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Free Press Policy Brief

Blocking or Metering: A False Choice

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On Aug. 1, the Federal Communications Commission took an historic stand to defend the open nature of the Internet. A bipartisan majority ruled that Comcast -- America's second-largest broadband provider -- violated FCC rules by arbitrarily and secretly blocking Internet traffic. Comcast was ordered to stop blocking and disclose any future "network management" methods to the FCC and consumers.¹

Now that the FCC has made it clear that blocking the use of a specific application -- in this case, the popular peer-to-peer file-sharing protocol BitTorrent -- is not a reasonable way for Internet Service Providers to manage their networks, some skeptical observers are speculating that the decision could have unintended consequences.² The theme of a series of posts and articles following the vote has been "Net Neutrality advocates, be careful what you wish for."

The basic line of argument is that because application blocking is out of bounds, providers now will be forced to use some type of "metering" to control network congestion. Sanford Bernstein analyst Craig Moffett, the primary source for several of these stories, published a brief stating that if ISPs are not allowed to block applications, then usage-based pricing is their "only viable option."³

These assertions are simply untrue. By stirring up fears of higher monthly bills, this posturing attempts to delegitimize the Commission's worthy action, giving consumers the false impression that they must choose between secret Internet blocking or the very undesirable practice of metering.

This is a false choice, one most providers don't even consider necessary or practical. These scare tactics shouldn't deter anyone from pursuing the policies we need to preserve a free and open Internet.

Metering Is a Misnomer

First, let's get some semantics out of the way. The term being bandied about in this debate is "metering." But no U.S. broadband provider is considering actual metering (i.e., charging by the byte).

What is actually being floated is "limitation pricing," whereby users would face additional charges after they reach a certain usage limit or cap. Such bandwidth caps are nothing new -- carriers have had caps in place for years, even though they advertise their services as "unlimited." What is new is speculation that providers will now charge fees for exceeding these caps in order to manage possible network congestion.

The shift to limitation pricing would represent a major change in Internet pricing models. But to believe such a move is right around the corner, we must accept the argument that there is congestion in the network. The congestion could be in the last mile (in both directions or just a single direction), in the transport segment (from the ISP to the backbone), or in some combination of these. And congestion could impact certain carriers more than others; for example, cable ISPs might have more congestion issues, particularly on the upload side, given the design of their last-mile networks.

But not so fast. The FCC recently conducted a nine-month investigation into this specific issue: To date, no evidence of actual congestion has surfaced.⁴

Furthermore, recent actions by some ISPs call into question claims of congestion. Bell Canada was forced to disclose the level of congestion in its network after Canadian regulators began an investigation into the company's practice of application throttling. The data indicated almost no congestion in Bell Canada's network, despite the company's prediction of a bandwidth apocalypse.⁵ Likewise, Comcast's participation in the so-called P4P working group is puzzling, as that technology would actually *increase* the amount of upload traffic on Comcast's network.⁶

Even if we accept the premise that there is last-mile congestion, that in no way means that flipping on the meter is the "only viable" alternative to outright blocking. Neither does it mean that limitation pricing is the correct response from a financial standpoint.

Dealing with Congestion Without Discrimination

Comcast claimed that it needed to block BitTorrent to deal with "bandwidth hogs" -- customers the cable company claims were causing network congestion by transferring large amounts of data. But the FCC found that Comcast targeted one specific application on a network-wide basis, at all times of the day and night, regardless of whether an individual fit the profile of a high-bandwidth user. The FCC rightly ruled that application blocking is not a reasonable way to manage congestion.

However, even if we assume "bandwidth hogs" are really causing congestion -- meaning the "traffic jams" are neighborhood- and time-of-day specific -- limitation pricing is still a poor solution that carriers are unlikely to use. It is simply too broad, too cumbersome and ineffectual in comparison with other methods.

