Comparative Study of GoogleWeblight and Conventional Web Browsers for Rendering the Webpages in Mobile Devices

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Abstract— Web browsing is now a part of routine based web search but the major factor here is the ability to render a number of web pages within a short instance of time providing the end user to browse more web pages even with slow internet speed. The aim of this paper is to compare two popular categories of web browsers on mobile devices used GoogleWeblight browser and Traditional web browsers where GoogleWeblight is an implementation of Google to enhance the browsing speed of web pages on Android devices. GoogleWeblight is available only on Android devices using Google Chrome. It has the ability to detect the low bandwidth connection and switch on to the high-speed lite version of the browser by transcoding it to light version and load web pages at a higher rate. We examine both the browsers by comparing their speed to load same web pages. Finally, on various parameter evaluation, we close by concluding that GoogleWeblight is better web browser over the Traditional web browsers.

Index Terms— GoogleWeblight, Faster web browser, Streamlined lite version, mobile search.

I. INTRODUCTION

  GoogleWeblight is also known as a streamlined lite version of mobile search that uses the concept of transcoding the web pages to a light version of the same page by eliminating all the elements from it and viewing only the content on the browser thereby increasing the browsing speed by over 4 times and with 80 percent less data usage [1]. In this paper, we have compared the two versions of browsers where the Traditional web browsers use the full version of web pages without transcoding it and the GoogleWeblight version of the web browser which transcodes the web page. This comparison is done on Second generation connection with approximately 35kbps speed. This paper will help users in developing countries and remote areas to understand the concept of GoogleWeblight browsing and surf at a faster speed to browse more at lower bandwidth. Web browsing is now core of every research and development area to seek for white paper documentation and search for previous development in the field, apart from that world wide web is a hub for a millions of websites that serve their specific purpose ranging from Oversea transaction, e-commerce, social networking, Information Technology, support organizations, Government projects and many more but all of that depends on the capability to load web page in the browser, if the number of

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elements in a web page exceeds the threshold amount that can be downloaded and displayed by a browser within the timeout interval then the browsing experience might reduce and it may take several minutes to load a basic website[2]. In this survey, we bring out the conclusion about GoogleWeblight. For convenience brief introduction is given section II. Performance analysis is of GoogleWeblight with simple browsers is done in section III. In section IV we conclude about our survey.

II. GOOGLE WEBLIGHT

A. Transcoding

GoogleWeblight tends the ability to detect a low bandwidth connection and transcodes the web page into an optimized version for slower networks so that the pages load at faster rates and save around 80% of the data [1]. This feature is supported only in the countries with a very low internet connection such as Indonesia, India, and Bangladesh etc. so this is but obvious that this feature won't be seen in the developed countries as in USA, Canada, and Finland with more than 10 MBPS of average speed connections. One of the snags with these optimized pages is that although it preserves the majority of relevant pages, still there are several important elements in the servers that need not be loaded and be of no use therefore weblight always provides the feature of View Original in order to overcome these hitch[3]. The experiments done in this paper show that an optimized page renders four times faster and with Google analytics it was also seen that these pages had an increase of about 50% traffic since the introduction of the lite version. Google provides way to browse with the weblight by using the URL [1]:

- http://googleweblight.com/?lite_url=[*your_website_ URL*] where the URL is fully qualified (http://www.anysite.com) for the mobile devices.

- http://googleweblight.com/?lite_url=[*your_website_ URL*] where the URL is fully qualified (http://www.anysite.com) for the desktop version of Google chrome.

As mentioned few pages can still not be transcoded as video buffering sites, pages that need to store cookies to personalize the sites and other pages which face technical issues in transcoding. In these situations, the client will see an "Unable to Transcode" notification if that page has been requested using any of the above two methods [2]. The web pages that require a non transcoding environment have an option of

opting out of transcoding by setting the HTTP header control: "Cache-Control: no-transform" in the page response.

Whenever a page is transcoded and if Googlebot identifies this header, this page will be excluded from the transcoding list and user will see the original page at a slower rate. There are several steps involved in transcoding, if the page is mobile friendly then it is transcoded into mobile-friendly format also for some pages the size of the page is reduced, JavaScript and CSS with less use, and also few image compressions are used to increase the performance[4]. Ads are being loaded onto the page after these changes have been applied therefore GoogleWeblight has the support for Ad sense, Sovrn, Zedo like revenue sites which provide users with ads which they can get paid for.

III. PERFORMANCE ANALYSIS

Both the versions of web browsers were exposed to three different websites which required more than average time to load. The comparison is made between GoogleWeblight and Traditional browsers on the basis of total time taken to load a complete web page and there a difference based on this a side by side comparison is being made and the images have been placed in order GoogleWeblight-Traditional Browser. Comparison is done through online speed analyzer webpage test [7]. We set the internet speed to 35 Kbps for our performance analysis.

Case 1: Rendering www.gits.ac.in

The above analysis shows a difference of 126.442 seconds which is about 88.6% this is the amount of time which has been reduced by GoogleWeblight to load the same page. Here original page takes 142.679 seconds to load wherein it takes only 16.237 seconds on Weblight.

Case 2: Rendering www.tutorialsnow.weebly.com

The above analysis shows a difference of 27.660 seconds which is about 45.0% this is the amount of time which has been reduced by GoogleWeblight to load the same page. Here original page takes 61.476 seconds to load wherein it takes only 16.237 seconds on Weblight although many of the elements in the page were kept intact as original for proper view.

Case 3: Rendering www.instagram.com

The above analysis shows a difference of 26.512 seconds which is about 90.7% this is the amount of time which has been reduced by GoogleWeblight to load the same page. Here original page takes 29.228 seconds to load wherein it takes only 2.716 seconds on Weight where most of the CSS and JavaScript were removed and the major transcoding failed because Instagram doesn't provide transcoding by GoogleWeblight for its Home screen.

A. Figures

Case 1: Rendering www.gits.ac.in

TABLE I

Comparison Parameters and Results

Time Taken For Website	Google Weblight	Traditional Browser	Difference in Time	Percentage Improved
www.gits.ac.in	142.679	16.237	126.442	88.60%
www.tutorialsnow.weebly.com	33.816	61.476	27.66	45.00%
www.instagram.com	2.716	29.228	26.512	90.70%

Case 2: Rendering www.tutorialsnow.weebly.com

Case 3: Rendering www.instagram.com

IV. CONCLUSION

We have provided a brief survey of currently available web browsers on android devices. As various places internet connections are slow, therefore it creates the need of some optimized browser to augment with the internet speed. Google

launches a googleweblight feature which optimizes the web pages according to the internet speed. We experiment the requesting the web pages from both normal browser and weblight enabled browsers. Our study shows that googleweblight fetches web page faster by optimizing the original pages. Thus in slow internet speed, it performs better than a normal web browser and it can be seen as a boon to slower internet connection android devices.

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