Android Basics Lecture 1

21-June-2013

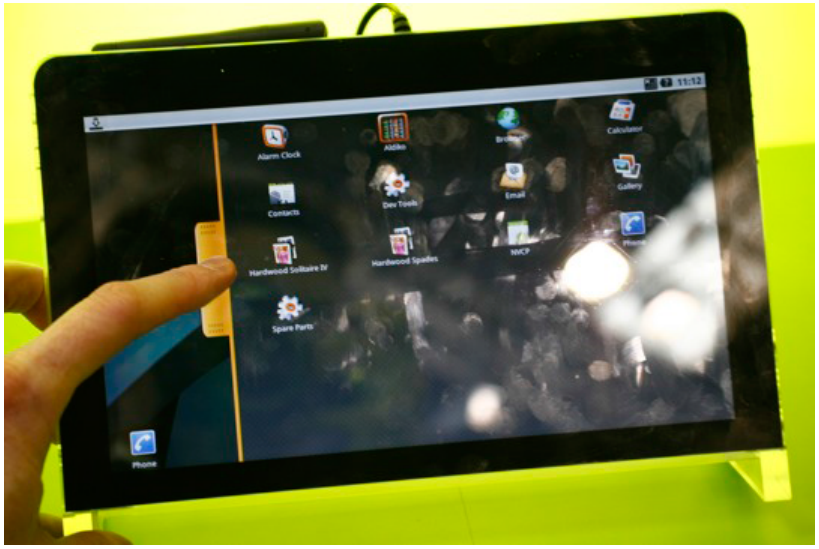
MIT AITI, BMS 2013

Agenda

- Introduction to Android
- Android OS Basics
- Android App Basics
- Code Management Basics
- Reference for Further Reading