There are a host of better options to limitation pricing for both the customer and the ISP. If the problem is truly caused by a few "bandwidth hogs," then direct contact with those customers may be all that is needed to modify their behavior. Indeed, before it started aggressively blocking applications, this was Comcast's stated practice.

Another option is exemplified by Cable One, the cable provider owned by the Washington Post Company. It manages congestion with a "limitation throttling" approach. A user subscribing to its 8Mbps (megabits per second) download/500Kbps (kilobits per second) upload service tier is allowed unlimited data transfers between midnight and noon. Between noon and midnight, they are given limits of 3.6GB (gigabytes or 3600 megabytes) download and 219MB (megabytes) upload. If they exceed these limits (which are the equivalent of maxing out the connection in both directions for one hour), customers are throttled back to Cable One's "standard speeds" -- about half of the maximum speed.⁷

The limitation throttling approach is preferable to limitation pricing, because it has a much more tangible impact on congestion during peak usage times. It only impacts those who exceed the cap in a short time window, and it narrowly modifies the behavior of those few users that may be causing the congestion. Most importantly, it does not select winners and losers on the Internet by targeting specific applications. However, limitation throttling is far from an ideal solution, because these daily caps are in place regardless of whether or not the network is actually congested.

Compared to limitation pricing, limitation throttling also makes better financial sense for ISPs. Limitation pricing (especially with low caps) will modify the behavior of almost *all* users. With everyone watching the meter, this pricing model will inevitably lead even casual users to spend less time online or to avoid the applications that use higher amounts of bandwidth -- the very applications that are responsible for the increases in the perceived value of broadband access by consumers.

This pattern of changing behavior will inevitably cause the marginal customer to question the need for the connection in the first place, leading to a possible slowdown in the growth of new customers for ISPs.

Furthermore, ISPs that don't have the same congestion concerns will be able to differentiate their products by offering services free of limits and penalties. Together, these likely scenarios create a strong incentive for ISPs to avoid limitation pricing. If the high-speed Internet market had more than two competitors, these incentives would be even stronger.

The Myth of the Exaflood

The other reason most often cited for the looming shift to limitation pricing is the threat of an "exaflood" -- a torrent of data that threatens to drown the Internet.⁸ Proponents of this theory argue that bandwidth use is increasing exponentially, and that charging by the byte is the only way to curb the explosion in demand and fund network upgrades.

If the underlying premise of exponential growth were true, there would be cause for alarm. However, predictions of pending bandwidth doom on the Internet are nothing new, and the substance underlying the exaflood hysteria is just as thin as its apocalyptic predecessors.⁹

Contrary to the exaflood hype, bandwidth demand increases are pretty predictable, on the order of 50-60 percent per year. And recent data from one of the world's leading academic researchers on Internet use suggests that the traffic growth rate in the United States is actually *slowing*.¹⁰

Professor Andrew Odlyzko of the University of Minnesota stated that "annual traffic growth rates of 50 percent, when combined with cost declines on the order of 33 percent, result in no net increase in costs to provide the increased transmission capacity."¹¹

Given these facts, it's hard to fathom that the market is functioning so poorly as to make this year's predictable increase in bandwidth demand something that suddenly requires a radical change in the retail pricing model.

This is an important point. The arguments for the "need" to switch to limitation pricing essentially rest on the premise that we've somehow reached a magical bandwidth threshold that throws the entire industry pricing model out the window. We are being told that despite predictable growth, supply can no longer keep up with demand. The old "oversubscription" model has failed, and the only way to recoup costs and manage user behavior is through metered pricing. This seems highly implausible.

We must remember what started this latest round of hand-wringing, angst and speculation: the announcement by Time Warner earlier this year that it would begin limited trials of limitation pricing.¹² When other providers were asked about the practice, unsurprisingly, most left the door open. Charter said they might "eventually" go to a "usage-based" solution.¹³ Comcast said they were "evaluating" the practice (though just last month Comcast executive Mitch Bowling told the FCC that usage-based pricing "doesn't directly address the issue of congestion in the network").¹⁴ Cox said they too were "looking into" limitation pricing.¹⁵

If this speculation were really a canary in the coal mine for a future of metering, broadband consumers might have cause for concern. But history indicates that these murmurs from industry are nothing more than trial balloons.

Déjà Vu All Over Again

In 2002, Time Warner told reporters that the company was “planning” to charge all Internet users overage fees for exceeding monthly limits.¹⁶ There were no details as to what the caps or fees would be, but apparently the company must have decided the practice wasn’t needed to combat bandwidth hogs, or that it was unworkable, because the plans were never put in place.

It’s not just Time Warner that has trotted out bandwidth caps before. In 2003, Cox announced it was implementing daily caps of 2GB and monthly caps of 30GB.¹⁷ Those caps still seem to be in place. Contrary to the notion that the Comcast decision would lead to caps, it’s clear that other providers adopted this practice long ago.

So it seems that the talk of caps and limitation pricing is nothing new, and thus has nothing to do with the FCC’s decision against Comcast.

Is Metering in Our Future?

But the question remains whether carriers are likely to move to limits and meters. Given that the use of bandwidth caps is in place in some other countries, it is not beyond the realm of possibility that we’ll see it here in the United States. However, there are numerous reasons why this outcome is very unlikely.

First, in many of the countries with caps -- Australia, New Zealand, Belgium and Canada -- much of the flow of traffic is highly asymmetric going out of the country, an expensive prospect especially in the more isolated island nations. But because of America’s leadership in content production, much of U.S. Internet traffic stays within the country (and a substantial amount of this bandwidth is carried by so-called Tier-I companies, which have strong incentives to encourage increased usage). So while carriers in some foreign countries have a strong financial incentive to limit usage, U.S. carriers actually have the opposite incentive.

Second, ISPs have a strong incentive to keep people using their services, a feature common in markets with high fixed but very low marginal costs. The more time spent online, the higher the perceived need and value of the service. Limitation pricing won’t sit well with casual users and could slow broadband adoption growth.

Third, the United States has the somewhat unique presence of two broadband technology platforms that have historically competed by product differentiation (most notably, bundling). The telecommunications infrastructure experiences its bandwidth congestion further up the network than the cable infrastructure. This means that if cable ISPs shift to limitation pricing, telcos could capture a substantial portion of the cable ISP market share simply by advertising plans that free customers from having to keep an eye on the meter.

Cable companies are well aware of this, and they have a compelling incentive to avoid limitation pricing. The fact that all the talk of metering comes almost exclusively from cable companies is quite telling. To date, all the major U.S. DSL and fiber incumbents have largely avoided the limitation pricing debate. AT&T did hint at acceptance of the practice earlier this year, but their stance was very noncommittal. They merely said that “a form of usage-based pricing for those customers who have abnormally high usage patterns is inevitable,” but later said that such practices were not in the company’s future plans.¹⁸

Contrast this stance with Verizon’s. The company said they had no plans at all to meter.¹⁹ Verizon has used this opportunity to differentiate itself from cable by saying their fiber-to-the-curb FiOS service puts the company in a position where it doesn’t need to meter.

Fourth, and perhaps most importantly, the history of pricing in telecommunications tends toward simplicity.²⁰ In the wired voice and wireless voice markets (which face much more realistic congestion issues that cannot be easily overcome by increasing capacity), the pricing models have moved from strict metering to unlimited pricing.

Much of this move is driven by the need to meet customer demand for pricing simplicity (recall how fast all carriers switched their pricing models after AT&T introduced its OneRate plan in 1998; or how fast unlimited cell plans were offered by all the wireless carriers after Sprint took the plunge; or how popular the "My Circle" and "Fave 5" and "In" and "Rollover" plans are).

ISPs may well buck the historical trends and economic incentives and move forward with limitation pricing anyway. Cable ISPs may be particularly worried about the threat that online video poses to their own video products, and might turn to limitation pricing as a way of disfavoring services like Netflix, AppleTV, Vudu, Hulu, Vuze, Miro, and a whole host of commercial online video distribution applications.

