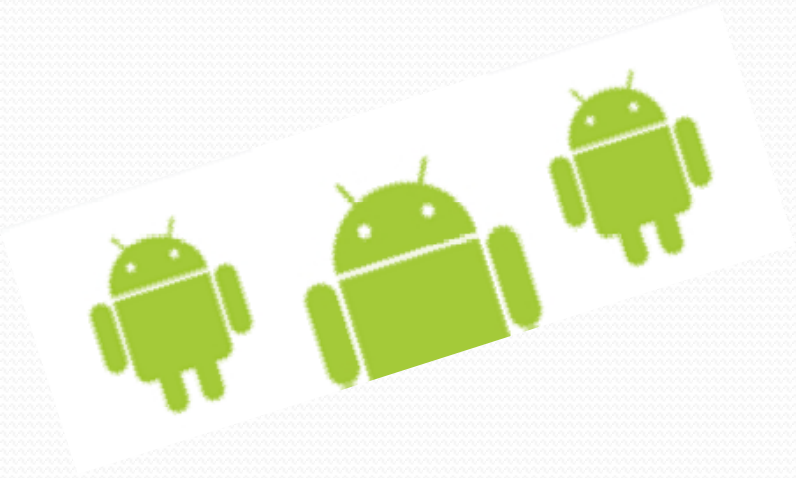
Lecture 21

Topic beyond Syllabus : Operating System : Android

Outlines

1. Introduction
2. Platform
3. Process Scheduling
4. Software development & SDK
5. Overall evaluation

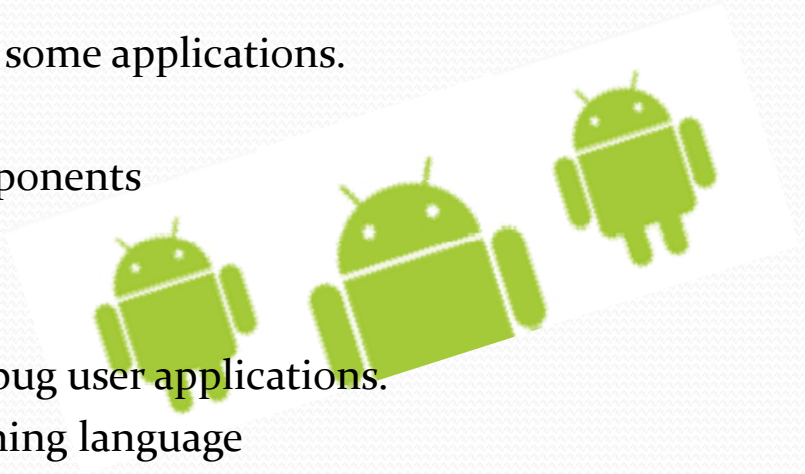


What is Android?

- A complete software stack for mobile devices.

- Android is
  - A first joined project of the Open Handset Alliance (OHA).
  - It's a First open, complete and free platform
  - Its Software stack is open-sourced and licensed under Apache 2.0
  - In Android Source code will be available to everyone and anyone will have the capability to built an image

- The Android platform
  - includes an operating system, a middleware and some applications.
  - Android is very Lightweight and fully featured
  - Developers can extend and replace existing components



