ANDROID: THE FUTURE OF MOBILE ERA

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Abstract :

With increasing smartphone usage around the world, One operating system in particular, although competing against products such as Apple, Microsoft, and Blackberry, has gained popularity: the Android system. Android behaves differently and has issues different from other smartphones, it is a great area in need of exploration. Android is an open source software stack that includes the operating system, middleware and key application along with a set of API libraries for writing mobile applications that can shape the look, feel and function of mobile handset. This article on Android presents future aspects of Android framework and its utility in the world.

Keywords : Android, Smart Phone, Android SDK, Android apps

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1. Introduction

Android is an open source software stack that includes the operating system, middleware and key application along with a set of API libraries for writing mobile applications that can shape the look, feel and function of mobile handset. Small, stylish and versatile, modern mobile phones have become powerful tools that incorporate cameras, media players, GPS systems and touch screens. As technology has evolved, mobile devices have become more than simply making calls, but their software and development platforms have struggled to keep pace.

Until recently, mobile phones were largely closed environment built on proprietary operating systems that required proprietary tools. The phones themselves often prioritized native applications over those written by third parties. This has introduced an artificial barrier for developers hoping to build on increasingly powerful mobile hardware.

In android, native and third party applications are written using the same APIs and executed on the same run time. These APIs feature hardware access, location based services, support for background services, map-based activities, relational databases, inter-device peer-to peer messaging and 2D, 3D graphics. Android has powerful APIs, excellent documentation, a thriving developer community and no development or distribution cost. As mobile devices continue to increase in popularity, this is an exciting opportunity to create innovative mobile phone applications no matter what your development environment background.

2. Why Android

Historically, developers, generally has to code in low-level C or C++, according to hardware of mobile device which works generally for a single device or possibly a range of devices from a single manufacturer. As hardware technology has advanced, this closed approach has struggled to keep pace. More recently, platforms like Symbian have been created to provide developers a wider target audience.

These systems have proved more successful in encouraging mobile developers to provide rich applications that better leverage the hardware available. These platforms offer some access to the device hardware, but require writing complex C/C++ code and making heavy use of proprietary APIs that are difficult to use. This difficulty is amplified when developing applications that must work on different hardware implementations and is particularly true when developing for a particular hardware feature like GPS. In recent years, the biggest advance in mobile phone development has been the introduction of Java hosted MIDlets. MIDlets are executed on a Java virtual machine, abstracting the underlying hardware and letting developers create applications that run on the wide variety of hardware that supports the Java run time. Unfortunately, this convenience comes at the price of restricted access to the device hardware. In mobile development, it's considered normal for third-party applications to receive different hardware access and execution rights compared to native applications written by the phone manufacturers, with MIDlets often receiving few of either.

The introduction of Java MIDlets has expanded developers' audiences, but the lack of low-level hardware access and sandboxed execution have meant that most mobile applications are desktop programs designed to run on a smaller screen rather than take advantage of the inherent mobility of the handheld platform.

3. What Android is not

Android is not

- **A Java ME Implementation** Android applications are written using the Java language but they are not run within a Java ME virtual machine, and Java-compiled classes and executables will not natively in Android.

- **Part of the Linux Phone Standards Forum(LiPS) or Open Mobile Alliance (OMA)** Android run on an open source Linux kernel, but while their goals are similar, Android's complete software stack approach goes further than the focus of these standards-defining organizations.

- **Simple an application Layer** What it does include an application layer, Android also describes the entire software stack encompassing the underlying operating system, API libraries and the application themselves.

- **A mobile phone handset** Android includes a reference design for mobile handset manufacturers, but unlike the iPhone, there is no single "Android Phone" Instead, Android has been designed to support may alternative hardware devices.

- **Google's Answer to the iPhone** The iPhone is a fully proprietary hardware and software platform released by a single company (Apple), while Android is an open source software stack produced and supported by Open Handset Alliance and designed to operate on any handset that meets the requirements.