But if the move toward limitation pricing is motivated by the need to stifle competition, then this motivation exists completely outside of the FCC's decision in the Comcast case. If cable companies begin to behave in such a manner, there will be a strong public outcry and a big push at the FCC and Congress to deal with this as an antitrust issue.

Morton's Fork

The bottom line is this: Making consumers choose between having applications blocked and limitation pricing is what economists call a Morton's Fork. Neither path is desirable because they both have the same outcome: reducing the innovative power of the Internet. Such an outcome would do great damage to the major driving force behind much of the social and economic change that has occurred over the past 20 years -- not to mention all the benefits the Internet promises for the foreseeable future.

Just a few short years ago, a student taking an online interactive class would have been considered a bandwidth hog; today, such activities are routine. History shows that the level of bandwidth use considered heavy today will be commonplace in the near future. And this is a good thing: Early adopters and innovators paving the way is exactly what is needed to continue to grow our economy. Discouraging Internet use and chilling innovation via limitation pricing will put America on a path of economic stagnation, moving jobs and wealth overseas.

Fortunately, it likely won't get to that point. ISPs are ultimately self-interested, and the pattern of repeatedly dipping their toes in the metering waters suggests they realize it's in their longer-term financial interest to avoid such a major shift in their pricing model.

But if short-sightedness and fear do lead to the unreasonable practice of limitation pricing, that's something that policymakers must address. Because the American broadband market is a duopoly -- offering a choice of only the phone or cable company, if there's a choice at all -- there is already heightened concern about market failure.

The FCC and Congress are particularly sensitive to America's declining position in the global tech marketplace, and anything that hastens that decline will give them cause for closer scrutiny. In a report earlier this year, analysts from the Organization for Economic Co-operation and Development wrote that the practice of caps "may become an economic disadvantage" in countries with these caps because "caps put limitations on how people can use their Internet connections."²¹

Limitation pricing would modify user behavior in a drastic way, leading to declines in economic activity at a time when more and more high-bandwidth applications are commonplace.

It is quite reasonable for prices to reflect costs. But there is simply no indication that the underlying cost structure of the ISP market has been or will be radically transformed by the predictable increases in bandwidth consumption. It is likely that ISPs will once again abandon this flirtation with limitation pricing and instead shift to more sensible solutions. Comcast itself has floated a trial balloon of a 250 GB cap²², which is plainly more practical than the ridiculously low 5 GB monthly cap that Time Warner is reportedly considering.

Ultimately, it will be in the best interest of consumers and carriers if congestion is treated as a temporary problem, one that can be managed with nondiscriminatory practices while continued investments are made to increase capacity to keep pace with demand. A genuine national broadband policy could help to ensure the market is functioning properly by sending the right signals that investment and openness are always better solutions than artificial scarcity and discrimination.

¹ "Commission Orders Comcast to End Discriminatory Network Management Practices", FCC News Release, August 1 2008.

² For example see, Therese Poletti, "FCC's Slap on Comcast May Have Dark Side", *Market Watch*, August 5 2008. Available at <http://www.marketwatch.com/news/story/story.aspx?guid=%7B55F92CF7-A740-45A0-A173-3C685F609EEF%7D&siteid=rss>; also see Om Malik, "Yo FCC! Are You Doing Anything About Metered Broadband?", *GigaOM*, July 30 2008. Available at <http://gigaom.com/2008/07/30/fcc-metered-broadban/>.

³ See Poletti *Ibid*.

⁴ See Robb Topolski, "Framing Peer-to-Peer File Sharing," a paper to the IETF P2PI Workshop, May 2008, item 1, paragraph 2, ["Without providing data about this congestion, operators avoid the possibility that they themselves have issues bearing scrutiny. As a result, the latest debates skip analyzing congestion and advance to how and when to 'throttle' the 'bandwidth hogs,' how to correct a congestion-control fairness imbalance between users, under what conditions network operators may inspect the payload of IP packets prior to forwarding them, and how to further assure routine availability for real-time applications."]

