

IMAGE SLICING EFFECT ON DOWNLOADING TIME

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by

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ABSTRACT

Today's world of globalization creates a fast moving environment. Everything needs to be done in less than a minute. Most of users use web as a medium to communicate and even doing commerce and finding information. Thus, a fast download time is required to cope with this fast moving world. Longer load time might affect user to abort loading web page. One of the major contributions to the slow download time is image. One of the techniques used by the web designer is image slicing. The real impact of image slicing on downloading time is studied as there are some arguments on the reliability of the statement 'image slicing does reduce download time.

ABSTRAK

Globalisasi mewujudkan persekitaran yang pantas. Segalanya perlu disudahkan dalam tempoh kurang dari satu minit. Kebanyakan pengguna menggunakan web sebagai medium untuk berkomunikasi, berniaga dan juga mencari maklumat. Oleh itu, tempoh muat turun yang laju adalah perlu untuk bersaing dengan dunia pantas kini. Tempoh muat turun yang terlalu lama menyebabkan pengguna meninggalkan laman web yang dilayari. Salah satu penyumbang kepada masalah tempoh muat turun yang lambat adalah imej. Salah satu teknik yang diguna pakai oleh perekabentuk web untuk mengurangkan tempoh masa muat turun adalah pemotongan imej. Walaubagaimanapun, impak sebenar teknik pemotongan imej ini terhadap tempoh muat turun ini dikaji memandangkan terdapat keraguan terhadap kebolehpercayaan kenyataan teknik ‘pemotongan imej boleh menggabungkan tempoh muat turun’.

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CHAPTER ONE

INTRODUCTION

Graphic comprises of two level of abstraction which are pictures and images. Pictures are found in the world external to the computer, while images are two-dimensional representations of pictures found in computers. Thus, an image is a realistic version of the picture used in a computer.

In internet environment, the need for speed is a fact of life. Zona Research (1999), had stated that download time is one of the most critical factors in determining the success of a site and the satisfactions of its user. It also states that the United States had lost as much as 4.35 billion dollar a year in commerce sales due to the unacceptable speeds. Another study by Zona Research (as cited in Dahm, 1999), found that fully one-third of visitors will leave a web site if it does not load within eight seconds. These show the important of download speed in today's world.

There are several factors that contribute to long download time. One of the factors is the file size. According to North (2001), excessive graphics is one of the contributions to the increment of the downloading time. A graphic require more space to be stored compared to text. O'Daniel (2000) and Niederst (2001) also agree

The contents of
the thesis is for
internal user
only

BIBLIOGRAPHY

Allen, P. V. (2003). Image Slicing: Building Complex Imagery for Web Sites. Speed Image Slicing. Retrieved June 28, 2003, from <http://www.dreamink.com/speed5.shtml>

Azruui Designs (2000). Site maintenance directory. In Decreasing download time (Chap. 3). Retrieved September 19, 2003, from <http://azruui.freesevers.com/maint3.html>

Crystal Waters. (1996). Web concept & design. Indianapolis: New Riders

Dahm, T. (1999, November). Load time tip: Slice your images. Webmaster Tips. Retrieved September 20, 2003, from <http://www.dreamink.speed1.htm>

Dunn, J. (2004). The benefits of image slicing. Ulead Learning Centre. Retrieved April 5, 2004, from <http://www.ulead.com/learning/web8/page1.htm>

Holmes, M. (2002). Web usability & navigation: A beginner's guide. California: McGraw-Hill/Osborne

HTML Slicer (n.d.). HTML slicer. Retrieved July 27, 2003, from <http://www.mediachance.com/realdraw/help/htmlslicer.htm>

Imagecure.com (2002). About image slicing. Retrieved April 5, 2004, from http://www.imagecure.com/image_slicing.html

JASC Software Inc. (2000). Image slicing in PSP 7. Retrieved April 5, 2004, from <http://www.psphelp.com/Fslice.html>

Kyrmin, J. (2003). Web Site Optimization – Optimizing for Speed. Retrieved April 7, 2004, from <http://webdesign.about.com/library/weekly/aa020800a.htm>

Lee, H. J. (2003). Optimizing web pages. Retrieved July 3, 2003, from <http://www.ischool.utexas.edu/~leehj/opt/main.htm>

Laare, R. (2003). Speed: Image slicing. Dreamink. Retrieved July 27, 2003, from <http://www.dreamink.com/speed3.shtml>

Laare, R. (2003). Speed: Web page budgeting. Dreamink. Retrieved June 28, 2003, from <http://www.dreamink.com/speed1.shtml>

Jing, Z (2001). Web Page Design and Download Time. Journal of Computer Resource Management. Issue 102, Computer Management Group Incorporated.

Macromedia, Inc. (2002). What effect does slicing have on image download speed. Macromedia Fireworks Support Centre. Retrieved August 8, 2003, from <http://www.macromedia.com/support/fireworks/technotes.html>

Namo Interactive Inc. (2003). Image slicing for reducing downloading time. Retrived June 27, 2003, from http://www.namo.com/support/webeditor/image_slicing.htm

Niederst, J. (2001). Web design in a nutshell (2nd ed.). California: O'Reilly & Associates

North, G. (2001). Why graphic should be minimal on a home page. Gary North Online. Retrieved July 12, 2003, from <http://www.garynorth.com/public/main.cfm?department=45>

O'Daniel, M. (2000). Instant genius! : Corporate web design. Malaysia: Pelanduk

Rose, Gregory & Detmar Straub 2001, the impact of Download Time on Brand Attitudes in B2C e-commerce: The Download Time Brand Impact Model, Working Paper, Georgia State University, 1999

Smart Computing (2001, April). How to...use image slicing. Smart Computing , Vol 7 (4). Retrived July 27, 2003, from <http://www.smartcomputing.com/>

Wood, R. M. (2003). Image slicer. Retrieved April 5, 2004, from <http://www.putertutor.net/paint/imslice.htm>

Wood, R. M. (2003). Image slicer. Retrieved April 5, 2004, from <http://www.putertutor.net/paint/imslice.htm>

Wu, Jie (para 21) – Speed up your web pages.
<http://www.edb.utexas.edu/multimedia/PDFfolder/SpeedUpYourWebPagesWu.pdf>

Zona Research, Inc. (1999). The economic impact of unacceptable web-site download speeds. Retrieved July 20, 2003, from <http://www.zonaresearch.com>