



Opening Up Android for You!

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What is Android?

Introduction to
the Android Platform,
the eco system and
Android application development

About Manfred Moser

- Long time Linux user and Java developer currently working as Android application developer
- Author of the chapter “Android Application Development with Apache Maven” in the book Maven: The Complete Reference
- Committer on Maven Android Plugin and author of Maven Android SDK Deployer

That Google smartphone OS?

Not quite Google alone.

First: Android Inc.

Then: Google

Now: Open Handset Alliance

That Google smartphone OS?

Not quite smartphone alone.

Navigation devices,
Tablet/Slate computers,
TV,
Embedded devices (e.g. cars, helicopter..)

That Google smartphone OS?

Not quite an operating system only.

Linux kernel

custom Linux distro

Dalvik VM

Middleware (sort of like app server)

API's

Standard applications (capabilities)

SDK

further tools

Open Handset Alliance OHSA

65 member companies and counting

Handset manufacturer, mobile network operators,
semiconductor companies, software companies

China Mobile, NTT Docomo, Sprint, T-Mobile, Vodafone, ARM, Broadcom,
Freescale, Intel, MIPS, Nvidia, Qualcomm, TI, Acer, Asus, Garmin, HTC,
Huawei, Kyocera, Lenovo, LG, Motorola, NEC, Samsung, Sharp, Sony Ericsson,
Toshiba, ebay, Google ...

Devices?

Multiple generations of different devices from different manufacturers available (HTC, Motorola, Sony Ericsson, Dell, Archos...)

Different form factors and features e.g. hardware keyboard, camera, screen size

So is it really Linux?

Yes and no.

Not stock kernel.org kernel – additional modifications

Not common distribution e.g. Debian based – has its own setup and tweaks

Not full GNU tool set – targeted at embedded devices!

Is it using the JVM?

No. Only using JDK tools to create Java bytecode.
Translated to Dalvik executable code.

Dalvik VM –
optimized virtual machine for small devices,
multiple instances run in parallel,
no JIT yet

Do I have to use Java?

No, but easier at this stage and default supported language.

Apache Harmony based JDK, a bunch of commons libraries in Platform as part of API

Proven to be possible JRuby, Groovy, Scala, Clojure, Squeak, Javascript...

also NDK if really necessary

What else is there for development?

Webkit browser
SQLite database
Open GL ES
Open Core

Rich API for accessing all the above and more.
All applications are equal
Can act as components

And this is all open source?

Yes. <http://source.android.com>

APL mostly, also some GPL

Many core applications are as well
e.g. contacts, calendar, browser

Not all applications though
e.g. Maps, Market, Listen...

Application Development

Default tools is ADT - Eclipse Plugin

Rich set of tools ddms, adb, avd manager, emulator(s), traceview in SDK

Very rich API

More external tools – maven plugin, roboguice, robotium, DroidFu and many more

Application development demo

Hands on demo showcasing code and tools

Development

Activity and Activity life cycle

Views & Resources

Saving data

Task & Intent – Applications cooperating

How to distribute your application

On your website

On Android market

On other markets
(slideme, andappstore, getjars...)

Resources

<http://developer.android.com>

<http://groups.google.com/android-developers>

<http://stackoverflow.com/questions/tagged/android>

A whole bunch of books

Summary

Modern platform

Open source

Many players

Rapid growth

More to come

The End

Questions?

Ideas?