

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

<b>In the Matter of:</b>	)	
	)	
<b>Comment Sought on Residential Fixed</b>	)	<b>CG Docket No. 09-158</b>
<b>Broadband Services Testing and</b>	)	<b>CC Docket No. 98-170</b>
<b>Measurement Solution</b>	)	<b>WC Docket No. 04-36</b>
<b>to Provide Interconnected Voice Over</b>	)	
<b>Internet Protocol Service</b>	)	

**COMMENTS OF CENTURYLINK  
CONSUMER INFORMATION AND DISCLOSURE  
PN, DA 10-670**

**INTRODUCTION**

CenturyLink appreciates the opportunity to comment on the Commission’s planned utilization of SamKnows in attempting to measure broadband service performance.<sup>1</sup> CenturyLink is dedicated to customer service and is rightly proud of its industry-leading broadband network.

CenturyLink supports efforts to “put[] more information in the hands of consumers” to help them understand their Internet experience and to evaluate which broadband service options may best meet their needs.<sup>2</sup>

---

<sup>1</sup> See Public Notice DA 10-670 (rel. Apr. 20, 2010).

<sup>2</sup> Omnibus Broadband Initiative, Federal Communications Commission, *Connecting America: The National Broadband Plan* (2010) at 44.

**I. The process should be collaborative and should address justified industry concerns about testing methods and approach.**

Measuring broadband service performance accurately, understanding the results properly, and communicating that information to consumers appropriately is very difficult. The Commission, and its contractor, need to work collaboratively with broadband service providers, consumer groups, and other interested parties. The SamKnows testing method should be refined.

The Commission cannot adequately meet its goals simply by securing a contractor, and SamKnows cannot expect to meet expectations without working cooperatively with the industry and interested parties. The process must be ongoing and collaborative if the results are to have value. Appropriately, SamKnows intends to make its data available to service providers before it is finalized. However, CenturyLink also encourages the Commission to ensure its contractor listens to and learns from all stakeholders throughout the process, continually refines its data gather procedures, and addresses anomalies that may improperly skew results.

The Public Notice's summary offers a helpful overview of the SamKnows methodology. However, it cannot and does not address the many details that will be critical to accurate measurement. The Commission should ensure that SamKnows shares details with industry to help ensure its testing architecture, methodology, and data-reporting are fair and accurate. That collaboration is critical if consumers are to receive a fair and meaningful comparison among providers, networks, and technologies.

Different broadband providers differ in platforms, technology, architecture, and network interface. They use different methods for peering, caching, and distributing information. SamKnows intends to download and upload speeds, data usage, latency, “jitter,” availability, packet loss, DNS resolution time, DNS failures, and page loading time.<sup>3</sup> CenturyLink conducts detailed analyses of its network performance, and it knows that these are not simple measurements. SamKnows will need to explain how these steps will be taken, and it should be receptive to industry recommendations and concerns.

For example, the SamKnows testing method uses “speed test” servers on the Internet that fail to identify whether congestion on the Internet cloud, rather than in broadband provider’s network. In addition, the SamKnows method transmits artificial test traffic to test the network capacity, which increases network utilization that could already be very high at peak traffic periods. If not properly managed, when introduced by thousands of testing units, this method could actually degrade some consumers’ real world Internet experience by creating needlessly to traffic congestion. SamKnows should work with industry standards groups to create a throughput performance metric -- a standard protocol -- to isolate the performance from the broadband service provider’s Internet gateway to the customer modem. Both DSL and cable industry standards contain protocols to performance SLA validation in this manner, which could be readily modified to provide the customer with near-real time information on the bandwidth being accepted or rejected at the Internet gateway, and the bandwidth delivered to the customer -- both

---

<sup>3</sup> Notice at 3-4.

upstream or downstream. That more refined approach would address speed performance and network isolation performance.

It also makes sense to consider refining the SamKnows mission, making it not simply a testing entity but a testing standards and certification group. The point of testing, naturally, is to measure broadband network performance in isolation from the Internet. That would require placing test devices at the broadband provider's Internet gateway. When broadband service providers connect test elements to their own networks, they ensure that connectivity and new network elements do not impact network availability to the public. They size and scale elements carefully, to avoid saturating the network and impeding traffic. Similarly, third party testing of networks should be done in a way to avoid harming performance.

Consequently, it would make sense for SamKnows should work with broadband providers in placing test elements in their network. That could be readily accomplished by refining the SamKnows mission from being simply a testing entity to serving as a test standardization and certification group. A testing standards group could easily work with broadband service providers to define appropriate testing to accurately sample customer experience, and then certify third party vendors and laboratories as certification organizations. In this way, a broadband service provider could work with a lab to place testing equipment at appropriate network locations. That would minimize network impacts and avoid unnecessary costs, while yielding more valid and reliable test results.

**II. The initial testing program should be a first step, learning experience.**

CenturyLink provides broadband services in communities all across the nation, in different geographies, population densities, and even climates. It uses a variety of the latest technologies to continuously extend and upgrade its network, both to reach new customers and to meet burgeoning bandwidth demand. CenturyLink understands that the task of testing broadband services in the U.S. is immensely difficult to do right.

The preliminary methodology outlined in the notice is probably unlikely to provide a statistically reliable result, even with as many as 10,000 households participating in the initial testing. That does not mean the preliminary testing effort cannot reasonably be undertaken. Rather, the initial testing program should be treated as an opportunity to learn about broadband measurement, to identify all weaknesses in the methodology, to accept input from industry and experts, and to refine the methodology based on lessons learned. Ensuring consumer and participant privacy is also important, and the preliminary testing round also provides an opportunity to assess privacy and confidentiality safeguards and to make any appropriate adjustments.

Running a preliminary and transparent test program will allow the Commission, SamKnows, and interested parties to learn lessons about the methodology. It would provide SamKnows an opportunity to try to achieve a consensus about reasonable methodology, and the lessons learned will help ensure that the subsequent, extensive testing will produce more useful and reliable data for consumers.

**III. It is critical that all sampling is transparent and representative.**

The biggest challenge in attempting to measure broadband provision of service is ensuring that all samples are fairly representative, including any entirely inadvertent bias. SamKnows intends the testing panel to “be representative of the ‘broadband population’ in terms of technology, geography and service level.”<sup>4</sup> The notice does not state what steps SamKnows intends to take to ensure that participants are fairly representative of users as a whole -- that they provide a reasonable cross-section of the broadband consumer population, with the same skills, demographic profile, comparable usage levels, and similar usage patterns, including time of day and load factors.

For example, much of the delay experienced by broadband consumers is not caused by the service provider’s network, but by other content providers. A panel that includes users of particular applications -- or that is more likely to use third-party applications -- will not be representative of consumers’ experiences as a whole. A panel that is not geographically diverse within a local network may not provide a representative sample. Young or technically savvy participants may also provide an inaccurate picture. “[S]olicit[ing] volunteers through a media campaign”<sup>5</sup> is unlikely to provide a truly representative sample of the population. It is also important to ensure participants reflect average levels of satisfaction with their existing service. Participants also should be selected to provide more consistent demographics, including the presence and age of children. The Commission should direct SamKnows to engage an independent

---

<sup>4</sup> Notice at 2.

<sup>5</sup> Notice at 2.

statistician to help it develop a panel selection procedure that delivers a statistically valid, reasonably reliable sample.

Ensuring a representative sample pool of participants is absolutely critical. That requires the selection process to be neutral and transparent.

**IV. The Commission should ensure that all technologies compete on a level playing field.**

In addition to being reliable, data presented to the public needs to be comparable. The Commission needs to ensure that all broadband providers are tested and evaluated using comparable standards, regardless of the technologies they use.

Just as mobile voice services aggressively compete with wireline voice services, mobile broadband providers increasingly compete with fixed broadband providers. Consumers and competitors both are disserved so long as one class of provider is not subject to the same rules.

Although the SamKnows project is limited to “fixed” broadband providers, CenturyLink understands that the Commission intends to understand a similar measurement program for mobile broadband providers. The Commission should make that effort a priority, and should ensure that those services face similar testing using comparable standards and comparable methodology.

**V. The Commission should seek public comment on how to present broadband performance data.**

The task does not end with selecting a pool of broadband users and securing data on their broadband experience. It is also important to consider how information is presented to consumers.

The Public Notice leaves that issue for a future date. CenturyLink need not address the issue in detail here. Plainly, however, this is an important issue, warranting careful review. CenturyLink simply notes that, at an appropriate time, the Commission should seek public comment on how public testing data should be presented and described, so that it is meaningful and useful to consumers.

**CONCLUSION**

CenturyLink is dedicated to providing its customers with the highest quality broadband service experience. CenturyLink is confident of the value of its competitive broadband services and proud of the reliability and quality of its broadband network. It supports making reliable data available to consumers to help them choose their broadband provider.

Providing useful data, however, is not a simple task. First, the data needs to be reliable. That means ensuring representative, neutral sample, learning from initial testing, and working collaboratively with service providers to deliver reasonably reliable results. Second, the data needs to be comparable. That means ensuring comparable testing for all technologies, including mobile wireless. Third, the data needs to be

*Comments of CenturyLink  
CG Docket No. 09-158  
CC Docket No. 98-170  
WC Docket No. 04-36*

presented in a way that is meaningful to consumers. That warrants seeking public comment on how the information is presented and described.

Respectfully submitted,

**CENTURYLINK**

By: 

David C. Bartlett  
Jeffrey S. Lanning  
John E. Benedict  
801 Pennsylvania Ave., NW, Suite 612  
Washington, DC 20004  
(202) 393-1516

May 4, 2010