ANDROID- MOBILE OPERATING SYSTEM

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ABSTRACT

Android is a mobile operating system used for Mobile Devices Android is based upon a modified version of the Linux kernel . The unveiling of the Android platform on 5 November 2007 was announced with the founding of the Open Handset Alliance, a consortium of 34 hardware , software and telecom companies devoted to advancing open standards for mobile devices. Google decided to extend its features then it tied up with open alliance handset , a consortium of 79 hardware, software, and telecom companies devoted to advancing open standards for mobile devices. Google has made most of the Android platform available under the Apache free-software and open source license. The android SDK can be downloaded from its official website which includes virtual mobile Device, Google libraries and Tutorials.

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WHAT IS ANDROID?

Android is a cellular operating system that is based on a customized edition of Linux. It was initially designed by a start-up of the same name, Android operating system, Inc. In 2005, as aspect of its strategy to enter the cellular space, Search engines purchased Android operating system and took over its growth work (as well as its growth team).

In 2003, Android operating system started as a small Rubber Area start-up company with the aim to create a more interactive and helpful interface for mobile phones. Android operating system is a comprehensive free system designed for cellular mobile phones. It is championed by Search engines and owned by Start System Partnership. The goal of the alliance is to "accelerate advancement in cellular and offer consumers a better, less expensive, and better cellular experience." Android operating system is the vehicle to do so. A crucial ingredient for Android's achievements was the development of the Start System Partnership (OHA) in delayed 2007. The OHA includes companies such as HTC, Qualcomm, Motorola, and NVIDIA, which all work together to create open standards for cellular mobile phones. Although Android's program code is designed primarily by Search engines, all the OHA members contribute to its resource program code in one form or another.

In 2008, the release of edition 1.0 of Android operating system put an end to all rumours, and Android operating system went on to become the new opposition on the cellular industry. Since then, Android operating system has been fighting it out with already-established platforms, such as iOS (then called iPhone OS), BlackBerry OS, and Windows Phone 7. Android's growth has been phenomenal, as it has taken more and more business every year. While the future of cellular technology is always changing, one thing is certain: Android operating system is here to stay.

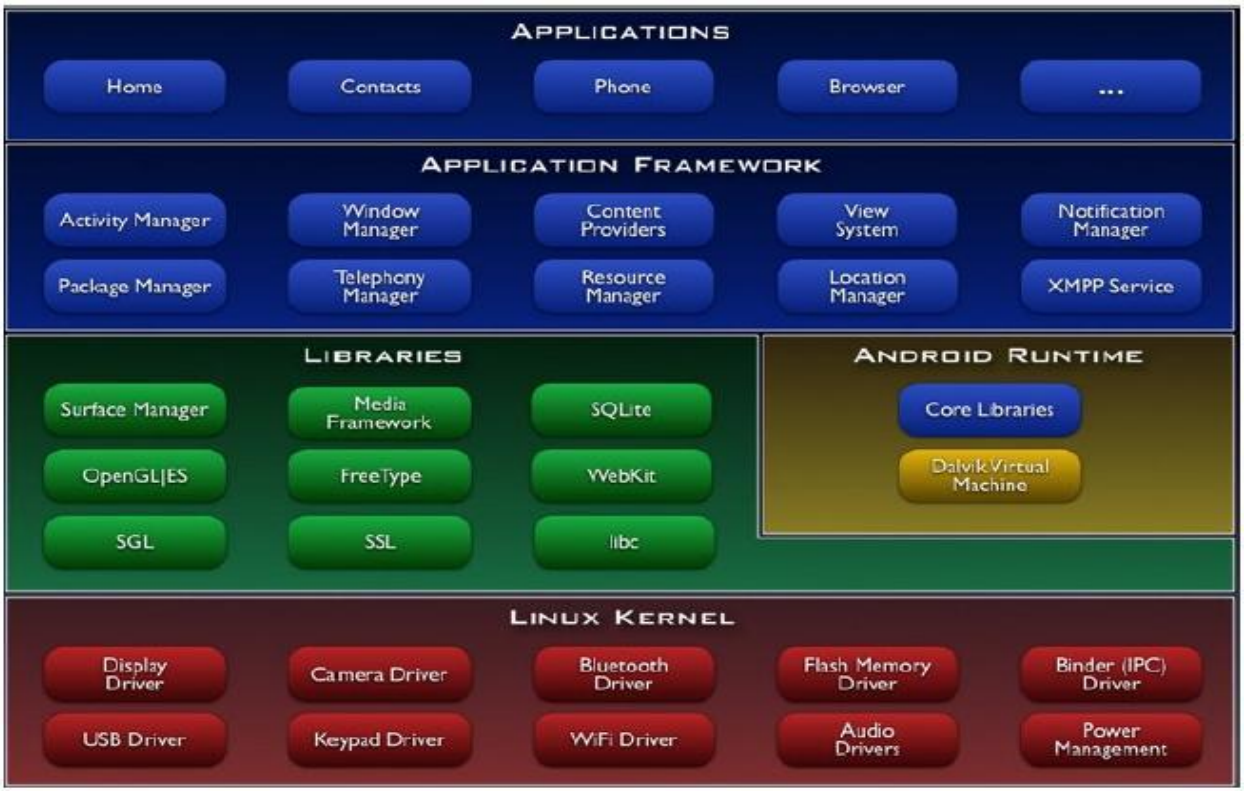
Because Android operating system is free, there is a low hurdle of entry for handset producers using the new system. They can produce gadgets for all price sections, changing Android operating system itself to accommodate the processing power of a specific device. Android operating system is therefore not limited to high-end gadgets, but can also be implemented in low-cost gadgets, thus attaining a wider audience.

