

A Review Paper on Operating Systems in Mobile

Ankit Mathur¹ Prof. Sanjiv Kumar²

¹B. Tech Scholar ²Head of Dept.

^{1,2}Department of Electronics & Communication

^{1,2}Vivekananda Institute of Technology, Jaipur

Abstract— Benjamin Franklin said that the achievement, improvement and success have no meaning without continual growth and progress. Mobile industries seem to follow this quote very well. A continuous growth and progress have become motto of these industries. Every day new technologies are being developed to mark the continuous growth of industry. New features and easy to use interface are being provided to their customers by companies. But perfection comes with time. This paper explains various features with advantages and lacking of major mobile operating systems like iOS, Android and Symbian. With the analysis, I have found that now days, new operating systems are at a boom than symbian due to new technology and features, while iOS has still been able to conserve its market share with frequent updations.

Key words: Mobile Operating System, Android, Symbian, iOS

I. INTRODUCTION

As the craze of mobile phones increases in customers the confusion for selection of the best phone will born in their minds. Now a day different operating systems, with hundreds of brands provides tons of features to customers which seems to be a mind boggling market.

Every day Competition in mobile industry is increasing. Every mobile company wants to provide best features in their mobiles resulting in various mobile companies providing different mobile operating systems, that having different features. In this research paper, I will be talking about various mobile operating systems, together with their features with advantages and lack points [6]. This paper will compares between these operating systems and try to provide ideas for various new features to make them better for customers.

Bell labs engineers invented the Hexagonal cells which are used by mobile phone stations. During the World War II radio phones are used. In 1930s it is possible to make call on ship by a telephone customer which are very costly. During 1940s a two way Walkie-Talkie and a two way radio for military was developed by Motorola.

A. What is an Operating System?

On any running processor-based device the most critical software element is called OS which manages the hardware with software resources. it is used for performing and managing basic tasks like the recognition of input from the device keyboard and to generate output on the device's screen^[1]. It also take care of different programs running at the same time do not get interfere with the responsibility that it will manages the memory and communication within the device.

It may be extended to add additional complexity and hence functionality to the code. In the mobile world, as the devices become more complex, the mobile phone will become more important with more complex OSs. In general the OS is purposely hidden from the user as it, will be no direct interaction with it. It is a base onto which the applications required by the user are loaded.

In terms of the tasks it performs The OS is not only a key element but the choice of OS will constrain or enable the functionality of the end device in two key respects; one of them is that which is technically possible with any given OS and other is that which is available.

The OS provides a platform to the software on which other application programs can run. For a particular OS, the application programs have to be written so the choice of OS, therefore, determines to a great extent the applications that can be offered on the end device^[2]. They also provide a consistent interface for applications, regardless of the hardware it is loaded on. An API (Application Program Interface) is used to Communicate the OS with the applications through which it allows a software developer to write an application for one device which will run on another running the same OS.

II. TYPES OF MOBILE OS PLATFORMS

The Mobile OSs can be differentiated, based on the existing operating systems used by computers.

Real-Time Operating System:-Real-Time Operating System is that which responds to inputs, immediately by generating results, instantly usually used to control scientific devices. They are used in small instruments, which has memory and resources as crucial and constricted having very limited or zero-end user utilities. That's why more effort goes into making OS really memory efficient which will minimize the execution time with power saving like 8086 etc.

Single user, single tasking operating system:-Better version of Real time OS, is single user, single tasking OS where one user can do effectively one thing at a time. It means that it is difficult in this type of OS to do more than one thing at a time. For example:-The palm OS.

Single user, multi-tasking operating system:- It is used to perform more than one program concurrently like printing, scanning, word processing etc. in MS Windows and Apple's Mac OS.

Multi-user operating system:-It is used when two or more users run programs at the same time. UNIX, and Main Frame OS permit hundreds or even thousands of concurrent users.

III. ANDROID

For use in some smartphones and other devices computing designed platform called Android which is owned by Google, Inc. It contains operating system, software, and applications. The OS is based on Linux, providing advanced computer processing

A. History of Android:

In July 2005 Google purchased Android Inc. which was a 22-month-old Palo Alto, California, start-up. The co-founder of Android Inc. was Andy Rubin, who makes mobile device Danger Inc. into the wireless technology market. The purchase was key in Google's move[3]. The first marketed phone to use Android technology is introduced in 2008, by Google which was the HTC Dream. Then this platform use has expanded to other smartphones, including E-readers, with net books, tablet computers, and other devices.