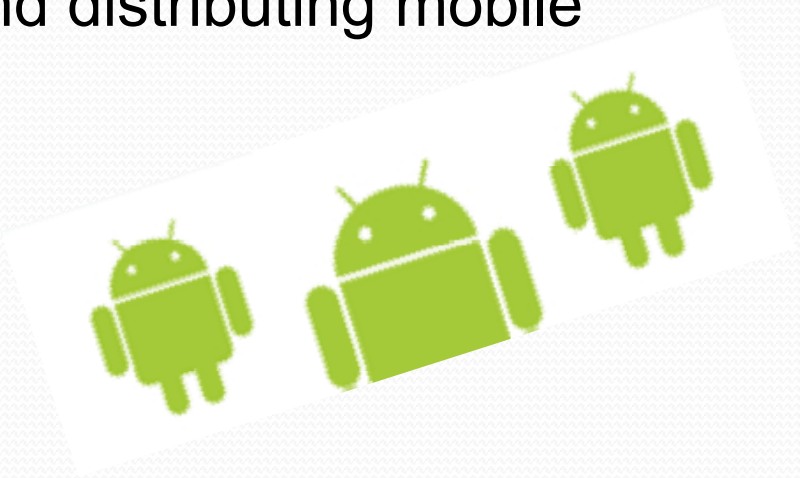
- A generous development environment
  - A SDK is available to build, compile, test and debug user applications.
  - Applications are developed using Java programming language
  - No difference between the built-in applications and the user ones

Introduction

- **What is the Open Handset Alliance (OHA)?**
  - → It's a consortium of several companies

Introduction

- **What is the Open Handset Alliance (OHA)?**
  - Devoted to advancing open standards for mobile devices
  - Develop technologies that will significantly lower the cost of developing and distributing mobile devices and services



