



Mobile Operating Systems

Android and IOS weaknesses

Duaa jad

Amman Arab university
 Amman, Jordan
 Do3a2jad@gmail.coml

Dr. Mohammad Othman Nassar

Amman Arab university
 Amman, Jordan
 moanassar@aau.edu.jo

Abstract - With the increase of competition on the smart phone market, many companies are looking for the weaknesses in competitive products in order to provide alternatives. At the same time, the continued development of these devices has become necessary in order to know the weaknesses and problems that exist so they me be avoided or solved. In this paper we will review the current weaknesses of the android OS and (IOS).

Keywords – Operating System, Android, IOS, disadvantages.

i. Introduction

A mobile operating system is system software that manages the hardware on a phone or other mobile device. Designs vary depending on the manufacturer, each operating system contains many properties at the same time there are a lot of challenges and problems that exist in these systems, which are still under development. In this study, we will focus on two types of operating systems: android OS and IOS .

Android is a stack of software which includes an operating system for mobile devices.

Android was first released on September 23, 2008, and is considered as an OS as well as a platform for software.

Google developed the android operating system based on the Linux kernel and designed primarily for touch screen mobile devices. It's designed to be an open source and freeware system so all the developers can develop application [4].

IOS is a mobile operating system developed by Apple. IOS at present runs on the iPhone, iPad and iPod touch.

When developers design iOS they tried to add many features did not exist in other traditional

operating systems, one of the most important features easy to use.

Apple designed a special operating system for apple hardware only, but based on Unix and the first released for the IOS on June 29, 2007 [3] [5].

As we will see in this paper, there are different disadvantages and weaknesses in each mobile operating system. We have found three weaknesses for the Android operating system concerning: data failure, the architectures of android Mobile Operating Systems, and security issues.

Then we discuss the problem in IOS in four points (the cost, hardware requirement, IOS Architectures, and Concurrency Model)

ii. Android weaknesses :

• Automatic Collection Data Failure

There are two types of data failures: **application failures and system failures:**

“Applications failures may crash like an app that stops to work unexpectedly or infinite loop or deadlocked.

The system as a whole may experience self-reboots (the system forces a reboot as a consequence of a severe problem) and freezes (the system delivers a constant output, and it does not respond to the user’s input)” [5].

We can see that android as operating system not fully stable, the reason for that being many developers who design application daily and that lead to a lot of compatibility issues that’s why so many times the application crashes in android and some application also cause system crash which lead to hang of operating system or may also leads to system reboot[5].

- **Architectures of Android mobile operating systems:**

For the Android OS architecture we have five layers ordered from top to bottom: (applications, applications framework, libraries, Android run time which provides the functionality of JAVA PL, and the Linux abstraction layer between the hardware and the rest of the software stack)

as we know that Android has a set of c/c++ libraries , android built as set of core applications that offers developers the ability to build various applications with an open development.

According to this architecture we have some weaknesses: (Most Android phones require Internet connection at the same time, so that could be heavy on the internet, applications can still be expanded we can see update for many apps automatically and all that impact the storage) [3].

- **Security issue:**

Android has two basic methods of security enforcement:

a) Applications run as Linux processes with their own user IDs and thus are separated from each other [3].

b) Android uses an enforcement mechanism based on permissions to restrict access to advanced or dangerous functionality on the device[1], if there is any application trying to access any component, Android requires that the user must accept prior to installing an application.

The Problem with this technique, according to Joe Keehnast, a product manager for Norton, is that very few people actually look through an app's permissions before installing it.

The permissions list can be extremely unclear and unhelpful. Some security apps, such as Lookout Mobile Security, feature "privacy advisors" that can give you a little more detail as to why an app would request certain permissions[8].

- iii. **IOS weaknesses**

- **Cost**

One of the biggest issues in mobile market is cost compared with quality of operating system. IOS is not a freeware services; it's based on the Unix platform.

IOS supports only Apple hardware. That's why any device which supports iOS is costly compared to Android. [5].

- **Hardware Requirement**

iOS - To develop iOS we require Macintosh computers running Mac OS X. 10.6. As the apps in mobiles are relatively small in size, and run on slower processors, the only difficulties is :

Usability testing— example for that using the mouse with a simulated touch screen or apps that require access to certain hardware (GPS, Camera, Magnetometer) it's so hard to test apps like that realistically [5].

- **IOS Architecture:**

IOS developed and distributed by Apple and just for Apple hardware

ios works between the user and the hardware, and as result for IOS Architecture we have some disadvantages: No flash Support, Dependent on Apple hardware, App Approval process is largely a black box to developers. [3].

- **Concurrency Model**

multitasking give the chance to switch between the apps or open more than one in the same time but also this apps using CPU , sources, memory, so that Apple restricted the multitasking capabilities by using the third party to save more memory so just One application can run at the same time. [2].

CONCLUSIONS

In this paper, we review the Mobile OS weaknesses for Android and iPhone, we discussed the disadvantages and not be explicitly announced that the one is better than another; but according to the features of any operating system, users must select the appropriate operating system, we discuss the Architectures disadvantages for both and security issues, Failure Data in android, and cost, hardware requirement and Concurrency for iphone operating system .

References

[1] Anjaneyulu G. S. G. N.*, Gayathri M.1 and Gopinath G.1” Analysis of advanced issues in mobile security in android operating system” Archives of Applied Science Research, 2015, 7 (2):34-38 (<http://scholarsresearchlibrary.com>).

[2] Naseer Ahmad, Muhammad Waqas Boota, Abdul Hye Masoom “Comparative Analysis of Operating System of Different Smart Phones” *Journal of Software Engineering and Applications*, 2015, 8, 114-126.

[3] Prof. Y. K. Sundara Krishna, Mr. G K Mohan Devarakonda” A Survey on Architectures of Mobile Operating Systems: Challenges and Issues” *International Journal of Research Studies in Computer Science and Engineering (IJRSCSE)* Volume 2, Issue 3, March 2015, PP 73-76.

[4] Ashish A Kulkarni, Pooja A Kulkarni” A STUDY OF ANDROID OPERATING SYSTEM WITH RESPECT WITH USERS SATISFACTION” *International Journal of Advanced Technology in Engineering and Science* Volume No.03, Issue No. 01, January 2015

[5] Bharati Wukkadada, 2 Ramith Nambiar, 3 Amala Nair “Mobile Operating System: Analysis and Comparison of Android and iOS” *International Journal of Computing and Technology*, Volume 2, Issue 7, July 2015.

[6] G. Jindal, M. Jain, “A Comparative Study of Mobile Phone’s Operating Systems”, *International Journal of Computer Applications & Information Technology*, Vol. 1, Issue 3, November 2012.

[7] *Android vs. iOS: The Security Battle*, 2014 , IEEE.

[8] Armando Rodriguez “Android's Permission Problems”: