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

In the Matter of	)	
	)	
Consumer Information and Disclosure	)	CG Docket No. 09-158
	)	
"Need For Speed" Information for Consumers of Broadband Services	)	

COMMENTS OF VIASAT, INC.

ViaSat, Inc. ("ViaSat") hereby responds to the *Public Notice* released by the Commission on April 11, 2011 in the above-referenced proceeding. The *Public Notice* requests comment in response to a number of questions that collectively seek to ascertain the kinds of performance-related information that will be most useful to consumers in assessing which broadband service to purchase.

ViaSat applauds the Commission's efforts to allow consumers to make informed choices in selecting broadband providers and services. ViaSat agrees that providing consumers with relevant information is a "proven method to promote meaningful competition and spur innovation, both of which will generate more and better consumer choices."[1] ViaSat also agrees that the absence of such information could hamper consumers' ability to compare services offered by and among broadband providers.[2]

It is important, however, that efforts to educate consumers do not inadvertently bias the continuing development of broadband services or the underlying regulatory environment. As ViaSat has explained previously, "broadband" is a multidimensional concept defined by a number of service attributes, which different broadband solutions combine in different ways in response to consumer preferences,

---

1 Omnibus Broadband Initiative, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN, at 44 (2010) ("*National Broadband Plan*").

available technologies, and cost considerations.[3] Because broadband solutions incorporate different combinations of features, performance, and price, at any given point in time a variety of differentiated broadband solutions are both technically and economically feasible. Moreover, new broadband solutions will emerge over time—and once-popular solutions (*e.g.*, dial-up) will recede—as consumer preferences, applications, technologies, and input costs change.

In the absence of interference, and given a competitive market, those solutions that are most responsive to consumer needs and preferences tend to succeed, while those that do not respond to such needs and preferences tend to fail. Through this process, "broadband" is defined through an emergent, "bottom-up" process. On the other hand, a "top-down" approach in which the government places its imprimatur on certain types of broadband services, but not others, could prejudice the continuing development of broadband services and damage the efforts of service providers to offer innovative broadband solutions that truly respond to consumer needs.

To avoid this result, while ensuring that consumers have sufficient information to evaluate available broadband service offerings, the Commission should encourage service providers to disclose information concerning the most important characteristics of their broadband services—namely, typical speeds and price—in a form that facilitates meaningful comparisons across different service offerings and providers. At the same time, the Commission should avoid relying on "composite" performance measures that assign arbitrary weights to different performance characteristics, or using educational materials that make

---

2 *Public Notice* at 2.

3 *See* Mark D. Dankberg, Thomas E. Moore, and Girish Chandran, *Toward a National Broadband Plan: Ensuring a Meaningful Understanding of Broadband Capabilities and Facilitating Competitive Choices* (Aug. 31, 2009) (filed with the Commission on Aug. 31, 2009 in GN Docket No. 09-47).

value judgments (or worse, ill-informed guesses) about the suitability of a given service for a particular type of user or application.

I. THE COMMISSION SHOULD FACILITATE CONSUMERS' ABILITY TO EVALUATE THE MOST SALIENT ATTRIBUTES OF A GIVEN BROADBAND SERVICE

The *Public Notice* seeks comment on the "most important service characteristics that consumers need to consider to determine their broadband performance requirements[.]"[4] ViaSat agrees with the premise that implicitly underlies this inquiry: that the best way to ensure that consumers can make informed choices about their broadband service options is to present them with information about the most salient characteristics of those options that is both easy to understand and capable of being used to compare service alternatives. This approach is consistent with the "broadband digital label" approach advocated by the *National Broadband Plan*,[5] which is reminiscent of the energy efficiency labels that appear on appliances, and the gas mileage labels that appear in the windows of new cars. This approach also recognizes that providing too much information can confound the ability of many consumers to evaluate their service options, contributing to "paralysis by analysis," while at the same time imposing unnecessary costs on service providers.

As explained above, "broadband" is a multidimensional concept that can be evaluated across any number of service attributes. That being said, ViaSat believes that the following attributes are likely to be the most salient from a consumer's perspective:

- ***Typical downstream speed during peak hours.*** The expected or actual speed at which a subscriber can download content from and through the network during periods of heavy network usage.
- ***Typical downstream speed during non-peak hours.*** The expected or actual speed at which a subscriber can download content from and through the network during "normal" periods of network usage.

