

## Chapter 97

# The Effect of User Location and Time of Access on Ecommerce: A Long Tail Study of Website Requests

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### INTRODUCTION

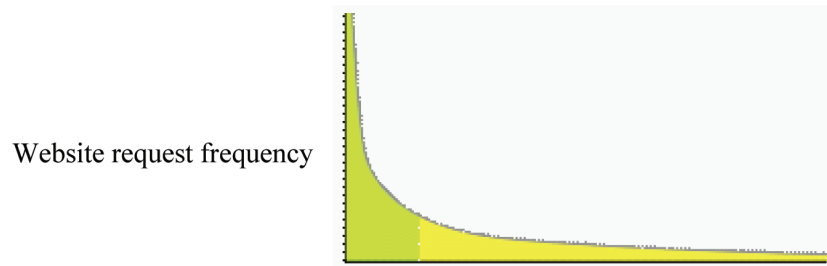
The amount and range of information on the Internet is growing at a rapid pace. Cisco systems report (2008) expects Internet traffic growth to be spurred by video, social networking and collaboration applications collectively referred to as Web 2.0 technologies. The Cisco systems report (2008) forecasts that “global Internet Protocol (IP) traffic will increase by a factor of six from 2007 to 2012, reaching 44 exabytes per month in 2012, compared to fewer than 7 exabytes per month in 2007.” ComScore report (2009) estimates that the total global Internet audience has surpassed 1 billion visitors in December 2008. Magid Abraham, CEO of ComScore Inc., says “Surpassing one billion

global users is a significant landmark in the history of the Internet. It is a monument to the increasingly unified global community in which we live and reminds us that the world truly is becoming more flat. The second billion will be online before we know it, and the third billion will arrive even faster than that, until we have a truly global network of interconnected people and ideas that transcend borders and cultural boundaries.” The increase in Internet traffic is aided because making information available online is becoming relatively inexpensive, and as more people have Internet access demand for information increases. The trend of increasing Internet traffic is likely to continue (Datta et al. 2003, Cisco systems report 2008).

Visitation of users to websites can be represented by a long tail model, a term coined by Chris Anderson (2006), shown in Figure 1 (Kumar, Norris and

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Figure 1. Long tail model (adapted from: [http://en.wikipedia.org/wiki/The\\_Long\\_Tail](http://en.wikipedia.org/wiki/The_Long_Tail))



Sun 2009). Anderson (2006) drew inferences from an earlier study of Brynjolfsson et al. (2003) that had noted this effect in the digital economy due to reduced search costs. There are a few popular websites with a very high number of visitations, and these form the steep end of the curve. There are a large number of rarely requested websites that form the tapering long tail. This pattern of website visitation has been empirically demonstrated by a number of prior studies (Breslau et al. 1999, Kumar, Norris and Sun 2007). In this article we discuss how user location and time of access affect website visitations, and some resulting implications for Ecommerce (Kumar, Norris and Sun 2009, Anderson 2006).

## RELATED LITERATURE AND DISCUSSION

Prior to Internet era economic scale in most businesses favored goods and services that were targeted towards large customer bases. For instance, books catering to large audiences are more likely to be published than those aimed at niche markets (Anderson 2006). However the inexpensive online medium reduced entry barriers and intermediaries for niche players. Websites targeted to niche audiences can potentially exist because of: (a) relatively inexpensive hosting costs for the information service provider, and (b) efficient search engines such as Google that allow users to find all

sorts of information on the Internet. These factors contribute towards the presence of the long tail of infrequently requested websites. Kumar, Norris and Sun (2009) investigate this phenomenon by using real world data and show how users' location and time of access (weekdays versus weekends) affects this long tail model. Their results can be used to improve online marketing strategies, affiliate advertising models, and Internet caching algorithms. The Interactive Advertising Bureau reports that in 2007 Internet ad revenues totaled \$21 billion, an increase of 25% over 2006. Despite this increase, since online advertising is still only 10% of all US ad spending it has considerable room to grow (Associated Press 2008). Therefore studies that aim to improve this area of Ecommerce can be useful for both business community and academic researchers.

Past studies have examined client-side study of human behavior in the context of the Internet. Kehoe and Pitkow (1996) evaluate how demographic attributes of Internet users affect their browsing behavior. Hu et al. (2007) propose a model to predict users' gender and age from their web browsing behavior. Studies have also shown that the probability of user revisitation to a website is very high, and that many users only use one or two search engines most of the time (Cockburn and McKenzie 2002, Tauscher and Greenberg 1997, Deborah 2005). In his influential study Zipf (1949) first identified the distribution that relates object request frequency to its rank. Building on

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