An Introduction to Android

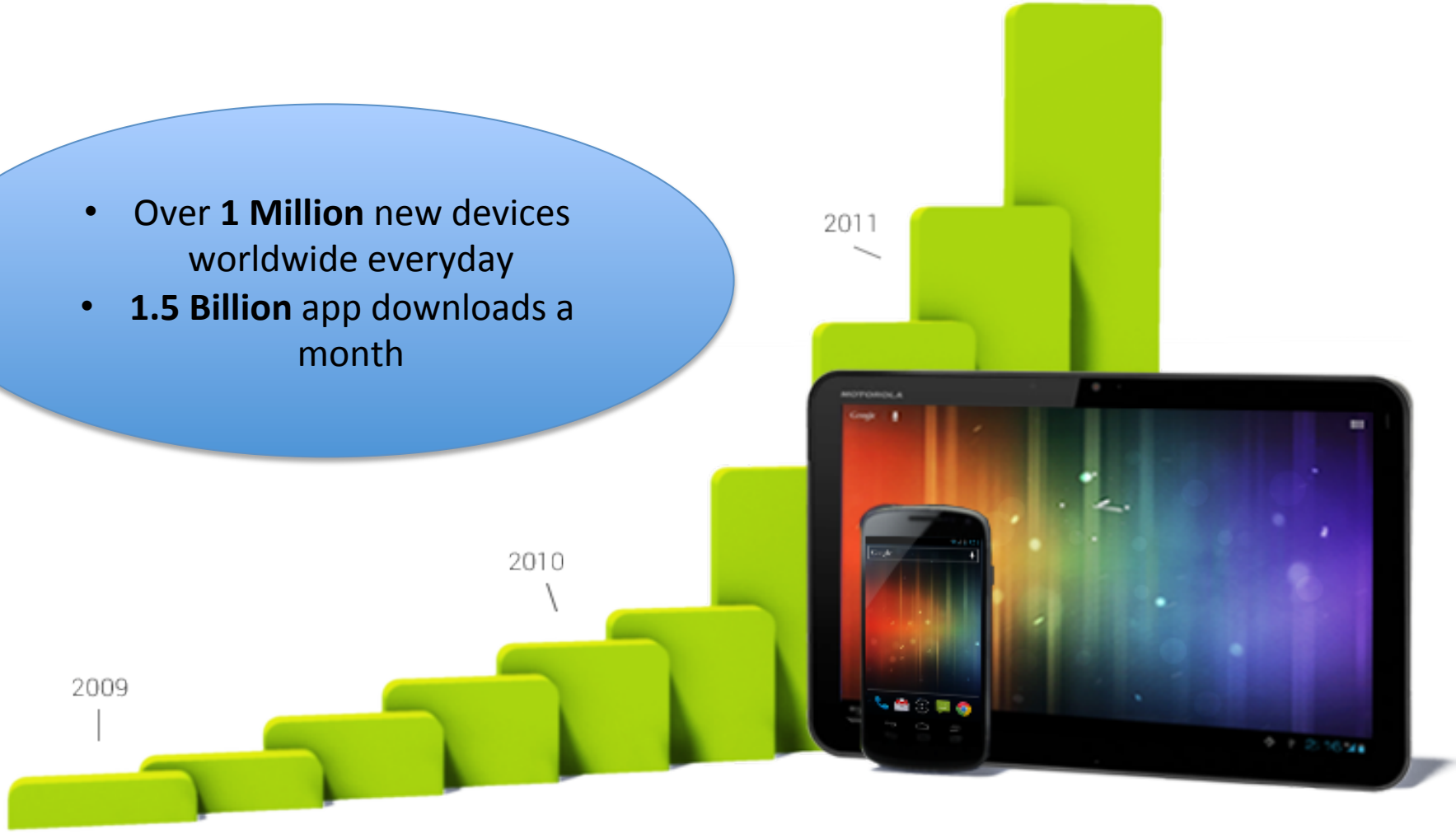
Mobiles



Tablets

An Introduction to Android

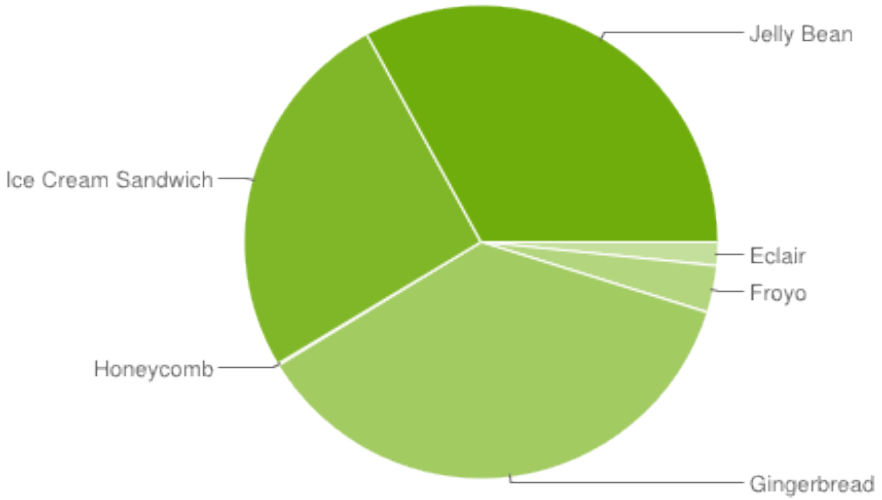
- Over **1 Million** new devices worldwide everyday
- **1.5 Billion** app downloads a month



An Introduction to Android

Version	Codename	API	Distribution
1.6	Donut	4	0.1%
2.1	Eclair	7	1.5%
2.2	Froyo	8	3.2%
2.3 - 2.3.2	Gingerbread	9	0.1%
2.3.3 - 2.3.7		10	36.4%
3.2	Honeycomb	13	0.1%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	25.6%
4.1.x	Jelly Bean	16	29.0%
4.2.x		17	4.0%

Data collected during a 14-day period ending on June 3, 2013.
Any versions with less than 0.1% distribution are not shown.

