A Comparative Study between Chrome OS and Firefox OS

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ABSTRACT

Firefox Operating System and Chrome Operating System although launched many years ago, are still new to the operating system market. Windows and Android are the big game players in this area. This paper analyzes how much area Firefox and Chrome has covered in the OS market. Whether people like the features offered by them by taking survey and how many people actually know that such OS exist. A comparison of the OS with their respective opponent OS in their respective field (Firefox in Smartphone and tablets whereas Chrome in Desktops) is made. A conclusion is drawn as of which OS out of the two has gone ahead. As per the survey, 64.2% of the people were aware of the Chrome OS and 54.7% of the people were aware of Firefox OS. 64.2% of people were ready to use Chrome OS and 50.9% for Firefox OS.

Keywords
Chrome Operating System, Firefox Operating System, Comparison of Firefox and Chrome

1. INTRODUCTION

Chrome OS[1] is an operating system based on the Linux kernel and designed by Google to work with web applications and installed applications. Initially, Chrome OS was almost a pure web thin client operating system, with only a handful of "native" applications, but Google gradually began encouraging developers to create "packaged applications", some of which can work offline. In 2014, Google upgraded its Play Store standards for packaged applications, requiring that these applications work offline. Around the same time, Google also announced that Chrome OS would gain the ability to run Android applications natively, by late 2014. In September 2014, App Runtime for Chrome (beta) was launched together with four Android applications being able to run on Chrome OS.

Chrome OS is built upon the open source project called Chromium OS which, unlike Chrome OS, can be compiled from the downloaded source code. Chrome OS is the commercial version installed on specific hardware from Google's manufacturing partners. The launch date for retail hardware featuring Chrome OS was delayed from late 2010 to

June 15, 2011, and "Chromebooks" from Samsung and Acer shipped in July 2011.

Firefox OS[2] (project name: *Boot to Gecko*, also known as *B2G*) is a Linux kernel-based open-source operating system for smartphones, tablet computers and smart TVs. It is being developed by Mozilla, the non-profit organization best known for the Firefox web browser.

Firefox OS is designed to provide a complete, community-based alternative system for mobile devices, using open standards and approaches such as HTML5 applications, JavaScript, a robust privilege model, open webAPIs to communicate directly with cell phone hardware, and application marketplace. As such, it competes with commercially developed operating systems such as Apple's iOS, Google's Android, Microsoft's Windows Phone, BlackBerry's BlackBerry 10 and Jolla's Sailfish OS.

2. CHROME OPERATING SYSTEM
2.1 Development [7] [8]

Google announced Chrome OS on July 7, 2009, describing it as an operating system in which both applications and user data reside in the cloud. To ascertain marketing requirements, the company relied on informal metrics, including monitoring the usage patterns of some 200 Chrome OS machines used by Google employees. Developers also noted their own usage patterns. Matthew Papakipos, former engineering director for the Chrome OS project, put three machines in his house and found himself logging in for brief sessions: to make a single search query or send a short email.

On November 19, 2009, Google released Chrome OS's source code as the Chromium OS project. As with other open source projects, developers can modify the code from Chromium OS and build their own versions, whereas Chrome OS code is only supported by Google and its partners and only runs on hardware designed for the purpose. Unlike Chromium OS, Chrome OS is automatically updated to the latest version.

At a November 19, 2009 news conference, SundarPichai, at the time Google's vice president overseeing Chrome, demonstrated an early version of the operating system. He previewed a desktop which looked very similar to the Chrome

browser, and, in addition to the regular browser tabs, also had application tabs, which take less space and can be pinned for easier access. At the conference, the operating system booted up in seven seconds, a time Google said it would work to reduce.

2.2 Features [3][11]

Chrome updates itself for free. So users always have the latest and greatest version with no need for manual downloads and upgrades.

- Requires nearly 7 seconds to boot.

- Chrome OS stays synced with Android phones and tablets.

- A huge number of Chrome OS compatible apps works both online and offline, including Gmail, Google Docs, New reading apps and many more.

- Chrome OS is oriented to cloud storage.

- User can receive Android notifications on Chrome OS device like a text message.

- Android app can work on Chrome OS device and vice versa.

