

Smartphones Operating Systems Market Analysis

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Abstract— The focus on cell phones currently is shifting from the device specifications to the operating system features and limitations. Currently, Google has almost 81% of the market share due to its open-source operating system and the variety of cell phone manufacturers. Besides that, experts predict that it will remain on top for a long time. Apple's and Google's operating systems have great features but some features could be considered more powerful than others. Great features might attract developers but won't necessarily attract customers, and that is why a furious battle is taking place and Google is winning so far.

Index Terms— Operating Systems, iOS, Android, Cell Phone Market Share, Google Play, App Store, Windows Phone

1 INTRODUCTION

The focus on cell phones currently is shifting from the device specifications to the operating system features and limitations. Currently, Google has almost 81% of the market share due to its open-source operating system and the variety of cell phone manufacturers. Besides that, experts predict that it will remain on top for a long time. Apple's and Google's operating systems have great features but some features could be considered more powerful than others. Great features might attract developers but won't necessarily attract customers, and that is why a furious battle is taking place and Google is winning so far.

2 LITERATURE REVIEW

A cell phone operating system, also known as a cell phone OS, a cell phone platform, or a handheld operating system, is the operating system or the software that controls a cell phone device. We can compare it to laptops and desktop computers operating systems such as Windows or Mac OS, in term of many functions. However, cell phone OS's are not designed for complex computing or as a replacement of the traditional computer OS's. In 2007, Apple released its revolutionary iPhone device which was considered the invention of the year (Grossman, 2007). The iPhone operating system was called iPhone OS but in 2010 Apple changed the name to iOS (Nations, 2010). The iOS was very similar in terms of ease of use and basic functions to the Mac OS. In November 2007, Google formed an Open Handset Alliance with hardware, software, and telecom companies to start producing cell phone devices carrying its operating system, which was called Android. The Android OS is an open source OS, and it was built essentially to give developers full advantage of all a handset has to offer (Helft, 2007).

2.1 Market Share

The Operating System OS market is becoming increasingly fierce and Google's Android OS is sprinting to the top of the cell phone OS market and leaving behind Apple, Microsoft and RIM. This is mainly because unlike its competitors,

Google is offering an open-source OS. An open-source OS allows the phone manufacturers to modify and add their personal touch to the OS and make it their own, additionally, it offers freedom to the users and developers to modify the OS according to their needs. According to Liane Cassaboy (2010), The Android OS is not as sophisticated as Apple's iOS but it offers customizations and freedom, which other platforms don't offer, such as the ability to change the theme of the OS, the ability to view flash-based content and the ability to have animated wallpaper. In other words, being able to customize the OS is the biggest advantage of Android-powered devices. In addition to the openness, the Android OS is available on different cell phone devices unlike the iOS. For example, in order for the customer to use the iOS he/she must buy an iPhone or an iPad while on the other hand, if the customer wants an Android phone he/she can have a variety of choices from different companies such as Samsung, HTC, Motorola, LG and Sony. A recent report from Nielsen shows that Google's strategy of having different devices from different companies is working because Android OS now account for 43% in United States, while iPhone iOS account only for 20.6% in the United States as shown in figure 1 (Global Stats, 2013). Google's Android became the dominating OS for the third year on a row moving Apple's iOS to second place even though Apple started selling phones in 2007—one year before Google. The competition between Operating Systems is increasing rapidly and as a result it became more productive and beneficial to the customers. But will it last or will one OS overcome the others?

3 COMPARISON BETWEEN GOOGLE, APPLE AND MICROSOFT OPERATING SYSTEMS

Android's OS has more powerful features than Apple's iOS and Microsoft's Windows Phone 7 OS. Google worked hard to overcome its weaknesses and improve its Android OS in the last two years through introducing innovative and creative features such as Facebook integrated software, Google Wallets where customers can pay via swiping their phones instead of their MasterCard or Visa, and Google Offers in which cus

A TIMELINE OF MOBILE OS MARKET SHARE
How Google's Android Took Over The Market:

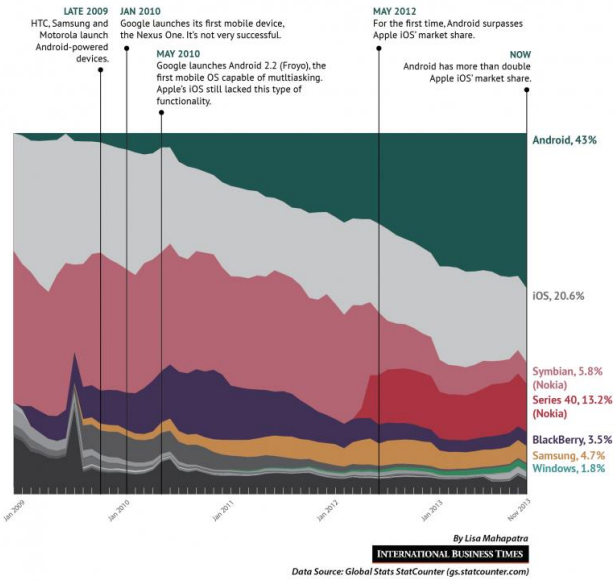


Figure 1: Smartphones Market Share in the U.S, 2013

tomers get discount offers for using their cell phones for purchasing instead of their bank cards. On the other hand, Apple also has great ideas such as their innovative iCloud service where customers can have their data backed up on the internet automatically and have access to it twenty-four hours a day seven days a week from anywhere. Moreover, Apple has its famous iTunes Store where customers can download music, movies and books directly to their phones.

However, Apple suffers from distraction because the company is focusing on the iPhone device specification and the OS at the same, while Google is utilizing all of its resources to improve the OS since it's outsourcing the manufacturing of the devices (Hoffstein, June, 2011). Furthermore, Apple's strategy is mainly about persuading people to use their devices in order to maximize their satisfaction and take full advantage of the OS features, while Google devices offer compatibility with a variety of devices from different companies. Analysts Michael Burns says "Google's more open Android OS distribution strategy has garnered the support of numerous notable original equipment manufacturers (OEM's).

This is spawning a rapidly growing installed base of Android devices that is gunning to overtake the iOS installed base" (2011). In other words, Apple needs to wake up and be more open before Google OS spreads further and controls the cell phone market completely. On the other hand, Microsoft the old competitor with a fresh look in the market, still needs some time to mature and develop its own personality to compete with Apple and Google over the smartphone market share. Following this further, Figure 2 shows a general comparison between the Android OS, iOS and Windows Phone 7 OS.

As shown in the figure above, one of the biggest drawbacks of the iOS is the lack of flash support, which according to Apple is no longer necessary. According to Steve Jobs, Apple's CEO, "Flash was created during the PC era - for PCs and mice. Flash is a successful business for Adobe, and we can understand why they want to push it beyond PCs. But the mobile era is about low power devices, touch interfaces and open web standards - all areas where Flash falls short" (Schroeder, 2010).

	Windows Phone 7	iOS (iPhone)	Android
Developer	Microsoft	Apple	Google
Copy/Paste	X	✓	✓
Multitasking	X	✓	✓
Flash Support	X	X	✓
Silverlight Support	X	X	X
HTML5 Support	X	✓	✓
Unified Inbox	X	✓	✓
Exchange Support	✓	✓	✓
Threaded Email	X	✓	✓
Visual Voicemail	X	✓	✓
Video Calling	X	✓	✓ Third Party App
Universal Search	X	✓	✓
Internet Tethering	X	✓	✓
Removable Storage	X	X	✓
Facebook Integration	✓	X (Third Party App)	✓ (Third Party Integration)
Twitter Integration	X	X (Third Party App)	✓ (Third Party Integration)
Folders		Hubs	✓
Apps Organization	Alphabetical	Customizable	Customizable
App Store	1,000+ Apps	300,000+ Apps	90,000+ Apps
Microsoft Office Support	Built-in	Third Party App	Third Party App
Widgets	Tiles on Home Screen	X	✓
Media Sync	Zune Software Mac & PC	iTunes Mac & PC	Direct File Transfer + Third Party Software
X-Box Live Integration	Built-in	Via Third Party App	Via Third Party App