B. Android applications:

The most common hardware to use Android technology is mobile phones. The large community of developers regularly writes applications, in which games, social networking, and business modules, are included. There are various free Android apps, among which games and productivity titles are present, and paid apps are also present. Android technology is used by thousands of developers as it is freely available for download. It provides software developers the opportunity to sell their creations to wide group of consumers.

C. Programming for Android:

The basis of Android technology is Java software applications, which requires the use of a special software development kit to create applications for an Android device which is available for download free of cost from the Internet. That's why Android technology is preferred by many software developers over that used in other smart phones. It will work on multiple operating systems. For navigation Smart phones have evolved into devices which use touch screens. As Android technology is providing specific application programming interface modules to developers they can take advantage of this.

D. What's so different in Android?

The good news is for both consumers and developers. Consumers could enjoy a low-cost Smart phones running Android, and unrestricted customization right is given to the developers. From a developer's point of view, Android has several advantages, as listed below:

- By selective components the replacement and reusing of the entire Application framework can be done [8].
- Enhancement of power management systems by Dalvin virtual machine can be done.
- Support for 2D and 3D graphics.
- Reliable and enhanced data storage.
- As it supports common media file formats Developers can create media common applications.
- GSM, 3G, Wi-Fi network, HSCSD,EDGE, applications support (Depends on hardware)
- Based web-browser based on Open source Web-Kit Engine
- Navigational compass, Touch-Unlock, PS, and accelerometer applications support (Depends on hardware)

E. Reliability and security:

A multi-process system whose each application runs in its own process is Android. At the process level security between applications and the system is enforced through standard Linux facilities like applications assigned by user and group IDs. Additional finer-grained security features are provided through a "permission" mechanism that applies restrictions on the specific operations that particular process can perform, and also per-URI permissions for giving ad-hoc access to the specific pieces of data.

As an open platform, Android allows users to load software from any developer onto a device. As with home PC, the user must be aware about information that who is providing the software they are downloading and must take decision whether they want to grant the application the capabilities it requests. This decision can be informed by the judgment of the user of the software developer's trustworthiness, and where the software belongs to.

IV. IOS (APPLE)

Apple's Steve Jobs introduced the iPhone to the world on January 10th, 2007. That world is moving so quickly that iOS is already amongst the older mobile OS in active development today [6]. That certainly doesn't mean it's underpowered or underfeatured quite the contrary [5]. Perhaps the most remarkable thing about iOS is how similar the OS as it exists today is to the OS as it existed 2007, yet no. and breadth of features that Apple has baked in since then is mind boggling.

A. iOS Applications:

In July of 2008 the "finally" moment for iOS came, when Apple introduced the App Store to iOS. Third party apps for smartphones were the furthest thing from new, but Apple managed to make them feel that way with its system for browsing, developing, and installing them.

V. SYMBION

Accenture is maintaining Symbian and working for smart phones also. The successor to Symbian OS and Nokia Series 60 is the Symbian platform; unlike Symbian OS, Symbian includes a user interface component based on S60 5th Edition. Symbian OS was originally developed by Symbian Ltd [4]. In December 2008, Nokia bought Symbian Ltd., the company behind Symbian OS; consequently, Nokia is the major contributor to Symbian's code, since it then possessed the development resources for both the Symbian OS core and the user interface.

VI. RESULT & DISCUSSIONS

Having a support of world's largest App store, iOS enjoys a wide variety of functionalities needed in day to day life! Making it easy to opt for option for the customers and Android has a faster growing App store and is already having largest App stores to provide conglomeration in routine apps. Symbian lacked a good support for applications thus creating another drawback for it. Android is not much far behind. As we talk about the hardware support, Apple celebrates to be the most trusted brand for hardware support. Symbian also provides a great platform for different applications in terms of hardware support.

VII. CONCLUSION

We can conclude that every OS has been developed by keeping in mind the targeted customers. Every Operating System provides competitive and unique features [7]. However, iOS came out to be ever enhancing operating system with a great evolution chart over the years. Android, being an open source operating system enjoys addition of new ideas every day by various Android lovers. Symbian lacked the continuous updations as compared to other systems.

REFERENCES

- [1] Kamboj, Gupta, (2012) —Mobile Operating Systems, International Journal of Engineering Innovation & Research, Volume 1, Issue 2, ISSN: 2277 – 5668, Pp. 115-120
- [2] Open Source OS - The Future for Mobile? By Juniper Research
- [3] Android by 2012, A study on present and future of Google's Android By Dotcom Info way
- [4] White paper on Mobile OS and efforts towards open standards By Dotcom Info way
- [5] Zhang. J. (2010), —Android vs iPhone!