2.3 User Interface [5]

- Chrome OS Desktop Screen
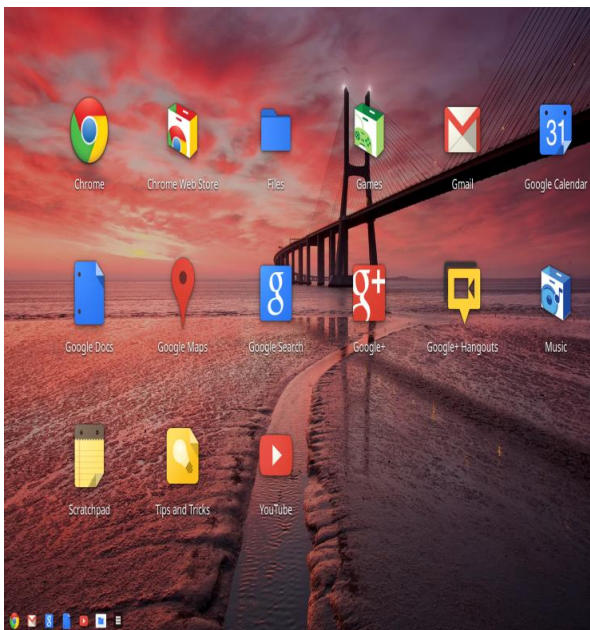
- Programs in the taskbar
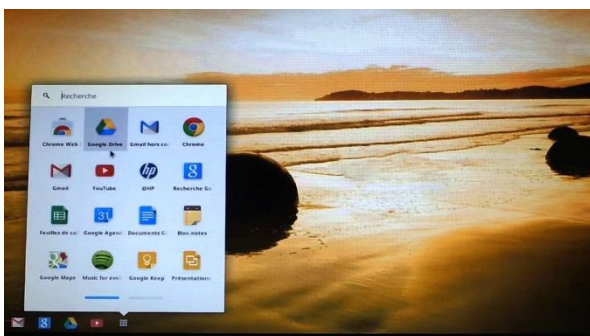
3 FIREFOX OPERATING SYSTEM
3.1 Development [9] [10]

In July 2012, Boot to Gecko was rebranded as 'Firefox OS', after Mozilla's well-known desktop browser, Firefox, and screenshots began appearing in August 2012.

In September 2012, analysts Strategy Analysts forecast that Firefox OS would account for 1% of the global Smartphone market in 2013 – its first year of commercial availability.

In February 2013, Mozilla announced plans for global commercial roll-out of Firefox OS. Mozilla announced at a press conference before the start of Mobile World Congress in Barcelona that the first wave of Firefox OS devices will be available to consumers in Brazil, Colombia, Hungary, Mexico, Montenegro, Poland, Serbia, Spain and Venezuela. Mozilla has also announced that LG Electronics, ZTE, Huawei and TCL Corporation have committed to making Firefox OS devices.

3.2 Features [4] [12]

- Web is the platform for Firefox OS – apps are built using HTML5 (along with CSS3 and JavaScript) instead of native languages.

- Apps share common styling conventions, and thus provide a consistent design factor, making it easy for users to get around the app's functionality.

- >Firefox OS, powered by Gecko engine, runs only websites in the form of apps, known as *web apps*.

- Web apps will come in two forms for Firefox OS,

a) Hosted apps will be hosted on *Mozilla's server* and will be downloaded and loaded each time the user access them, i.e., they are quite like web pages instead of apps, and they will not run if data connection fails.

b) Packaged apps will be downloaded once in the form of a compressed package and will be loaded from the local source each time the user access them, i.e., they are quite alike apps on other operating systems.

- One search bar for the user's phone and the web:

Firefox OS includes an easy to use search, just type a single word like "recipes" to see related applications and web results. (i.e. websites almost as if they were apps)

- Accessing WhatsApp on Firefox OS using WhatsApp client '*Loqui*'.

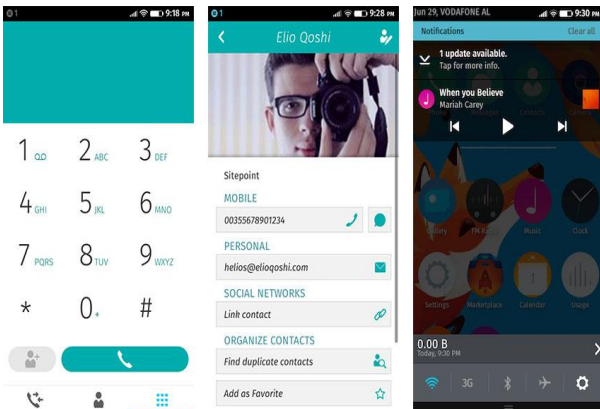- Groups similar apps into categories.

3.3 User Interface [6]

- Firefox OS home screen

- Screen lock

- Dialers Screen, Contact Details and Notifications

4 SURVEY

Questionnaire

1. What is your age?
   - ☐ Under 18
   - ☐ 18-24
   - ☐ 25-40
   - ☐ 40+

2. What is your occupation?
   - ☐ Student
   - ☐ Businessman
   - ☐ Entrepreneur
   - ☐ Unemployed
   - ☐ Other:

3. What OS do you currently use for mobile and/or tablet?
   - ☐ Android
   - ☐ Windows
   - ☐ iOS
   - ☐ Other

4. What OS do you currently use for computer and/or laptop?
   - ☐ Windows
   - ☐ Mac
   - ☐ Linux
   - ☐ Other:

5. What do you like the MOST about the OS that you use?
   - ☐ User Friendly
   - ☐ Variety of Applications
   - ☐ Unique Features
   - ☐ Security
   - ☐ Other:

6. Would you like if your computer can boot or start in 7 seconds?
   - ☐ Yes
   - ☐ No
   - ☐ Maybe

7. Would you like to use android applications on a different operating system?
   - ☐ Yes
   - ☐ No
   - ☐ Maybe

8. Would you like 'Applications opening in the form of tabs'?
   - ☐ Yes
   - ☐ No
   - ☐ Maybe

9. Would you like to receive your Android notifications (e.g.: Calls, Messages) on your PC? *
   - ☐ Yes
   - ☐ No
   - ☐ Maybe

