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Chapter 7

# World Wide Wait

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## Introduction

The explosive popularity of the World Wide Web (WWW) is the biggest event in the Internet era. Since its public introduction in 1991, WWW has become an important channel for electronic commerce, information access, and publication. With exponential growth in the WWW market, Internet connection speed has become a critical issue. The *long waiting time for accessing web pages* has always been a major problem for WWW users (Lightner, Bose and Salvendy, 1996), especially with the increasing use of multimedia technology and the doubling of Internet users every 18-24 months. A recent survey conducted by the GVU (Graphic, Visualization, & Usability) Center at the Georgia Institute of Technology also indicates long downloading time to be the biggest problem experienced by WWW users (GVU, October 1998). This problem is so noticeable that WWW users sometimes equate the "WWW" acronym with "World Wide Wait"! Although information technology for supporting the infrastructure of WWW is continually being updated and improved, it is still not able to satisfy industry requirements and demand.

In this chapter, we review the usage pattern of WWW as well as topics related to speed of Internet access such as bandwidth, Internet connection alternatives, and technology to speed up WWW access. In addition, we report an experimental research that measured and analyzed users' "tolerable" waiting time in accessing the WWW. Based on the results of the study, we provide guidelines for web designers regarding page size restrictions in web development.



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*Table 1. Frequency of Web Use*

| Usage Pattern | More than 9 times/day | 5 to 8 times/day | 1 to 4 times/day | A few times/week | Once a week | Once a month | Total |
|---|---|---|---|---|---|---|---|
| Frequency | 1215 | 654 | 1177 | 217 | 18 | 10 | 3291 |
| Percent (%) | 36.9 | 19.9 | 35.8 | 6.6 | .5 | .3 | 100.0 |

*Source: GVU's (Oetober 1998) 10th WWW User Survey (http:// www.gvu.gatech.edu/user_surveys)*

*Table 2. Hours of Web Used*

| Use Pattern | 0–1hrs/ week | 2–4 hrs/ week | 5–6 hrs/ week | 7–9 hrs/ week | 10–20 hrs/ week | 21–40 hrs/ week | Over 40 hrs/ week | Total |
|---|---|---|---|---|---|---|---|---|
| Frequency | 28 | 302 | 362 | 433 | 1119 | 697 | 350 | 3291 |
| Percent (%) | 0.8 | 9.2 | 11.0 | 13.2 | 34.0 | 21.2 | 10.6 | 100.0 |

*Source: GVU's (October 1998) 10th WWW User Survey (http:// www.gvu.gatech.edu/user_surveys)*

## Usage Pattern of WWW

As Internet usage pattern influences the speed of Internet access, we will highlight findings on WWW usage pattern from a recent survey administered by the GVU (Graphic, Visualization, & Usability) Center at the Georgia Institute of Technology in October 1998. Detailed information about the survey as well as the results of the survey are available at http:// www.gvu.gatech.edu/user_surveys/survey-1998-10/.

### Usage Pattern Survey

In 1994, the GVU Center at the Georgia Institute of Technology started administering surveys on WWW usage pattern on a biannual basis. The data collected not only provides basic understanding of the web population but also trends and patterns in WWW usage. The following are some of the findings from the most recent GVU's (October 1998) 10th WWW user survey.

#### Frequency of Web Use

The results for "frequency of web use" are: 36.9% use WWW browsers more than 9 times a day, 19.9% use them 5 to 8 times a day, 35.8% use them 1 to 4 times a day, and 7.4% use them less than once a day.

#### Hours of Web Used

How many hours a week does the web population use WWW browsers? The results of the survey indicate that 34.2% use WWW browser less than 10

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