Android Programming Introduction

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Modules

- 5 Modules

1 Module: Introduction & installation of Android(12 T+3L)

2 Module : Understanding Android Resources(12 T + 3L)

3 Module : UI development in Android (12 T + 3L)

4 Module : Android Menus (12 T+ 3L)

5Module : Data storing &file saving concept (12 T + 3 L)

Module 1

- History of Android
- Android software stack
- Developing end user application using android SDK
- Android java packages,
- Setting up the development environment,
- Installing android development tools (ADT)
- Fundamental components
- Android virtual devices,
- Running on real device
- Structure of android application
- Application life cycle.

Introduction

- Android is an open source and Linux-based **Operating System** for mobile devices such as smartphones and tablet computers.

- Android was developed by the *Open Handset Alliance*, led by Google, and other companies.

- Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices powered by Android.

Intro.

- The first beta version of the Android Software Development Kit (SDK) was released by Google in 2007 where as the first commercial version, Android 1.0, was released in September 2008.

- On June 27, 2012, at the Google I/O conference, Google announced the next Android version, 4.1 **Jelly Bean**. Jelly Bean is an incremental update, with the primary aim of improving the user interface, both in terms of functionality and performance.

- The source code for Android is available under free and open source software licenses. Google publishes most of the code under the Apache License version 2.0 and the rest, Linux kernel changes, under the GNU General Public License version 2.

Developers

Andy Rubin

Rich Miner

Nick Sears

Chris white

History of Android

- Google acquired the startup company Android Inc. in 2005 to start the development of the Android Platform. The key players at Android Inc. included Andy Rubin, Rich Miner, Nick Sears, and Chris White.

- In late 2007, a group of industry leaders came together around the Android Platform to form the Open Handset Alliance (http://www.openhandsetalliance.com).

- The Android SDK was first issued as an "early look" release in November 2007.

- In September 2008 T-Mobile announced the availability of the T-Mobile G1, the first smartphone based on the Android Platform.

- A few days after that, Google announced the availability of Android SDK Release Candidate 1.0.

- In October 2008, Google made the source code of the Android Platform available under Apache's open source license.
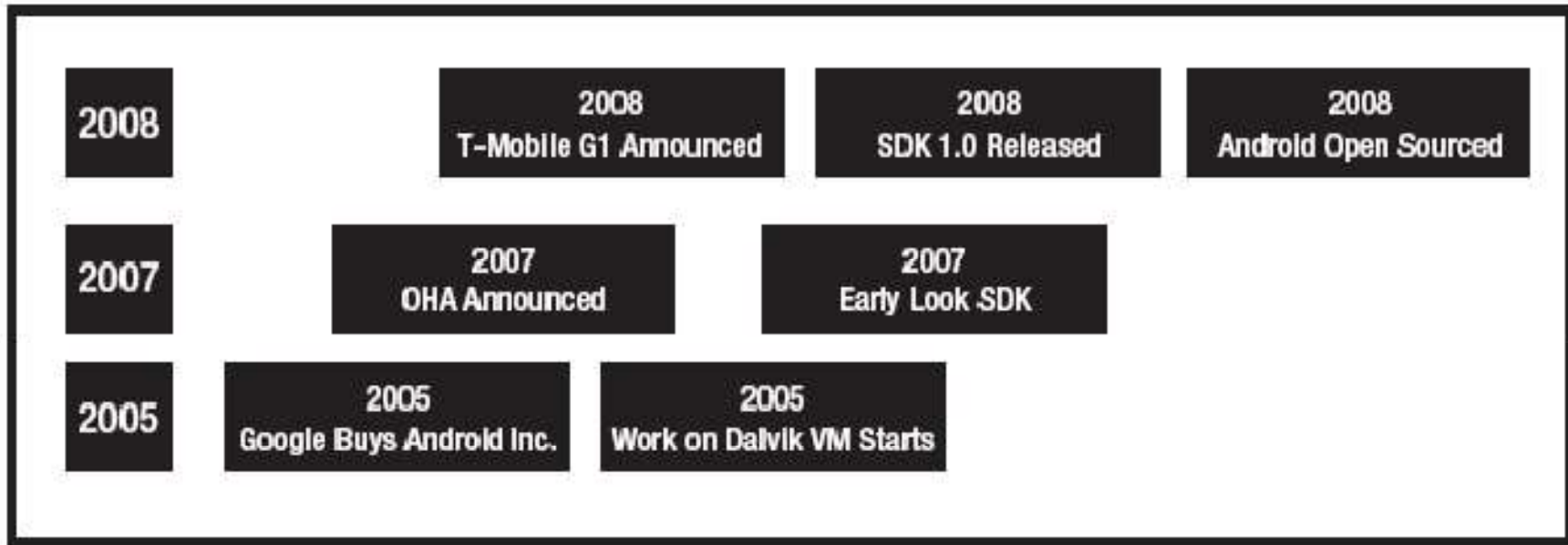
History of Android

Figure 1-3. *Android timeline*

What is Open Handset Alliance?

