Graphics HAL

Other Drivers



### Hardware Abstraction Layer (HAL)



AUDIO



CAMERA



BLUETOOTH



DRM



EXTERNAL STORAGE



GRAPHICS



INPUT



MEDIA



SENSORS



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### Dalvik

Android 虛擬機

Android 執行期

.dex(dx 編譯器)

.apk(Packager)

## Android Runtime (ART)

Android 虛擬機

Google 開發的新式執行期

Android 4.4 就可選用

提高程式執行效率

### Android Runtime (ART) II

Ahead-of-time (AOT) compilation

Improved garbage collection

Development and debugging improvements

Support for sampling profiler

Support for more debugging features

Improved diagnostic detail in exceptions and crash reports