Chapter 8.1
Next-Generation Strategic Business Model for the U.S. Internet Service Providers: Rate-Based Internet Subscription

Charles C. Willow
Monmouth University, USA

ABSTRACT
The (information digital) network bandwidth and its usage through Internet subscription, by far, is perhaps the only uni-modal commodity provided to today’s consumers at a flat rate. Regardless of his/her actual bandwidth usage, a consumer is charged a uniform subscription fee by the Internet Service Providers (ISP). Meanwhile, the ISPs have a considerable stake in the overall infrastructure which supports the local perimeters of the Internet. This article presents a rigorous statistical analysis with the objective of determining the optimal billing or pricing policy for the ISPs of the U.S. on the basis of the proposed ‘variable subscription-rate’ business model. Two leading global consumer profiles were selected for data comparison on a cardinal scale; NYC, NY, U.S.A. and Seoul, South Korea.

INTRODUCTION
The (information digital) network bandwidth and its usage through Internet subscription, by far, is perhaps the only uni-modal commodity provided to today’s consumers at a flat rate. Regardless of his/her actual bandwidth usage, a consumer is charged a uniform subscription fee by the Internet Service Providers (ISP). Meanwhile, the ISPs have a considerable stake in the overall infrastructure which supports the local perimeters of the Internet. Constant upgrades encompassing but not restricted to network infrastructure, servers, proxies, security, middleware, applications software, fault tolerance, redundancy, contingency plans, and even customer service are expected on a daily basis, as the Internet usage increases geometrically if not exponentially. Moreover, statistics indicate that approximately 10% of
the Internet consumers are roughly occupying 90% of the bandwidth at all times (FCC, 2007). In addition, digital convergence of household electronic products comprising the voice-phones, video-phones, Internet Protocol Television (IPTV), digital Hi-Definition TV, home networks and automation, and even IP-based refrigerators or washing machines is rapidly reshaping the Internet usage among consumers across the globe. As a consequence, the network bandwidth shortage and even depletion problem is further aggravated.

Early research on ‘rate-based’ variable Internet subscription fees was performed by the British Telecom (BT), a state-owned organization centrally located in London, U.K. This new business model for the ISP has been actively penetrating most areas of Britain, other than Wales and Scotland (KT, 2006). The success of the business model has brought a number of imitators, with such leaders as South Koreans. The U.K and Korea models have close ties in that most ISPs are State-funded and managed and that they are single-state nation, relative to the U.S. Their differences, however, are yet to be explored.

The purpose of this article is to investigate the pros and cons of the ‘variable-rate’ business model by conducting an empirical analysis before its introduction to the U.S. The estimated market – after adoption – is approximately $3.0B annually in the U.S. alone, covering 50 continental States other than Hawaii, Puerto Rico, and Virgin Islands (FCC, 2007).

Unlike their South Korean counterparts, the U.S. Internet Service Providers (ISP) carry major disadvantages:

- Extension of the information network infrastructure which far outsizes that of Korea due to its geographical coverage area.
- Network bandwidth bottleneck problem, often characterized as the ‘last-mile problem’. Whereas the population density and congested residential apartments benefit the South Korean ISPs, the reverse is true for the U.S. counterparts. By way of an example, a resolution to a single last-mile problem by using say, fiber optic cable, which may deliver data transfer rate of up to 1.3 Giga bits per second (Gbps) for an apartment complex may enable a Korean ISP to acquire thousands of additional customers. In contrast, as for the U.S. consumers, however, their majority reside in private houses, apart from one another, which eventually may require the ISP to tackle the ‘last-mile’ problem individually on a per household basis.

The outlined advantages may justify the world’s highest Internet penetration among consumers in nations such as Korea and Japan (Park, 2001). Thus, the adoption of partly successful ‘variable rate-based’ Internet subscription pricing or utility business model of South Korea may not be adequate for the U.S. ISPs. The purpose of this article, however, is to investigate the effectiveness of such adoption (of business model) to the U.S. through empirical analysis. In order to perform a sound comparative statistical analysis, a sound design of experiments is the prerequisite. Therefore, the cardinal scale of comparative data is sought by restricting the sample to be selected in highly dense metropolitans in both nations; Manhattan, or formally NY, NY against Seoul, Korea.

Determination of the optimal pricing policy for such service-oriented commodity as knowledge from the Internet may confound both the consumers and ISP, the business entity. Possible ramifications are:

- The consumer does not have sufficiently accurate a priori information as to how s/he will be charged or billed for the service s/he seeks to receive from the ISP via the Internet, as opposed to other utility services such as power, energy, traditional entertainment, or even commodities such as food.
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