- Quoting from **www.OpenHandsetAlliance.com page**

- "... **Open Handset Alliance™, a group of 47 technology and mobile companies have come together to accelerate innovation in mobile and offer consumers a richer, less expensive, and better mobile experience.**

- Together we have developed Android™, the first complete, open, and free mobile platform.

- We are committed to commercially deploy handsets and services using the Android Platform. "

Introduction

→   It's a consortium of several companies

Open Handset Alliance Members

Operators	Software Co.	Commercializat.	Semiconductor	Handset Manf
China Mobile	Ascender Corp.	Aplix	Audience	ACER
China Unicom	eBay	Noser Engineering	Broadcom Corp.	ASUS
KDDI Corp.	Esmertec	Astonishing Tribe	Intel Corp.	HTC
NTT DoCoMo	Google	Wind River Systems	Marvell Tech.	LG
Sprint Nextel	LivingImage	Omron Software	Group	Motorola
T-Mobile	NMS Comm.	...	Nvidia Corp.	Samsung
Telecom Italia	Nuance Comm.	Teleca	Qualcomm	ASUSTek
Telefónica	PacketVideo		SiRF Tech. Holdings	Garmin
Vodafone	SkyPop		Synaptics	Huawei Tech
Softbank	SONiVOX		Texas Instr.	LG
...	...		AKM Semicond.	Samsung
Ericsson	Borqs		ARM	...
			Atheros Comm	Sony Ericsson
			...	Toshiba
			EMP	

Phones

HTC G1,
Droid,
Tattoo

Motorola Droid (X)