In 2008, the Start System Partnership declared the Android operating system and launched a try out program for designers. Android operating system went through the typical modifications of a new system. Several prerelease modifications of the Android operating system Software

Development Kit (SDK) were released. The first Android operating system handset (the T-Mobile G1) started shipping in delayed 2008. Throughout 2009, more Android operating system devices and diverse types of gadgets operated by Android operating system reached globe marketplaces. As of this writing, there are more than 36 Android operating system mobile phones available from providers all over the globe. This number does not consist of the several Android operating system tablet and e-book readers also available, nor the dozens of upcoming gadgets already declared, nor the technology running Android operating system. The rate of new Android operating system gadgets attaining the globe marketplaces has continued to increase. In the United States, all major providers now consist of Android operating system mobile phones in their products.

The main advantage of implementing Android operating system is that it offers a specific approach to database integration. Developers need only create for Android operating system, and their programs should be able to run on several different gadgets, as long as the gadgets are operated using Android operating system. On the globe of mobile phones, programs are the key to the achievements chain. System producers therefore see Android operating system as their best hope to challenge the assault of the iPhone, which already instructions a large base of programs.

Android architecture



FEATURES

1. Application Framework : It is used to write applications for Android. Unlike other embedded mobile environments, Android applications are all equal, for instance, an applications which come with the phone are no different than those that any developer writes. The framework is supported by numerous open source libraries such as openssl, SQLite and libc. It is also supported by the Android core libraries. From the point of security, the framework is based on UNIX file system permissions that assure applications have only those abilities that mobile phone owner gave them at install time.
2. Dalvik Virtual Machine: It is extremely low-memory based virtual machine, which was designed especially for Android to run on embedded systems and work well in low power situations. It is also tuned to the CPU attributes. The Dalvik VM creates a special file format (.DEX) that is created through build time post processing. Conversion between Java classes and .DEX format is done by included "dx" tool.
3. Integrated Browser: Google made a right choice on choosing WebKit as open source web browser. They added a two pass layout and frame flattening. Two pass layout loads a page

without waiting for blocking elements, such as external CSS or external JavaScript and after a while renders again with all resources downloaded to the device. Frame flattening converts founded frames into single one and loads into the browser. These features increase speed and usability browsing the internet via mobile phone.

4. Optimized Graphics: As Android has 2D graphics library and 3D graphics based on OpenGL ES 1.0, possibly we will see great applications like Google Earth and spectacular games like Second Life, which come on Linux version. At this moment, the shooting legendary 3D game Doom was presented using Android on the mobile phone.
5. SQLite: Extremely small (~500kb) relational database management system, which is integrated in Android. It is based on function calls and single file, where all definitions, tables and data are stored. This simple design is more than suitable for a platform such as Android.
6. Handset Layouts : The platform is adaptable to both larger, VGA, 2D graphics library, 3D graphics library based on OpenGL ES 1.0 specifications, traditional smart phone layouts. An underlying 2D graphics engine is also included. Surface Manager manages access to the display subsystem and seamlessly composites 2D and 3D graphic layers from multiple applications
7. Data Storage : SQLite is used for structured data storage .SQLite is a powerful and lightweight relational database engine available to all applications.
8. Connectivity :Android supports a wide variety of connectivity technologies including GSM, CDMA, Bluetooth, EDGE, EVDO, 3G and Wi-Fi.
9. Messaging : SMS, MMS, and XMPP are available forms of messaging including threaded text messaging.
10. Web Browser : The web browser available in Android is based on the open-source WebKit application framework. It includes LibWebCore which is a modern web browser engine which powers both the Android browser and an embeddable web view.
11. Java Virtual Machine : Software written in Java can be compiled into Dalvik bytecodes and executed in the Dalvik virtual machine, which is a specialized VM implementation designed for mobile device use, although not technically a standard Java Virtual Machine.