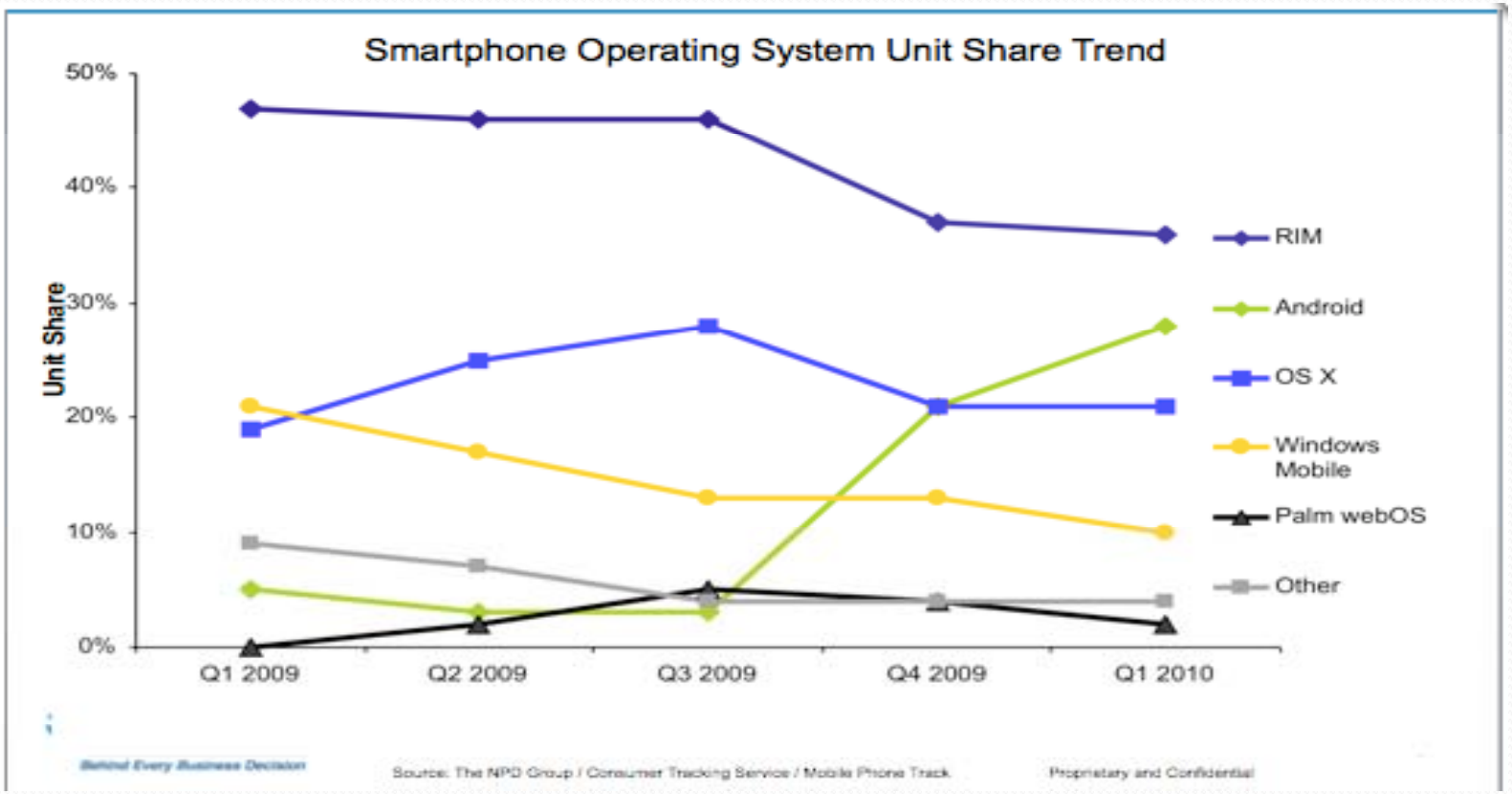
Versions

Name	Version
Cupcake	1.5
Donut	1.6
Eclair	2.1
Froyo	2.2
Gingerbread	2.3
Honeycomb	
Icecream	

Versions

The most recent released versions of Android are:
2.0/2.1 (Eclair), which revamped the user interface and introduced HTML5 and Exchange ActiveSync 2.5 support
2.2 (Froyo), which introduced speed improvements with JIT optimization and the Chrome V8 JavaScript engine
2.3 (Gingerbread), which refined the user interface, improved the soft keyboard and copy/paste features, and added support for Near Field Communication
3.0 (Honeycomb), a tablet-oriented release which supports larger screen devices and introduces many new user interface features, and supports multicore processors and hardware acceleration for graphics.[The upcoming version of Android is:
Ice Cream Sandwich,[a combination of Gingerbread and Honeycomb into a "cohesive whole,"with a possible release in mid-2011.

Smart phone market

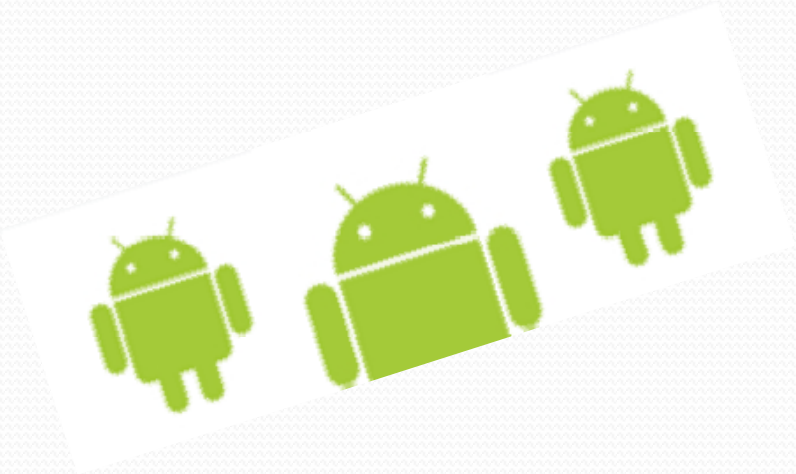


Operating System

- Android uses Linux for its device drivers, memory management, process management, and networking.

- The next level up contains the Android native libraries. They are all written in C/C++ internally, but you'll be calling them through Java interfaces. In this layer you can find the Surface Manager, 2D and 3D graphics, Media codecs, the SQL database (SQLite), and a native web browser engine (WebKit).

- Dalvik Virtual Machine. Dalvik runs dex files, which are converted at compile time from standard class and jar files.



Platform

Network Connectivity

It supports wireless communications using:

- GSM mobile-phone technology
- 3G
- Edge
- 802.11 Wi-Fi networks