---

4 *Public Notice* at 3.

5 *National Broadband Plan* at 46.

- ***Typical upstream speed during peak hours*.** The expected or actual speed at which a subscriber can upload content to and through the network during periods of heavy network usage.

- ***Typical upstream speed during non-peak hours.*** The expected or actual speed at which a subscriber can upload content to and through the network during "normal" periods of network usage.

- ***"Price."*** The concept of "price" encompasses not only *how much* a consumer pays for broadband service, but also *what* the consumer gets in exchange for such payment. Thus, "price" is meaningful if evaluated together with other salient performance attributes, such as speed.

Notably, speed is the attribute that most directly affects the end-user experience with respect to the most popular broadband applications—including video streaming, peer-to-peer networking, social networking, e-mail, and web surfing—due to the high volume of data associated with these applications. As a recent Sandvine report shows, these types of applications account for over 85 percent of the fixed-access peak-period traffic in North America.[6] Thus, consumers who select a high-speed service that performs well during periods of heavy network usage are likely to have an excellent broadband experience.[7] In contrast, consumers that select a service with lower speed or one that gets "bogged down"

---

6 *See Sandvine Global Internet Phenomena Report*, at 5 (Spring 2011). For additional information and support, *see Cisco Visual Networking Index: Forecast and Methodology, 2009-2014*, at 10 (Jun. 2, 2010).

7 Properly designed and managed networks allocate per-subscriber bandwidth at a level sufficient to overcome congestion at "choke points," and to manage congestion during periods of peak network usage, both of which are an inescapable feature of all networks—wireline, cable, wireless and satellite, alike. This "provisioned rate" can be calculated for any network by dividing the total bandwidth available at the relevant choke point by the total number of subscribers that are assigned to share that bandwidth (*i.e.*, the worst case situation where all subscribers contend for access simultaneously). Adequate provisioning is an important predictor of actual network performance, and therefore is an important consideration when the Commission is differentiating among potential service providers for the unserved in connection with the Connect America Fund. *See* WC Docket No. 10-90. But provisioning is not the only tool that network operators use in order to ensure a quality experience for end users. In fact, two systems with the same provisioning level can provide different end-user experiences. For this reason, consumer disclosure should focus instead on those service attributes that affect the end user the most: typical speeds and price.

during peak usage periods are likely to have an unsatisfactory broadband experience—even if that service features other "secondary" performance characteristics like low latency or jitter.

Secondary performance attributes, such as latency and jitter, also can affect the end-user experience.[8] Yet, these attributes are simply less salient than speed and price, and have a less direct impact on the overall end-user experience. Notably, with sufficient speed it is possible to overcome many of the "shortcomings" that otherwise might be implied where these secondary attributes are perceived as deficient. For example, ViaSat and other providers incorporate web acceleration technologies into their services that increase the amount of data that can be downloaded at once, allowing end users to load a given web page with fewer "round trips" than are necessary with other network configurations. As a result, web pages load as fast as or more quickly than they would over many terrestrial networks. In other words, reducing the number of round trips to the satellite can offset the cumulative time delays that otherwise could affect the user experience.

Moreover, these secondary performance attributes tend to interact in complex ways. For example, "time-variant" attributes like latency and jitter cannot be measured or reported meaningfully without accounting fully for and reflecting contextual factors such as network topology, traffic loading, and congestion, all of which directly impact the user's quality-of-experience. Consequently, two networks with the same level of "latency" can provide significantly different end-user experiences. Moreover, as detailed above, the vast majority of all Internet traffic today simply is not latency-sensitive. Thus, focusing on "latency" in isolation could mislead consumers about the capabilities or deficiencies of the underlying offering, and thus undermine the ability of many consumers to make informed choices about the broadband services they select. For these reasons, the Commission should

---

[8] *See Public Notice* at 3.

refrain from making value judgments about the implications of secondary characteristics like latency with respect to specific applications.[9]

II. THE COMMISSION SHOULD ENCOURAGE THE USE OF A STANDARDIZED "BROADBAND DIGITAL LABEL" TO FACILITATE "APPLES-TO-APPLES" COMPARISONS BY CONSUMERS

The *Public Notice* seeks public input on the "best way to present information regarding broadband performance needs"—and, presumably, capabilities—"in a concise, cost-effective manner that facilitates informed consumer choice."[10] At the most basic level, ViaSat agrees with the *National Broadband Plan*'s proposal that the Commission facilitate the use of a standardized "broadband digital label" to summarize the most salient attributes of a given broadband service in a format that is useful for consumers.[11] As discussed above, ViaSat believes that these attributes should include typical peak and non-peak upstream and downstream speeds, as well as price.