10. Would you like to use 'Webapps' instead of websites?
    - ☐ Yes
    - ☐ No
    - ☐ Maybe

11. Are you aware of Chrome OS?
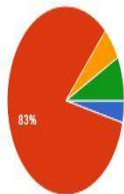   - ☐ Yes
    - ☐ No

12. Are you aware of FIREFOX OS?
    ☐ Yes
    ☐ No
13. Would you like to try the Chrome OS? (Link for information about the OS: www.goo.gl/grR0kd)
    ☐ Yes
    ☐ No
14. Would you like to try the Firefox OS? (Link for information about the OS: www.goo.gl/ynJZ9g)
    ☐ Yes
    ☐ No

5 ANALYSIS OF SURVEY
5.1 Age and Occupation

What is your age?

Under 18	2	3.8%
18-24	44	83%
25-40	3	5.7%
40+	4	7.5%

What is your occupation?
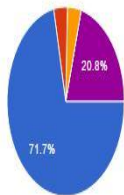
Student	38	71.7%
Businessman	2	3.8%
Entrepreneur	2	3.8%
Unemployed	0	0%
Other	11	20.8%

5.2 Currently Used OS

What OS do you currently use for mobile and/or tablet?
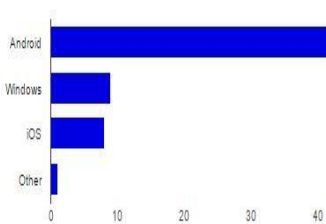
Android	42	80.8%
Windows	9	17.3%
iOS	8	15.4%
Other	1	1.9%

What OS do you currently use for computer and/or laptop?
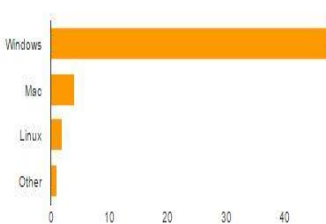
Windows	48	90.6%
Mac	4	7.5%
Linux	2	3.8%
Other	1	1.9%

5.3 Awareness of OS

Are you aware of Chrome OS?
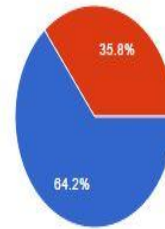
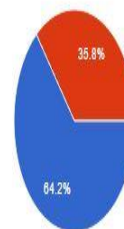|		
Yes	34	64.2%
No	19	35.8%

Are you aware of FIREFOX OS?
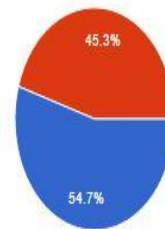
Yes	29	54.7%
No	24	45.3%

5.4 Interest in OS
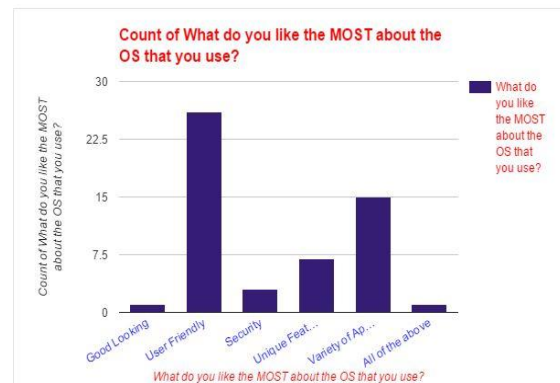
Would you like to try the Chrome OS? (Link for information about the OS: www.goo.gl/grR0kd)

Yes	34	64.2%
No	19	35.8%

Would you like to try the Firefox OS? (Link for information about the OS: www.goo.gl/ynJZ9g)

Yes	27	50.9%
No	26	49.1%

6   CONCLUSION

By the analysis of our survey, it is evident that there is a great lack of awareness about both –Chrome OS and Firefox OS. Therefore, people are skeptical about using it. However, when they were asked about specific features of each of the OS, majority of the people liked them. Also after being made aware about the features of the OS, a lot of people were willing to give them a try as shown in our analysis. Also, users liked a particular OS because of its 'user friendliness'.

This can be incorporated by both Chrome OS and Firefox OS to be appealing for more people. The market for OS on mobile devices is dominated by Android and the market for OS on computers in dominated by Windows as shown in our results. Therefore, we conclude that both Chrome OS and Firefox OS need to diligently work for better marketing and product awareness.

7   FUTURE ENHANCEMENT

Since both Chrome OS and Firefox OS are still in the development phase, many changes and up-gradations are yet to come to the fore. After another updated version of either of the OS is released, another survey that includes the latest updates about the particular OS can be done. Also, research can be done on the variety of hardware devices that would support a particular Operating System. The impact of the hardware on the OS can be analyzed. Also if new products enter in the market, their comparison can be drawn with the Chrome OS and Firefox OS. Thus, the scope for future enhancement in this domain is very wide.

8   REFERENCES

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