

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of )  
)  
Deployment of Nationwide Broadband Data to )  
Evaluate Reasonable and Timely Deployment of )  
Advanced Services to All Americans, ) WC Docket No. 07-38  
Improvement of Wireless Broadband )  
Subscribership Data, and Development of Data on )  
Interconnected Voice over Internet Protocol )  
(VoIP) Subscribership )

**FURTHER REPLY COMMENTS OF  
CONSUMERS UNION,  
CONSUMER FEDERATION OF AMERICA,  
FREE PRESS  
AND  
PUBLIC KNOWLEDGE**

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**Table of Contents**

I. Introduction.....3

II. Discussion.....4

    A. In Attempting to Deter Commission Action on Broadband Price Collection, Providers Do Not Acknowledge Key Facts.....4

    B. Confidentiality Claims Made by Providers are Vague, Lack Consistency and Ignore Existing Information.....9

    C. The Commission Should Move Forward With the Collection of Broadband Speed Data. Contention Ratios offer an Easily Reported Proxy for Actual Speed Data.....12

        i. The Commission Should Explore Actual Speed Testing.....12

        ii. The Commission Should Compell Reporting of Contention Ratios.....14

III. Conclusion.....19

## **I. Introduction**

Accurate data on the price and speed of broadband connections are just as important for a complete understanding of the market as subscribership and availability information. Price is a key factor influencing consumer migration from dial-up Internet to broadband. The speed of a connection directly impacts the potential use of that connection.

Given that Section 706 specifies a definition of high-speed Internet based on capabilities of the connection, it is critical that the Commission gather information about speeds. The Commission has taken the steps to improve the granularity of the speed tiers it monitors. However, unlike computers, the advertised speeds of broadband connections are not guaranteed -- they are theoretical maximums. The advertised “up to” speeds are impacted by many factors, the most influential being the level of congestion in the local network. As use of the network grows and demand for high-bandwidth applications increases, it is likely that the actual speeds of connections will be well below the advertised speeds.

While measurement of actual speeds achieved by consumers for Commission reporting purposes will be challenging, there are other metrics that can serve as a meaningful proxy for actual speeds. Providers can easily report the “contention ratios” of their local networks. Contention ratios are simply the sum of potential demand on a local network divided by the total available bandwidth on that local network. Providers must know the contention ratios on their local networks in order to properly manage these networks. These ratios serve as a useful proxy for actual speeds because they reflect the level of oversubscription. A higher contention ratio means a higher level of oversubscription, which in turn translates into a lower likelihood of a customer on that

local network achieving the advertised speed. Systematic reporting of granular contention ratios along with controlled experimental measurements of actual speeds will provide the Commission with the data needed to accurately assess the development of the U.S. broadband marketplace.

## **II. Discussion**

### **A. Commenters Urging Against Commission Monitoring of Broadband Pricing Practices Ignore Key Facts**

Given that price is one of the key factors influencing the proliferation of broadband services, it is perfectly reasonable for the Commission to gather information on the pricing trends in the high-speed Internet access market. In fact, gathering such data is necessary for the Commission to adequately implement Section 706 of the 1996 Telecommunications Act, which directs the FCC to monitor the development of the U.S. broadband marketplace. The need for the Commission to collect pricing information is obvious, and it's authority to do so is indisputable. Despite this, several commenters in this proceeding -- mostly broadband providers -- strongly oppose any Commission action to gather this important information. To discourage the Commission, some commenters use vague and misleading arguments.

For example, several commenters suggest that Commission monitoring of pricing trends is tantamount to price regulation.<sup>1</sup> As the Commission is well aware, the issues under consideration in this proceeding have absolutely nothing to do with regulating the price of broadband services. The Commission simply needs to gather this information to produce an accurate assessment of the state and development of the broadband market.

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<sup>1</sup> AT&T Comments at 12-13; Qwest Comments at 4; Independent Telephone & Telecommunications Alliance at 4.