4. An open platform for mobile development:

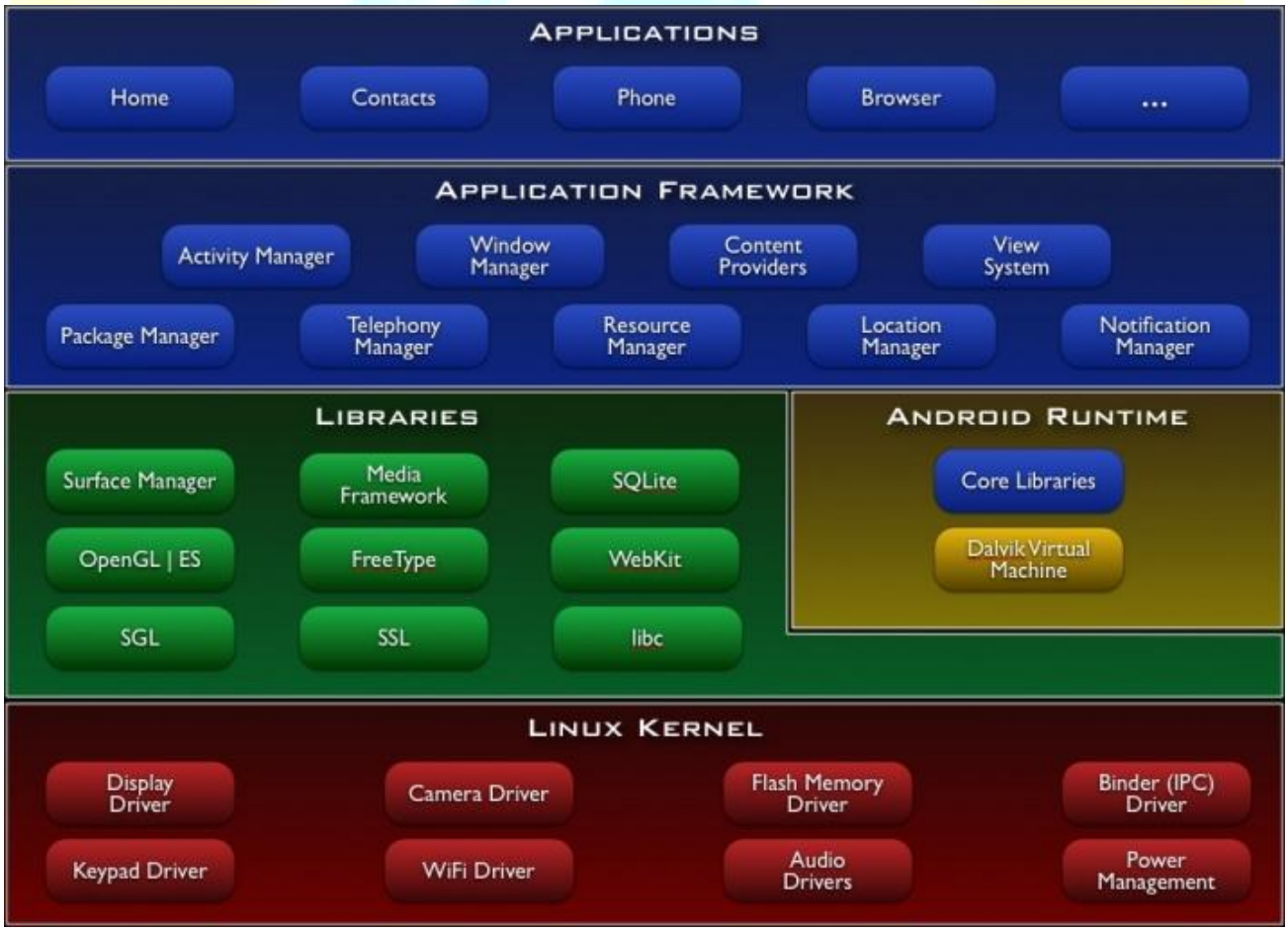
Android is made up of several necessary and dependent parts including the following:

- A hardware reference design that describes the capabilities required of a mobile device in order to support the software stack
- A Linux operating system kernel that provides the low-level interface with the hardware, memory management, and process control, all optimized for mobile devices
- Open source libraries for application development including SQLite, WebKit, OpenGL, and a media manager
- A run time used to execute and host Android applications, including the Dalvik virtual machine and the core libraries that provide Android specific functionality. The run time is designed to be small and efficient for use on mobile devices.
- An application framework that agnostically exposes system services to the application layer, including the window manager, content providers, location manager, telephony, and peer-to-peer services
- A user interface framework used to host and launch applications