Figure 2: Android, iOS and WP7 OS Comparison

Furthermore, Apple's dependence on their software, such as the iTunes, to sync with a Mac or PC is irritating to customers. Currently, Apple's massive application store is a huge boost to the company advertising wise through having a variety of innovative apps that attract customers and service wise with more than 900,000 applications today. However, in a recent report from Distimo Analytics Company (Wauters, 2013), forecasted that Google's Android Market store would surpass Apple's App Store in number of applications before the end of July 2014 as shown in Figure 3. Developers are considered as VIP customers in the eye of the software companies, that's why their opinion and satisfaction is crucial to the company's success.

4 DEVELOPER'S POINT OF VIEW

Although Android OS is more popular among developers than Apple's iOS, developers are leaning towards the iOS because of its great App Store. Surveys show that Android developers are suffering from device fragmentation, which means that developers are having problems with developing application to a variety of Android versions; the survey found that 87% of the developers are having concerns about fragmentation as shown in Figure 4 (William Powers 2011).

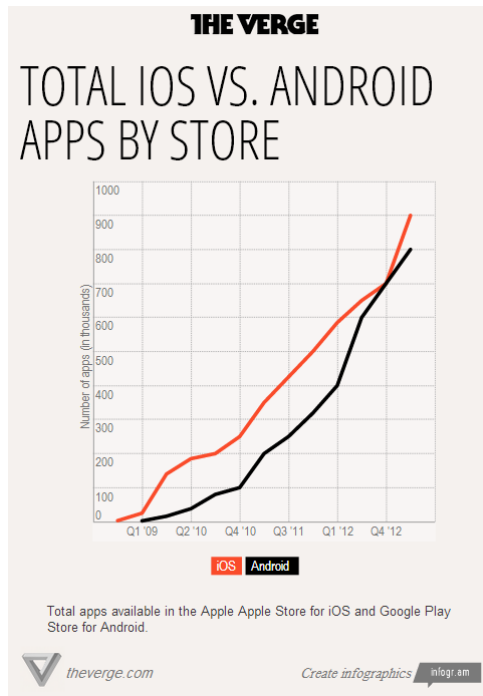


Figure 3: Number of Apps in Apple & Google App Stores

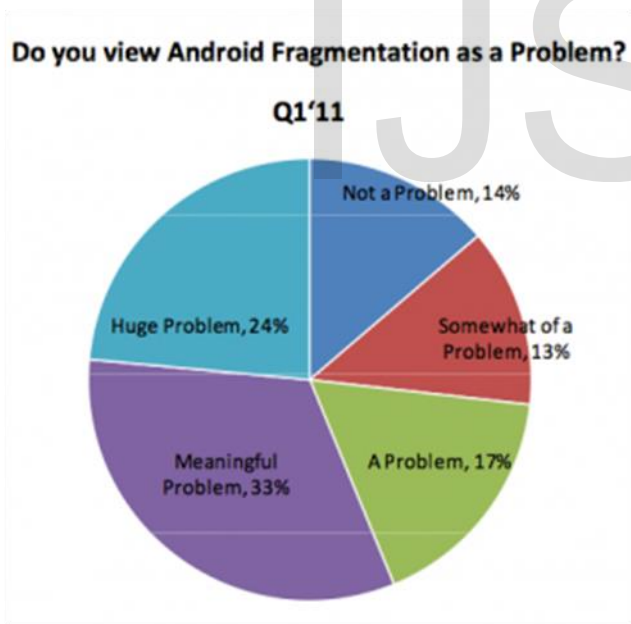


Figure 4: Android Developers Concern over Fragmentation (AppleInsider.com)

5 CONCLUSION

Google is gaining momentum customer-wise, while Apple is having an advantage developer-wise. Critics predict that Apple's success won't last forever since it used to depend almost completely on its late CEO Steve Jobs, while Google has more than one person to depend on.

Although, the development for the iOS is easier than the Android, developers eventually will follow the most successful OS. In other word, developers will always undoubtedly follow the money.

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