Several commenters also suggest that pricing information would be of no use to the Commission in its effort to monitor the development of the broadband market.<sup>2</sup> But the simple fact that the Commission has sought comment on how to best use pricing data does not mean the agency has no need for this information. By collecting this data, the Commission will gain the ability to track, on a detailed level, the price of broadband across technologies and geographies. This information in combination with subscribership data will enable the Commission to directly examine how price relates to adoption, and how price is impacted by marketplace competition.

Contrary to the claims of certain providers<sup>3</sup>, price is a key factor in the Commission's mandate to encourage the universal and timely deployment of broadband. In the Telecommunications Act of 1996 and the debates that occurred in the months prior to its adoption, Congress made clear its desire to have the Commission facilitate the deployment of universal, affordable and competitive broadband offerings.<sup>4</sup> Indeed, Commissioner Copps specifically noted the role of broadband price in his statement adjoining the Further Notice of Proposed Rulemaking.<sup>5</sup> Furthermore, in the recently published, *Fifth 706 Report*, the Commission noted "The end goal is to ensure the

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<sup>2</sup> National Cable & Telecommunications Associations Comments at 2; Embarq Reply Comments, Expedited cycle, at 7-8; Texas Statewide Telephone Cooperative Comments at 5; AT&T Comments at 12.

<sup>3</sup> Wireless Communications Association International Comments at 5; Independent Telephone & Telecommunications Alliance at 4.

<sup>4</sup> Consumers Union et al. Comments, GN Docket No. 07-45, p. 9-11, May 16, 2007.

<sup>5</sup> Statement of Commissioner Michael J. Copps, Approving in Part, Concurring in Part, In the Matter of the Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership, WC Docket 07-38, June 12, 2008, p. 2.

ubiquitous and *affordable* availability of broadband for all Americans.”<sup>6</sup>

Several commenters suggest that no reasonable method exists for the collection of broadband price information because of the industry practices of long-term contracts, promotions and other “value-added services.”<sup>7</sup> However, as was stated in our comments, by requiring the published, stand-alone non-promotional, non-contractual price, the Commission will possess an accurate assessment of the price of a broadband connection. Though providers will surely state that ignoring promotional pricing will produce an incomplete portrait of the broadband marketplace, this is simply not the case. By tracking the non-promotional pricing practices, the Commission will utilize a metric that is meaningful over time, as promotions come and go. In fact, tracking non-promotional prices is the best, perhaps only feasible way of monitoring pricing differences over time and between technologies. Other commenters, most notably Qwest, also recognized the benefits of this approach.<sup>8</sup> We have no objection to the Commission collecting information on promotional and bundled prices along with non-promotional prices. However, we believe the non-promotional stand-alone price best reflect the true cost that consumers face long after the promotional gimmicks expire.

Providers also attempt to discourage the Commission from collecting pricing data by noting that some third parties already collect such information.<sup>9</sup> While we certainly

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<sup>6</sup> Federal Communications Commission, In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, GN Docket No. 07-45, Fifth Report, released June 12, 2008, ¶76. [Emphasis added]

<sup>7</sup> AT&T Comments at 6-8; National Cable & Telecommunications Association Comments at 3; CTIA Comments at 4.

<sup>8</sup> Qwest Comments at 3; New Jersey Rate Counsel at 13.

<sup>9</sup> Verizon Comments at 9; AT&T Comments at 10; CTIA Comments at 3.

recognize the value of the data collected by entities such as the Pew Internet & American Life Project, these surveys are performed on a national scale. These national reports on broadband prices lack the granularity of information needed in order to assess the role that price plays in the broadband market at the state or local level. These surveys also many times aggregate services, failing to capture the significant difference in end-user experience between 768Kbps DSL and 3Mbps DSL. Furthermore, the surveys are performed irregularly, with the previous findings from Pew coming more than two years prior.<sup>10</sup> Several other sources for pricing information also suffer from shortcomings, such as two cited by Verizon.<sup>11</sup> One source is no longer available, while the other source offers pricing information at the national level without providing the underlying data.

Furthermore, this source has a purchase price of \$695 and only examines “35 access providers in 11 countries during February/March 2005 and May/June 2006.”<sup>12</sup> In short these reports will not include the granular information required for Commission analysis and the underlying data would most likely not be made available to the Commission, let alone the public.<sup>13</sup>

The Commission should also note that it is unique in its ability to compel accurate

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<sup>10</sup> John B. Horrigan, “Home Broadband Adoption 2006,” Pew Internet & American Life Project, May 28, 2006.

<sup>11</sup> Verizon Comments at 9 n. 8. (“*See, e.g.,* BEN MACKLIN, BROADBAND PRICES & BUNDLES: INTERNATIONAL TRENDS (July 2006) ([http://www.emarketer.com/Reports/All/Bband\\_pricing\\_aug06.aspx](http://www.emarketer.com/Reports/All/Bband_pricing_aug06.aspx)); 2006 U.S. BROADBAND USAGE AND ATTITUDES SURVEY (2007) ([http://www.reportbuyer.com/telecoms/broadband/2006\\_u\\_s\\_broadband\\_usage\\_attitudes\\_survey.html](http://www.reportbuyer.com/telecoms/broadband/2006_u_s_broadband_usage_attitudes_survey.html)).”)

<sup>12</sup> Ben Macklin, “Broadband Prices & Bundles: International Trends,” Summary, July 2006, Available at [http://www.emarketer.com/Report.aspx?code=bband\\_pricing\\_aug06&src=report\\_summary\\_reportsell](http://www.emarketer.com/Report.aspx?code=bband_pricing_aug06&src=report_summary_reportsell).

<sup>13</sup> *See also* New Jersey Rate Counsel Comments at 13-14.

reporting by providers. The Commission requires an officer of the company submitting Form 477 to sign a certification statement on the accuracy of the information contained within the form under penalty of “fine or imprisonment under the Communications Act, 47 U.S.C. 220(e).”<sup>14</sup> Third party entities that gather such information lack this authority and ability to ensure honest and accurate reporting of data.

Though the Commission should obviously monitor the pricing practices in the residential broadband market, it is important that the Commission also gather information about the prices businesses pay, including those in the special access and transport markets. We support the American Library Association’s (ALA) that the Commission collects information on the prices of business connections such as T1 access lines. The ALA notes that by arming libraries with this knowledge, they would have the ability to negotiate lower rates, spending their scarce resources in other areas.<sup>15</sup> Similarly, by monitoring pricing in the transport market, the Commission can further the goals of Universal Service by uncovering instances when rural carriers are being gouged by monopoly transport carriers.

In their original Notice of Proposed Rulemaking, the Commission sought to gain “a deeper understanding of the market for broadband services by collecting price information and comparing it to consumer uptake of broadband.”<sup>16</sup> The Commission can further this understanding by collecting the advertised price per megabit. By doing so, the Commission will gain a reliable initial indicator of the “value” of broadband services -- colloquially the “bang for the buck.” We fully support the Commission’s intention to

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<sup>14</sup> See Section V, <http://www.fcc.gov/Forms/Form477/477instr.pdf>.

<sup>15</sup> American Library Association Comments at 2.

<sup>16</sup> NPRM ¶47

collect price information and encourage them to move forward on the recommendations set forth above, including collection of the published, stand-alone, non-promotional, non-contractual price, separated by business and residential offerings and categorized within the Commission's improved speed tiers on a Census Block Group or Census Tract level.

### **B. Confidentiality Claims Made by Providers are Vague, Lack Consistency and Ignore Existing Information**

Providers in their comments have been adamant that any public disclosure of data gathered by the Commission will have dire anticompetitive consequences. Given the level of doom predicted, it is remarkable that these commenters have failed to provide the Commission with specific cases or plausible scenarios of exactly how public disclosure will cause competitive harms. The Commission must place the burden of proof on providers to make a compelling case that the release of data will create such significant harm as to outweigh the numerous public interest benefits.<sup>17</sup>

In their pleas for confidentiality, providers have contradicted their own arguments made against the need for collecting data itself. While providers claim that significant competitive harms will result from public disclosure of broadband pricing data, they also argue that Commission collection of such information would be a “useless exercise”<sup>18</sup> and would produce “only outdated or incomplete information.”<sup>19</sup> If providers truly view this information as “meaningless”<sup>20</sup>, then Commission should not entertain their claims that this information must also be shielded from public view. Indeed, one provider

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<sup>17</sup> See also New Jersey Rate Counsel Comments at 16-17. (“Rate Counsel urges the Commission to reach a “default” finding in this proceeding that broadband data is public, and if there are any particular extenuating circumstances, the industry should be required to demonstrate them.”)