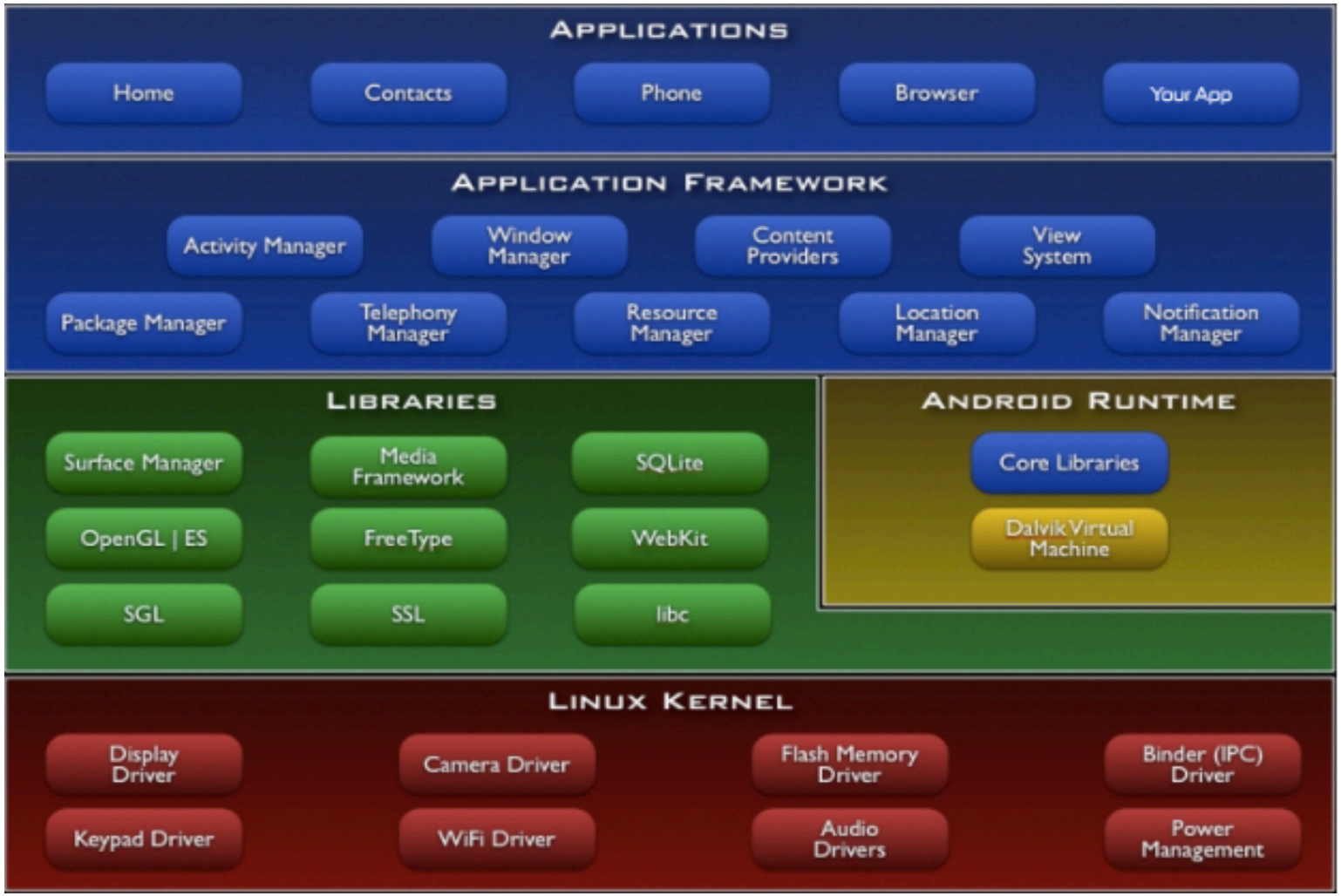


Ref: http://developer.android.com/about/dashboards/index.html

The Android OS

- Linux Kernel v2.6 Based
- Linux Kernel abstracts hardware from the Android software stacks
- API support for smartphone hardware
  - GSM Telephony
  - Connectivity – 3G, Bluetooth and Wifi
  - Camera, GPS, Accelerometer

The Android OS



The Android App

- Each Application runs in its own process (default), within the Dalvik Virtual Machine
- The Dalvik Virtual Machine
  - Each application runs in its own process
  - Within a DVM
  - DVM relies on Linux kernel for lower level management
- Android ships with a set of core applications – email client, SMS, maps, calendar etc.

The Android App - Components

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- Activity – Single screen
- Service – Background actions
- Content Provider – Shared persistent storage
- Broadcast Receiver – Receives notifications

An app may have only one type of component, or it may have all four!

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The Android App - Components

- Intent – Message to activate a component
- Manifest – Describes app, its permissions
- View – Something drawn on the screen
  - Includes layouts, controls, dialogs, etc.
- Fragment – Composable sub-activity
- Widget – Mini-view (as in home screen)

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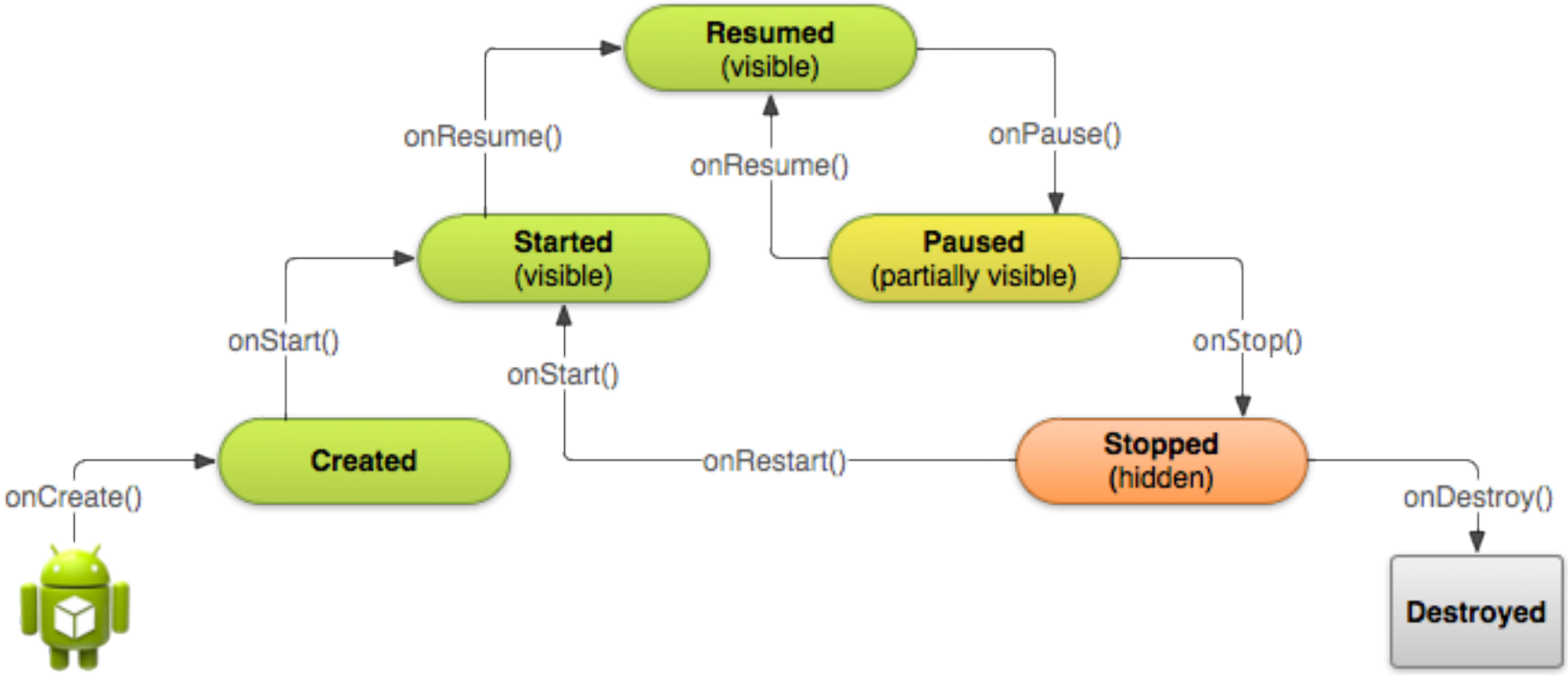
The Android Activity



Code Management Basics

- Version control is a way to manage the history of a project's source code.
- Shared Repositories are used to provide a common code store database.
- We will use 'git' for our code management

Code Management - Git

- Git is a distributed version control and source code base management system
- There are several free implementations available
- Recommend using egit, to integrate with the eclipse IDE

References

- Android Developer Site (esp. API Guides):
http://developer.android.com/

- Videos: Java and Eclipse for Total Beginners:
http://eclipsetutorial.sourceforge.net/totalbeginner.html

- A good Git book: Pro Git by Scott Chacon
http://git-scm.com/book

- Using Bitbucket:
https://confluence.atlassian.com/display/BITBUCKET/Bitbucket+101

- For more on EGit:
http://wiki.eclipse.org/EGit/User_Guide

On to UI Basics!