



Pricing Internet access

SHANE GREENSTEIN
s-greenstein1@kellogg.nwu.edu

..... As a rule, economic facts are often the equivalent of a cold shower. Economics is affectionately known as *dismal science* for a reason. The plain fact is that not many Internet firms were profitable at any time in the last five years. The list of unprofitable companies (and spectacular investment failures) is embarrassingly long, including Amazon, AT&T Broadband, E-Toys, Dr. Koop, and too many other dot-coms to mention. Indeed, positive profitability was so rare that we all know the names of firms that achieved it: Cisco, Yahoo, E-Bay, and AOL (if you count them as an Internet company).

So I am struck by the comparative success of one general class of companies that continues to collect revenue, compete vigorously, achieve mass-market status, and not implode in spite of frequent restructuring. I refer to Internet service providers, or ISPs for short.

How in the world can hundreds of these firms survive in this market over so many years—particularly in light of free alternatives, such as Netzero? What pricing mechanisms do access providers use to collect revenue? Why do these mechanisms work? More to the point, what do these mechanisms tell us about the source of sustainable economic value in Internet activity?

Market structure and pricing

First, we need a little background. ISPs differ greatly. AOL, AT&T, Mindspring/Earthlink, and many other large ISPs focused on

building a large national presence, investing heavily in capital and marketing expenditures. They primarily located in urban areas and in some low-density areas. These are the major ISPs, which most people recognize and know about.

At the same time, there are thousands of ISPs that ply little niches and do quite well. These often have a regional- or city-specific focus and deliberately concentrate on new services, such as network development and maintenance. These approaches may go hand in hand with local marketing.

The ISP market structure has a very unusual shape. AOL (along with its subsidiary, CompuServe) has signed up about half of US households that use the Internet. The remaining households tend to split between big and small providers.

By any measure, the industry is extremely competitive at the national level. In urban areas, local ISPs compete with the national firms. However, in rural markets, the small ISPs largely compete with each other, if anyone at all. Hundreds of these small ISPs entered the low-density locations, which the large ISPs eschewed.

Two myths about prices

So how do most ISPs make their money? They offer subscriptions for service and charge for it. What are subscriptions like? Well, that gets us immediately to the two myths of pricing: That all contracts are \$19.95 a month and all are flat rate.

Let's start with the myth of \$19.95. US government surveys of household ISP use find considerable variation in the prices paid for Internet access. To be sure, the most common level of expenditure is around \$20 a month, but this is far less dominant than assumed in common discussion.

For example, a December 1998 survey performed by the Bureau of Labor Statistics shows that about one third of all US households with Internet access report an expenditure between \$19 and \$22 per month. Another third report expenditures under \$19 with spikes around \$15 and \$10. The remainder report expenditures above \$22, with spikes at \$25 and \$30, quickly tapering off to levels not exceeding \$50. In other words, households pay a range of prices for Internet access, with close to 90 percent falling between \$10 and \$30, inclusive. More recent data also looks similar.

The myth of flat rate pricing is also worth examining. Flat rate pricing emerged as the predominant default pricing contract at the industry's outset. Even AOL abandoned pricing by the hour, moving to flat rate pricing in 1996 and 1997. By this time, it was already regarded as the norm for dial-up service at most other ISPs.

Flat rate pricing arose for three reasons. Most dial-up Internet access in the US operates over local phone switches where per-minute use is not metered much, if at all. Hence, local ISPs don't incur any costs from offering the user unmetered service.

Next, some observers believe that it's a hassle for the ISP to monitor data flows for each user and to administer customized billing. This is thought especially true for many small ISPs that find it costly to implement something other than user-level flat rate pricing. My own guess is that the engineering is not difficult to implement, but it is a hassle to administer, which is what stops many small firms. Still, that does not explain why large firms don't do it.

Last, many observers believe that users don't like monitoring their own use or being metered in any way. This is especially true of families with kids, where the parents would have to police their children's use.

Hourly limitations

ISPs could discount the \$20 a month price. For example, if users were willing to monitor their own use, then hourly limitations have benefits for both user and ISP. Low-volume users agree to a monthly hourly restriction in exchange for lower prices, and higher volume users agree to a higher limit and pay higher prices, and so on.

Why does this make sense? Because low-volume users make fewer demands on modem capacity. Modem capacity provides a limit on the maximum number of phone calls at a point of presence, that is, a place where local phone calls are first routed to the Internet.

Related backbone connections are another constraint on the maximum flow of data. When traffic reaches the ISP's maximum capacity, it translates into slower connection speeds, Web page downloads, and response times. Data flows correlate to the number of users but the correlation is weak.

In other words, some users consume the majority of capacity and are much more expensive to serve than others. For example, the median household spends a total of 10 to 15 hours online during a month, with the upper quartile at approximately 30 hours. The skew is quite pronounced: Ten percent of users spend over 60 hours a month online and 5 percent,

over 90 hours. Session length is also skewed. The median session is approximately 10 minutes with the upper quartile at approximately 30 minutes; 10 percent of users have sessions over 75 minutes; and 5 percent, over 100 minutes.

Contracts for use prices

The traditional way of summarizing communications prices provides a way to frame the phenomenon here. The traditional view distinguishes between *connection charge* and *use charge*.

In ISP markets, the connection charge is a substantial part of cost. A typical, limited, 10 to 20 hour per month contract costs approximately \$10 plus change. The difference between this contract and unlimited contracts (over 100 hours) is approximately another \$10, depending on service quality and the ISP. In other words, the use charge is approximately \$0.12 an hour or even less (up to a maximum of \$20). The typical ISP bill unifies these two expenses.

So why doesn't any ISP simply offer a variable contract with \$10 per month and twelve cents an hour after that until some maximum price limit? It would be cheaper for most users. Yet, would this business model succeed? Not necessarily. It would add an administrative expense to ISP operations, since now the ISP would have to monitor use and pass those charges on to users with customized bills each month. Since most users find their telephone bills incomprehensible, it isn't obvious that many ISP subscribers would regard this billing practice as an improvement.

Moreover, the bills would get even more complicated, once typical ISP activity was added to the mix. For the last five years ISPs faced many unsettled questions about what to bundle in the standard contract and what to charge for separately. The standard contract for dial-up service tends to come bundled with a wide variety of unpriced services such as e-mail account functions, games, home page links, standard servicing, local news, and other costly custom features. Many ISPs boast about their connection speed, modem availability, and other service guarantees. These are costly to provide

but are implicitly bundled in the price of basic service. Many ISPs charge separately for a variety of additional services, such as hosting on a large scale and for extensive consulting, especially for business. Many charge set up fees for basic service, although many do not. In this environment, simpler bills are better.

So what does this tell us about the sources of value in ISPs? Revenue does not shower down on these providers easily. It takes hard work, clear execution, and a mechanism for getting users to give up their money. None of this should be taken for granted.

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