<sup>18</sup> Verizon Comments at 10.

<sup>19</sup> Time Warner Cable Comments at 7.

<sup>20</sup> National Cable & Telecommunications Association Comments at 3.

recognized the folly in such arguments and admitted the collection of pricing information is “relatively non-controversial.”<sup>21</sup>

During the expedited comment cycle, providers strongly advocated that the Commission leave the business of data collection to private entities such as Connected Nation, based in part on the assertion that this private entity can ensure data remains confidential and shielded from public view.<sup>22</sup> However, this argument is directly contradicted by Connected Nation themselves, who tells the Commission “Connected Nation gathers and *publicly disseminates* broadband availability data in a manner that is much more comprehensive, transparent, and *detailed* than the Commission could achieve”.<sup>23</sup>

The Commission should recognize that providers have long had access to information on competitors.<sup>24</sup> Information such as marketing strategies and service footprints are already publicly available in a variety of forums. The marketing strategies of broadband providers are constantly being reported in press outlets and are, by nature, easy to discover.<sup>25</sup> Furthermore, as others have noted<sup>26</sup>, a competitor need only travel to the website of a provider or make a phone call in order to obtain what is being offered to customers. Service footprints are no different, with websites allowing visitors to plug in

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<sup>21</sup> Qwest Comments at 4.

<sup>22</sup> AT&T Comments, June 15, 2007, at 16; Windstream Comments at 4.

<sup>23</sup> Connected Nation Reply Comments, Expedited Cycle, at iii. [Emphasis Added]

<sup>24</sup> New Jersey Rate Counsel Comments at 15-16. *See also* The American Public Power Association et al. Comments, Expedited Cycle, at 7.

<sup>25</sup> *See e.g.* “Comcast offers high-speed Internet ‘price for life’,” New Mexico Business Weekly, March 20, 2008, Available at <http://albuquerque.bizjournals.com/albuquerque/stories/2008/03/17/daily30.html>.

<sup>26</sup> New Jersey Rate Counsel Comments at 16; Qwest Comments at 3; Time Warner Cable at 3.

an address or ZIP code to assess whether service is available.<sup>27</sup> For example, Verizon argues, “a competitor could learn the specific geographic areas in which a broadband provider is relying on fiber technology.”<sup>28</sup> Yet Verizon themselves announces not only when areas receive fiber service but also what areas they expect to serve in the future.<sup>29</sup>

We should note that providers have attempted to discourage the Commission from gathering certain broadband data because such information will not be analyzed and published for months after it is submitted, and thus will be “extremely outdated”.<sup>30</sup> For example, the last *release* of Form 477 data was on March 8, 2008 -- for data that was reported as of June 30, 2007, a full nine months earlier!<sup>31</sup> While we don’t agree that such dated information is of little informative value to the Commission, we do believe that the likelihood of competitive harms occurring from the release of dated information is virtually non-existent. Providers simply fail to recognize the uselessness of such information to competitors while also overlooking the value that this information has for the Commission in its effort to track trends in the broadband market.

A coalition of small broadband providers requests that the Commission not make pricing information available, due to the threat of predatory pricing which they have

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<sup>27</sup> Consumers Union et al. Comments, Expedited cycle, at 17.

<sup>28</sup> Verizon Comments at 14.

<sup>29</sup> See e.g. Mike Robuck, “Verizon expands FiOS TV lineup in parts of Virginia,” CedMagazine.com, Aug. 14, 2008, Available at <http://www.cedmagazine.com/article.aspx?id=158206>; “Rhode Island Customers: Meet Verizon FiOS TV!” PRNewswire, Available at [http://www.examiner.com/p-566~Rhode\\_Island\\_Consumers\\_\\_Meet\\_Verizon\\_FiOS\\_TV\\_.html](http://www.examiner.com/p-566~Rhode_Island_Consumers__Meet_Verizon_FiOS_TV_.html). See also <http://www.dslreports.com/gmaps/fios>; <http://www.dslreports.com/gmaps/fios?typ=s>

<sup>30</sup> CTIA Comments at 5.