12. Media Support : Android will support advanced audio/video/still media formats such as MPEG-4, H.264, MP3, and AAC, AMR, JPEG, PNG, GIF.
13. Additional Hardware Support : Android is fully capable of utilizing video/still cameras, touchscreens, GPS, compasses, accelerometers, and accelerated 3D graphics.
14. Development Environment : Includes a device emulator, tools for debugging, memory and performance profiling, a plugin for the Eclipse IDE. There are a number of hardware dependent features, for instance, a huge media and connections support, GPS, improved support for Camera and simply GSM telephony. A great work was done for the developers to start work with Android using device emulator, tools for debugging and plugin for Eclipse IDE.
15. A truly open, free development platform based on Linux and open source. Handset makers like it because they can use and customize the platform without paying a royalty. Developers like it because they know that the platform "has legs" and is not locked into any one vendor that may go under or be acquired.

ADVANTAGES

1. Open - Android allows you to access core mobile device functionality through standard API calls.
2. All applications are equal - Android does not differentiate between the phone's basic and third-party applications -- even the dialer or home screen can be replaced.
3. Breaking down boundaries - Combine information from the web with data on the phone -- such as contacts or geographic location -- to create new user experiences.
4. Fast and easy development - The SDK contains what you need to build and run Android applications, including a true device emulator and advanced debugging tools.

DISADVANTAGES

1. Security - Making source code available to everyone inevitably invites the attention of black hat hackers.
2. Open Source - A disadvantage of open-source development is that anyone can scrutinize the source code to find vulnerabilities and write exploits.
3. Login - Platform doesn't run on an encrypted file system and has a vulnerable log-in.

4. Incompetence - Google's dependence on hardware and carrier partners puts the final product out of their control.
5. Drain battery: Another drawbacks of Android operating system is its strain battery power very fast. You play games for 5 minutes and your battery power gauge fall from 98 to 82. This is how android absorbs and eat up your battery power as soon as you touch your phone
6. Decentralized:-It does not have main Android operating system body to address the complaint of its customers

FUTURE USES

1. Virtual Experiences: In the long run, AR technological innovation could be used to make exclusive encounters. You could have a go installed program that could help present place into something definitely different. For example, you could remain through films by dressed in such a program and seeing the film occur around you. You could turn your house into an ancient adventure or into the is.Coupled with aural AR and some smell-emitting technological innovation, a whole encounter could be created natural and feel definitely actual. Moreover to this, dressed in a body fit that can replicate the sensation of contact will make it definitely and undoubtedly actual.This would be quite challenging to implement on Android operating program if and when it changes up because Android operating program is missing in the needed receptors and feedback techniques to implement such a thing. Its visible functions could be applied to an level, but the audio and sensation ones would be out of achieve unless someone makes a bodysuit with a go installed show and audio on a ported edition of Android operating program.
2. Holograms: AR allows the customer to have a remain immediate or oblique perspective around the globe, which might allow customers to have holograms at the front side of them. These holograms could be entertaining or merely illustrative. They could be displaying anything. This could be done even nowadays with a very customized edition of an app that uses indicators to show designs. Instead of fixed designs, the app could be created to show an activity or documenting or remain transmitting. However this would not offer a real hologram encounter as it will be on the unit's display only.
3. Movies: AR could be used to play whole films. The cinema could be changed with the qualifications of the film or the cinema could be changed with the stars only. In the first

way, the stars could be enhanced onto the qualifications and in the second technique the qualifications could be enhanced behind the stars. These could offer for more genuine and fun films, while maintaining the cost of capturing down.Apps like these are already in manufacturing, but not in the quality, reputation, and complexity to have me move this out of the long run implementations. Although these applications are not that easy to make, they're not very challenging, either.

4. Gesture Control: AR could be used to implement many action manages such as eye calling. The digicam could monitor the customer's eye activity to choose the appropriate variety key. After the preferred key has been chosen, the customer could flicker to media that variety and then continue to choose the next key. This could in the same way be applied to management songs gamers, cellular phone applications, computer systems, and other types of technological innovation.

CONCLUSION AND FUTURE SCOPE

Android has been criticized for not being all open-source software despite what was announced by Google. Parts of the SDK are proprietary and closed source, and some believe this is so that Google can control the platform. Software installed by end-users must be written in Java, and will not have access to lower level device APIs. This provides end-users with less control over their phone's functionality than other free and open source phone platforms, such as OpenMoko.

With all upcoming applications and mobile services Google Android is stepping into the next level of Mobile Internet. Android participates in many of the successful open source projects. That is, architect the solution for participation and the developers will not only come but will play well together. This is notable contrast with Apple and other companies, where such architecture of participation is clearly belated.

The first Android based official devices may well be launched sometime in the early half of 2009. Obviously, that's an age away when it comes to handset design, and Android may well find itself competing against the forthcoming Nokia touch screen phones and maybe even the iPhone 2

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