A Study on the Efficiency of Adblocks

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Abstract— Advertisements form one of the key pillars of online monetization. Many websites use this model to compensate for the free information they deliver. But is there such a thing as free? Every piece of advertisement that you download, takes a toll on your bandwidth. Which directly affects your internet charges. This study rates the effectiveness of various Adblocking software – in reducing the network data requests. Ultimately, there is 55.98% decrease in bytes downloaded, and a 45.02% increase in load speed of the test case websites used. The number of 3rd Party Domains requested with each page load also decreased by 26.23%.

Key words: Adblock, Online Advertisements, Ads, Bandwidth, Intrusive Ads, Privacy

I. INTRODUCTION

Online advertisements form an important part of the lifeblood that supports millions of website owners.

Internet based advertising has only evolved, growing at a staggering rate. In 2016 alone, Internet advertising revenue from United States totalled around $72.5 billion which is 21.8% higher than the $59.6 billion from 2015 [1].

The reason advertisements have met with a great success as compared to other forms of funding, is because the user doesn't have to pay anything to access the content.

Although, web users recognize the role of advertisements, they have become wary to the intrusive aspect of certain advertisement formats.

Advertisements cause a significant drain on the network resources of an individual or an organization.

Compared to individual users, corporates and organizations have a greater negative impact due to advertisements, given the fact that their online presence is substantial.

Various developers have taken it upon themselves to clean up the web, in the process, developed several softwares and browser extensions to stop network requests to unwanted content such as Online advertisements.

Some of these developers have enabled a list of Acceptable Ads, that meets a certain definition of unobtrusiveness. [2]

II. PURPOSE OF STUDY

The purpose of this study is to test Adblocking methodologies, and come to conclusion as to how effective it is. We will also compare the efficiency of various Adblocking tools and extensions.

III. TEST METHODOLOGY

Utmost care was taken while conducting this test. Every possible element, within the control, that could skew the test results was adjusted.

The router's QoS was disabled so that full bandwidth could be allocated, OS updates were turned off, background services and other programs were closed and any other device connected to the router were disconnected.

To begin with the test, 3 webpages were chosen at random from 3 most popular websites (CNN [3], NBC [4], TheGuardian [5]).

To conduct the test, Google Chrome was selected because of the ease it provides in Installation & Switching of extensions.

The test data was collected through a chrome extension called Sessbench [6] which attaches itself to the Chrome Developer Tools, as a tab.

Essentially a tool which gathers web data, along with support for Macros. This helps you to re-run the test multiple times on a webpage, which in-turn helps gather an aggregated average data for the test.

The test was run 7 times on each website, so as to minimize any form of discrepancy. Each time, the results for every Adblocker used were recorded in an excel sheet.

The Adblockers used in the test were as follows:

Adblock Plus [7], AdGuard [8], Ghostery [9], uBlock Origin [10], DD-WRT Adblock Script [11]. The test was also conducted without the use of any Adblock.

The test data collected includes the following:

URLs Visited, Domains, Hosts, Scripts, Outbound cookies, Net requests, Bandwidth, Bandwidth, 3rd-party domains, Load Time.

Once the test was concluded, the results were compared.

IV. TEST RESULTS

The results from the test was recorded in an excel sheet and combined with the rest of the data. Conclusions can be derived from this dataset.

Various data samples collected from the test are displayed in a tabular format.

An average of the data from various Adblocks have been calculated.

This average when compared with the Non-Adblock test results yield a wide spectrum of conclusions.

A tabular form of the result is displayed below.

Name	URLs Visited	Domains (3rd Party/ All)	Hosts (3rd Party/ All)	Scripts (3rd Party/ All)	Outbound Cookies	Net Requests	Bandwidth (bytes)	3rd Party Domains	Load Time
No Adblock	3	78/ 81	123/167	80/ 163	38/ 77	301/591	602220600	93	24.50

Adblock Plus	3	41/44	67/92	53/116	22/47	182/362	4646938.00	46	14.17
AdGuard	3	17/20	23/35	22/56	1/12	45/153	2864803.00	18	11.41
Ghostery	3	17/20	23/35	16/52	3/14	45/153	2525438.00	17	10.03
uBlock Origin	3	13/16	17/28	17/45	1/10	35/136	2597747.00	14	9.23
DD-WRT	3	23/26	31/46	26/67	2/18	60/221	4244003.00	27	10.30
Average of Adblocks	3	22.2/25.2	32.2/47.2	26.8/67.2	5.8/20.2	73.4/208	3375785.80	24.4	11.03
Savings							55.98%	26.23%	45.02%

Table 1:

V. Conclusion

From the several rounds of tests that were conducted, it was concluded that installing an Adblocking extension can help reduce excessive bandwidth costs, limit the number of 3rd party requests, and also increase the page load speed of a website.

Among the several Adblocks tested, uBlock Origin proved to be the most effective. It was winner of several categories of tests such as Bandwidth, 3rd Party domain requests and Load time.

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