<sup>31</sup> Federal Communication Commission, “High-Speed Services for Internet Access: Status as of June 30, 2007,” Wireline Competition Bureau, March 2008.

found “to be an all too common occurrence.”<sup>32</sup> There is no doubt that predatory pricing can harm competition, which is exactly the reason such practices are outlawed.<sup>33</sup>

However, as we have explained above, the Commission’s collection of this data will do nothing to change the information already available to competitors. Price is clearly the easiest piece of information to obtain and competitors seeking to practice predatory pricing already have the means to do so.<sup>34</sup> Furthermore, given the length of time between the data’s collection and dissemination, Commission disclosure of broadband pricing information would be of no use to those companies seeking to engage in the disgraceful practice of predatory pricing.

We should note that as consumer advocates, we would not be making such a strong request for public disclosure of pricing data if we believed such disclosure would result in anti-competitive and anti-consumer outcomes.

**C. The Commission Should Move Forward With the Collection of Broadband Speed Data. Contention Ratios offer an Easily Reported Proxy for Actual Speed Data**

**i. The Commission Should Explore Actual Speed Testing**

The Commission seeks input on methods to “effectively capture information about actual, delivered speeds of broadband Internet access services.”<sup>35</sup> The Commission rightly recognizes that advertised speeds are not what determine the potential uses of

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<sup>32</sup> Organization for the Promotion and Advancement of Small Telecommunications Companies and the Western Telecommunications Alliance Comments at 7.

<sup>33</sup> *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).

<sup>34</sup> *See also* National Association of Telecommunications Officers and Advisors, the National Association of Counties, The U.S. Conference of Mayors, and The National League of Cities Expedited Comments at 7.

<sup>35</sup> FNPRM ¶4

broadband connections -- actual speeds determine whether or not a connection can be used to “originate and receive high quality voice, data, graphics and video telecommunications.” Unfortunately, the most obvious method of obtaining this information -- self selected end user speed tests -- is also one of the least useful. As a variety of parties have noted, providing a web address for end users to test the speed of their connection fails to account for a variety of factors. The Commission sensibly recognized these hurdles in the 2004 Broadband Data Order.<sup>36</sup> These speed tests provide end users with helpful information regarding their connections, but are inadequate as a tool for the Commission to gain a more complete understanding of the broadband marketplace. Fortunately the Commission has other options at their disposal.

A recent study performed in the U.K. by the SamKnows Performance Monitoring Project illustrates a controlled experiment methodology that the Commission can reproduce (perhaps with the aid of qualified university researchers) to monitor the actual speeds delivered by U.S. ISPs.

The group deployed 223 monitoring units to volunteers who were subscribers of a variety of ISPs.<sup>37</sup> The group operated five carefully monitored servers and performed a speed test once every six hours for a six-week period.<sup>38</sup> The speed tests produced very interesting results -- results that dovetail with conventional wisdom about the practical differences in the broadband services offered using different technologies. For example,

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<sup>36</sup> Federal Communication Commission, Local Competition and Broadband Reporting, WC Docket No. 04-141, Report and Order, released Nov. 12, 2004, ¶27.

<sup>37</sup> Given the lack of intramodal competition in the United States, the Commission would have far less difficulty covering broadband providers serving the overwhelming majority of Americans.

<sup>38</sup> Sam Crawford, “Performance Monitoring Report,” SamKnows, Feb. 8, 2008, pp. 2, 11, Available at [http://www.samknows.com/broadband/pm/PM\\_Summer\\_08.pdf](http://www.samknows.com/broadband/pm/PM_Summer_08.pdf).

the lower speed tier connections from Virgin Media, the primary cable modem provider in the U.K., did deliver close to the advertised speeds. However, the higher speed tier packages saw significant performance issues. Of particular interest was the 20Mbps package, which failed to deliver the advertised even in off peak hours, with extremely poor performance during peak hours.<sup>39</sup> This means customers who were paying the provider extra for a higher speed tier of access were the least likely to experience the speed they paid for. These performance issue appear to be particularly problematic for providers using highly contented last-mile technologies, such as cable modem.