- Preinstalled applications shipped as part of the stack
- A software development kit used to create applications, including the tools, plug-ins, and documentation

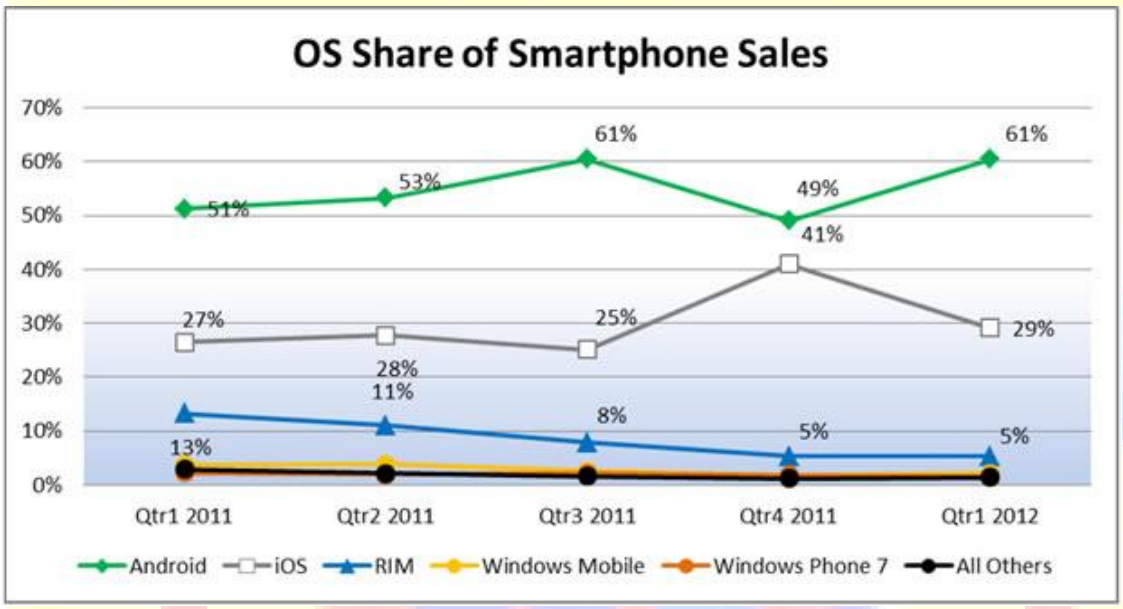
5. Android Architecture

The following diagram shows the major components of the Android operating system. Each section is described in more detail below.



6. Market share of Android:

Android is capturing more and more market in smart phone era. According to new research presented by NPD Group, Apple's record setting last two quarters were not enough to help it fight off Android in the battle for top smartphone OS. Their numbers show that after Q1, Android has grabbed a hold of 61% of the U.S. smartphone market share, with Apple dropping from 41% to 29% in the same time period.



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Android is not only dominating the US market but its worldwide. In the present scenario, Android smart phones are dominating global market and its expected for new few years also.

Worldwide Smartphone Operating System 2011 and 2015 Market Share and 2011-2015 Compound Annual Growth Rate

Operating System	2011 Market Share	2015 Market Share	2011-2015 Unit CAGR
Android	38.9%	43.8%	23.7%
BlackBerry OS	14.2%	13.4%	18.3%
Symbian	20.6%	0.1%	-68.8%
iOS	18.2%	16.9%	17.9%
Windows Phone 7/Windows Mobile	3.8%	20.3%	82.3%
Others	4.3%	5.5%	27.6%
Total	100.0%	100.0%	20.1%

Source: IDC Worldwide Quarterly Mobile Phone Tracker, June 9, 2011.
Note: Market share based on unit shipments.

7. Conclusion

Android is one of the growing technology in the world which is dominating the whole worlds industry. It is expected that in coming year computer devices will decrease the size and technology like android will dominate the market.

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