⁵ Karl Bode, "Bell Canada Offers 'Proof' Throttling Was Necessary", *BroadbandReports.com*, June 24 2008. Available at <http://www.dslreports.com/shownews/95556>.

⁶ Peter Lambert and Fred Dawson, "Cable Wins Points on P2P but New Issues Loom," May 2008, *ScreenPlays Magazine*, Available at <http://www.screenplaysmag.com/pdflib/sp508c.pdf>.

⁷ See <http://www.cableone.net/internet/cmaup.asp> (follow link to "threshold limits").

⁸ Bret Swanson, "The Coming Exaflood", *Wall Street Journal*, January 20, 2007.

⁹ For a now infamous prediction of impending Internet doom, see Bob Metcalfe, "Predicting the Internet's Catastrophic Collapse and Ghost Sites Galore in 1996", *InfoWorld*, December 4 1995. Available at <http://www.infoworld.com/cgi-bin/displayNew.pl?metcalfe/bm120495.htm>.

¹⁰ University of Minnesota, Minnesota Internet Traffic Studies; data available at <http://www.dtc.umn.edu/mints/home.php>.

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- ¹¹ Andrew Odlyzko, "Threats to the Internet: Too Much or Too Little Growth", *Internet Evolution*, February 25 2008. Available at http://www.internetevolution.com/author.asp?section_id=592&doc_id=146747&.
- ¹² See "Time Warner Cable Eyeing Overage Charges?", *DSLReports.com*, January 16 2008. Available at <http://www.dslreports.com/shownews/Time-Warner-Cable-Eyeing-Overage-Charges-91047>.
- ¹³ See Catherine Holahan, "Time Warner's Pricing Paradox", *BusinessWeek*, January 18 2008. Available at http://www.businessweek.com/print/technology/content/jan2008/tc20080118_598544.htm.
- ¹⁴ Polleti, *Supra* note 2.
- ¹⁵ *Supra* note 13.
- ¹⁶ See Michael Martin, "Time Warner: Bandwidth Hogs, Pay Up!", *NetworkWorld*, April 8 2002. Available at http://www.networkworld.com/net_worker/news/2002/0408networker.html.
- ¹⁷ See Reinhardt Krause, "ISPs Find It's Tricky To Police Downloads; Two Gigabytes A Day; Capping Bandwidth or Raising Prices May Mean Alienating Some Users", *Investors Business Daily*, March 12 2003.
- ¹⁸ Peter Svensson, "AT&T Looking at Charging Heavy Internet Users Extra", Associated Press, June 12, 2008. Available at http://www.usatoday.com/tech/products/services/2008-06-12-att-internet-charge_N.htm. On July 22, 2008, AT&T spokesperson Brad Mays told [broadbandreports.com](http://www.dslreports.com/shownews/Is-ATT-Hinting-At-UsageBased-Pricing-This-Fall-96276) that neither caps nor metered usage are a part of the company's future plans. See <http://www.dslreports.com/shownews/Is-ATT-Hinting-At-UsageBased-Pricing-This-Fall-96276>.
- ¹⁹ *Supra* note 13.
- ²⁰ A. M. Odlyzko, "Internet Pricing and the History of Communications", *Computer Networks*, v.36, 2001, pp. 493-517.
- ²¹ Taylor Renolyds and Sacha Wunsch-Vincentcong, "Broadband Growth and Policies in OECD Countries", *OECD*, June 2008. Available at <http://www.oecd.org/dataoecd/32/57/40629067.pdf>.
- ²² See Karl Bode, "Comcast Considering 250GB Cap, Overage Fees", *BroadbandReports.com*, May 6 2008. Available at <http://www.dslreports.com/shownews/94185>.