The findings of SamKnows illustrate how a provider can abuse the oversubscription model and fail to deliver the advertised product for any reasonable period of the time. This concern only grows when realizing that the same time a subscriber is most likely to be using their broadband connection is the exact same time they are least likely to experience the advertised speed. Unfortunately, neither the Commission nor the public currently has access to information to discern whether and to what extent this failure is occurring in the U.S. broadband market.

## **ii. The Commission Should Compel Reporting of Contention Ratios**

The broadband industry is currently characterized by inaccurate and misleading marketing practices. For example, a recent advertisement for a cable modem service brags that the connection is “Twice as fast as DSL”, but the ad fails to mention that cable modem connections are subject to a far higher level of bandwidth sharing than DSL

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<sup>39</sup> Id. at 31.

connections, meaning that the claim of “twice as fast” is somewhat hollow.<sup>40</sup> Consumers buy connections based on “up to” speeds, but have no information on what might influence that “up to” figure, or what the likelihood is of actually receiving the advertised speeds. The only details disclosed to consumers is the furtively placed “actual speeds may vary” buried down in the fine print of advertisements.<sup>41</sup> As the Commission recently noted “vague terms are of no practical utility to the average customer.”<sup>42</sup> Indeed, as a business practice, this model differs quite differently from that in another industry where speed is a primary consideration -- personal computers. One can imagine the outrage that would occur if consumers discovered that the computer they were sold with a 2.4Ghz processor could only achieve that speed during certain hours of the day. Rather than attempting to address this performance issue and be honest with customers, provider’s marketing strategies seek to hide this fact at every turn.

The Commission has recognized that the broadband market is maturing, noting continued speed increases offered by both cable and phone providers.<sup>43</sup> Yet little is known as to whether these increases are real or simply an abuse of the oversubscription business model. For example, Comcast currently provides a “Blast!” tier, advertised at

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<sup>40</sup> See TV advertisement at 22 seconds,  
<http://www.youtube.com/watch?v=cOGv9SozBK8>

<sup>41</sup> See e.g. at 22 seconds,  
<http://www.youtube.com/watch?v=JH0myKzVGi0&NR=1>

<sup>42</sup> Federal Communications Commission, In the Matters of Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications, File No. EB-08-IH-1518; Broadband Industry Practices, WC Docket No. 07-52, Memorandum Opinion and Order, Released August 20, 2008, ¶53.

<sup>43</sup> *Fifth 706 Report* ¶9, 12

16Mbps.<sup>44</sup> The typical cable system has 38.8Mbps of bandwidth dedicated to Internet traffic, split amongst all customers on a single node (which typically have between 300 and 500 customers sharing this 38.8Mbps connection).<sup>45</sup> This creates a situation where just three customers using their connection (and receiving the speed they paid a premium for) can completely utilize all the bandwidth that is available to the hundreds of cable modem households in the neighborhood.<sup>46</sup> Thus it is easy to imagine many scenarios where customers would be unable to receive the bandwidth advertised. Furthermore, Comcast current implementation of DOCSIS 3.0 standard has created a situation where 77.6Mbps of bandwidth is provided for those subscribing to 50Mbps service, meaning one customer alone can consume more than 60 percent of the available bandwidth.<sup>47</sup> A clear need exists for the Commission to monitor the true developments in the broadband market in terms of actual versus advertised speeds. Put simply, it is of little value that consumers are being offered higher advertised speeds if the purchased connections are so oversubscribed that these speeds can never be achieved.

Thus the Commission must find a way of monitoring the actual speeds that is both practical and comparable across technologies. As mentioned above, ongoing controlled experiments will be valuable in this effort. But such experiments will unfortunately suffer from a lack of granularity, and it will not be possible to merge the data from these experiments with the detailed data on broadband subscribership and availability. Thus we

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<sup>44</sup> See e.g.