Suno S880

Samsung Galaxy

Sony Ericsson

Tablets

Velocity Micro Cruz

Gome FlyTouch

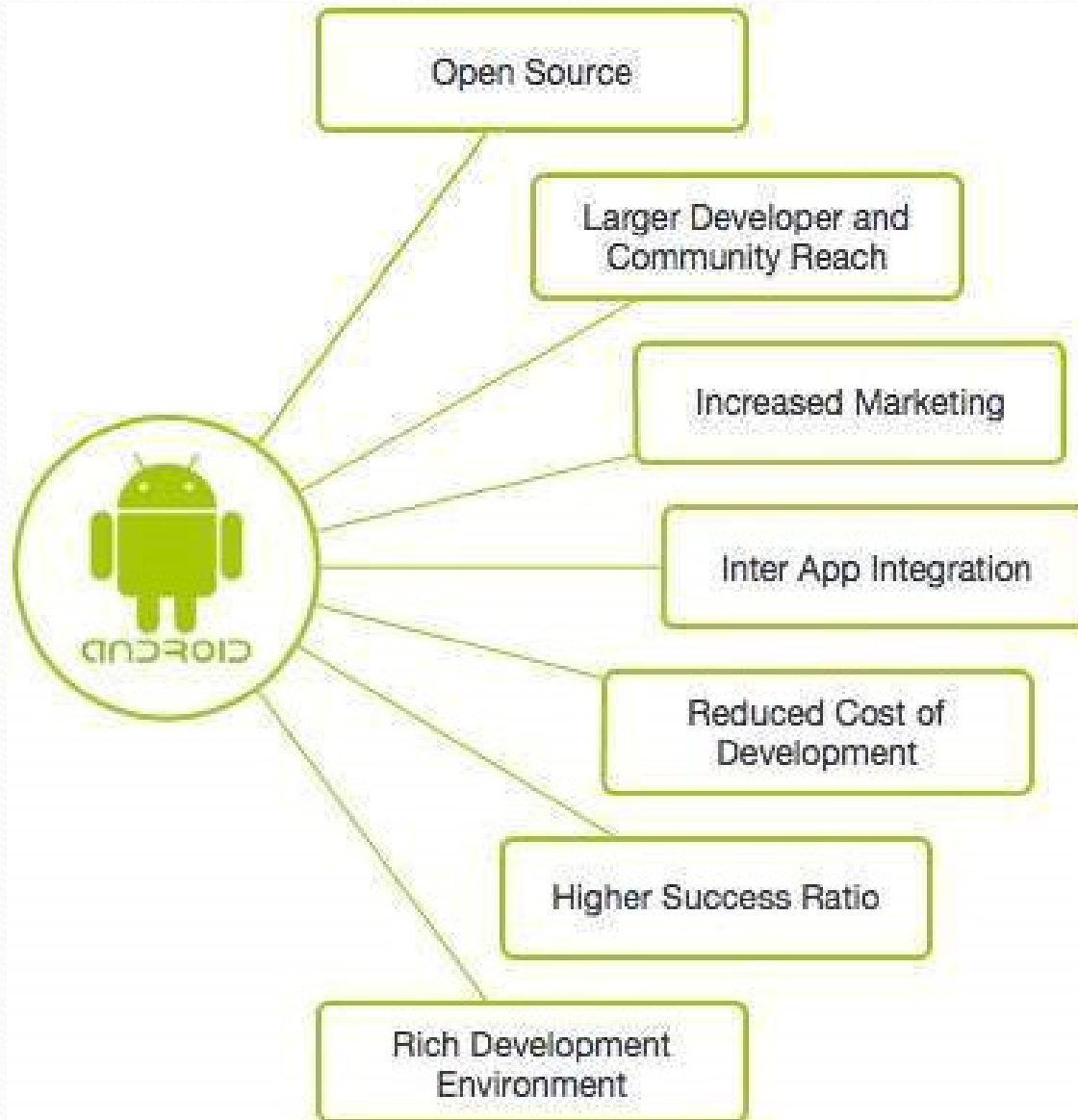Acer beTouch

Dawa D7

Toshiba Android SmartBook

Cisco Android Tablet

Android Inc. was founded in Palo Alto, California, United States in October 2003 by Andy Rubin, Rich Miner, Nick Sears, and Chris White to develop, in Rubin's words "...smarter mobile devices that are more aware of its owner's location and preferences" (http://eglobiotraining.com/android)

Why Android?

Features of Android

- Beautiful UI
- Connectivity
- Storage
- Media Support
- Messaging
- Web browser
- Multi touch
- Multi tasking
- Resizable widgets
- Multi language
- Google cloud Messaging
- Wifi direct
- Android beam

Sr.No.	Feature & Description
1	**Beautiful UI** Android OS basic screen provides a beautiful and intuitive user interface.
2	**Connectivity** GSM/EDGE, IDEN, CDMA, EV-DO, UMTS, Bluetooth, Wi-Fi, LTE, NFC and WiMAX.
3	**Storage** SQLite, a lightweight relational database, is used for data storage purposes.
4	**Media support** H.263, H.264, MPEG-4 SP, AMR, AMR-WB, AAC, HE-AAC, AAC 5.1, MP3, MIDI, Ogg Vorbis, WAV, JPEG, PNG, GIF, and BMP.
5	**Messaging** SMS and MMS
6	**Web browser** Based on the open-source WebKit layout engine, coupled with Chrome's V8 JavaScript engine supporting HTML5 and CSS3.

7	**Multi-touch**
	Android has native support for multi-touch which was initially made available in handsets such as the HTC Hero.
8	**Multi-tasking**
	User can jump from one task to another and same time various application can run simultaneously.
9	**Resizable widgets**
	Widgets are resizable, so users can expand them to show more content or shrink them to save space.
10	**Multi-Language**
	Supports single direction and bi-directional text.
11	**GCM**
	Google Cloud Messaging (GCM) is a service that lets developers send short message data to their users on Android devices, without needing a proprietary sync solution.
12	**Wi-Fi Direct**
	A technology that lets apps discover and pair directly, over a high-bandwidth peer-to-peer connection.
13	**Android Beam**
	A popular NFC-based technology that lets users instantly share, just by touching two NFC-enabled phones together.

Android Applications

- Android applications are usually developed in the Java language using the Android Software Development Kit.

- Once developed, Android applications can be packaged easily and sold out either through a store such as **Google Play**, **SlideME**, **Opera Mobile Store**, **Mobango**, **F-droid** and the **Amazon Appstore**.

- Android powers hundreds of millions of mobile devices in more than 190 countries around the world. It's the largest installed base of any mobile platform and growing fast. Every day more than 1 million new Android devices are activated worldwide.

Categories of Android applications

There are many android applications in the market. The top categories are –

🎵 Music	📰 News	📺 Multimedia
⚽ Sports	🧘 Lifestyle	🍴 Food & Drink
🚌 Travel	☁ Weather	📑 Books
💼 Business	Reference	🧭 Navigation
💬 Social Media	Utilities	📈 Finance

Android vs. Competitors

1. Apple Inc.
2. Microsoft
3. Nokia
4. Palm
5. Research In Motion
6. Symbian

THANK YOU