[http://www.comcast.com/MediaLibrary/1/1/About/PressRoom/Documents/ProductsAndServices/Hi\\_Speed.pdf](http://www.comcast.com/MediaLibrary/1/1/About/PressRoom/Documents/ProductsAndServices/Hi_Speed.pdf)

<sup>45</sup> See e.g. <http://www.cable360.net/ct/data/26403.html>

<sup>46</sup> See <http://www.translation-please.com/column.cfm?columnid=89>

<sup>47</sup> See <http://government.zdnet.com/?p=3752>. Cox Communications has also stated they will use two bonded channels for a total of 77.6Mbps, See [http://www.lightreading.com/document.asp?doc\\_id=157472](http://www.lightreading.com/document.asp?doc_id=157472).

suggest the Commission compel that providers report contention ratios at the Census Tract level. Contention ratios are a useful proxy for actual speeds, because they reflect the degree to which customers share capacity, and thus the level of oversubscription on a local network. We suggested that the Commission track such information in our initial comments, but here we offer a formal definition of contention ratios:

$$CR = \frac{\sum Dp}{S},$$

where  $\sum Dp$  = sum of potential bandwidth demand

and  $S$  = the total bandwidth supply.

Thus, a cable node with 500 customers all subscribing to 16Mbps service, sharing a 38.8Mbps channel, will have a download contention ratio of 206.2. Or a Verizon FiOS BPON fiber drop (total download capacity of 622Mbps) serving ten 20Mbps households will have a download contention ratio of 0.3. These examples are not wild assumptions, but close to the actual realities of the local broadband market. The vast difference between the two illustrate why the Commission tracking of contention ratios is extremely important for a detailed understanding of the development of the U.S. broadband market.

We suggest that the Commission gather contention ratio data at the Census Tract level, so that it can be integrated with other data on subscribership and availability. Providers will be easily able to calculate the contention ratios for particular nodes and central offices, whose locations can be converted into census tract numbers. We anticipate the usual slew of arguments about how unfeasible gathering such information will be, but the Commission should dismiss such arguments. In order to adequately manage their networks providers *must absolutely know* the contention ratios on their local networks. Furthermore, as we explained in our initial comments, the Commission

currently requires providers to report portions of this information in existing forms and need only expand these efforts to collect the remaining information.<sup>48</sup> Contention ratios are certainly not an abstract concept to providers; such figures are routinely used in the advertisements of overseas broadband providers,<sup>49</sup> with at least one foreign government requiring the publishing of contention ratios.<sup>50</sup> Given that the Commission sought comment on “how we might require service providers to report this information, *and any alternative means*, in addition to or other than requiring such service provider reporting, for effectively capturing meaningful information about actual speeds”,<sup>51</sup> we suggest that the required reporting of contention ratios is clearly less burdensome than requiring providers conduct speed tests throughout their entire service area.

As Chairman Martin has noted “it’s critical to make sure that consumers understand whether broadband network operators are able to deliver the speeds of service that they are selling.”<sup>52</sup> We completely agree.

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<sup>48</sup> Consumers Union et al. Comments at 15-19.

<sup>49</sup> See e.g. [http://www.u-want.com/internet\\_faqs.html#one](http://www.u-want.com/internet_faqs.html#one);  
<http://www.vaioni.com/ultra20>

<sup>50</sup> See [http://www.telkom.co.za/athome/products/dsl/home\\_faq.html#adsl](http://www.telkom.co.za/athome/products/dsl/home_faq.html#adsl)

<sup>51</sup> FNPRM ¶36 [Emphasis added]

<sup>52</sup> Statement of Chairman Kevin Martin, Before the United States Senate Committee on Commerce, Science and Transportation, April 22, 2008, p. 6.

### **III. Conclusion**

We support the Commission's efforts to improve its broadband data gathering practices. The recent move to require detailed reporting of subscribership information is a bold step forward, but without granular pricing and contention ratio information, the picture will not be complete. By gathering this additional information, the Commission can fulfill its Congressional mandate under Section 706 of The Act while also producing a valuable public resource.

Respectfully submitted,

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