Disclosure of these attributes in a standardized format would facilitate that ability of consumers to perform "apples-to-apples" comparisons among different network operators and service providers. In this manner, consumers would be able to select the broadband service that best meets their individual needs. At the same time, this approach would not artificially limit the range of available broadband options, or prejudice the continuing development of broadband services.

Critically, the use of a "broadband digital label" would require the development and use of standardized broadband metrics, as well as the development and use of standardized methodologies for collecting and processing performance data. The development of these standards should be informed, first and foremost, by the need to provide consumers with useful information about the probable end-user experience associated

---

9 *Cf. Public Notice*, App.

10 *Public Notice* at 3.

with a given service. Thus, for example, instead of disclosing only "raw" technical information about the typical download speed of a given service (*e.g.*, 4 Mbps), the Commission should encourage providers to disclose how that speed would translate into actual download times for a 1 GB file (or about one hour of standard-definition video).

Including this type of supplemental information would shift the focus of consumer disclosure from the technical operation of the network to the actual delivery of quality service to the end user. In doing so, this approach also would convey to consumers the simple fact that not all services with the same advertised speed are created equal, while implicitly accounting for secondary performance attributes (*e.g.*, latency and jitter) which might impact the total load time for a given web application. ViaSat endorses the use of such consumer-oriented metrics because they are inherently objective indicators of how a given service is likely to meet a specific consumer need—even though they may not parallel exactly the technical metrics that service providers use to describe their own networks.

On the other hand, ViaSat strongly opposes any proposal to develop or utilize "composite" measures of broadband quality. These "composite" measures are of limited value, and in fact run a significant risk of ignoring or undervaluing performance attributes that are relevant to consumers. As an initial matter, composite measures assign inherently arbitrary weights in attempting to aggregate measurements of "primary" broadband performance attributes. Of course, if these weights are incorrect, or if salient characteristics that determine a user's quality-of-experience are not included, the composite measure, and particularly comparisons of different broadband solutions using that measure, are not valuable, and in fact can be misleading.[12] Even if appropriate weights could be established,

---

11 *National Broadband Plan* at 46.

12 Certain proposals have been made to adopt composite broadband quality scores that do not take into account critical factors that affect an end-user's quality-of-experience, such as volume, and congestion. *See* Robert Pepper, Presentation at the FCC

they likely would vary in complex and unpredictable ways over time in response to changes in consumer preferences, available technologies, and prevalent applications.[13]

Furthermore, "composite" measures treat all network operators as if they have the same service objectives in developing broadband solutions, and all consumers as if they have the same needs and preferences in selecting from a variety of broadband solutions. In reality, (i) different users place different values and weights on the various dimensions or capabilities of "broadband" services; (ii) different applications have varying performance requirements; and (iii) network operators establish varying performance objectives and optimization goals in designing and implementing their networks and service offerings, and in pricing their services. Because network operators can and do provide divergent broadband solutions, it makes little sense to evaluate those solutions as if they were designed by network operators to realize a single, convergent set of performance targets. At the same time, it makes little sense to measure broadband solutions in a manner that does not reflect the varying weights that different consumers place on each dimension of broadband service.

To the extent that such "composite" information is presented, it certainly should not carry the imprimatur of the Commission. ViaSat notes that a number of consumer-oriented organizations—some of which operate websites—currently provide consumers with mechanisms through which they can rate and share information concerning

---

Broadband Workshops: International Lessons (Aug. 18, 2009), *available at* http://www.broadband.gov/docs/ws_int_lessons/ws_int_lessons_pepper.pdf. Such proposals make value judgments about "broadband" from the perspective of an equipment manufacturer, rather then the consumer. Moreover, they do not take into account the traffic loading and network configuration considerations that directly affect the perceptions of consumer, which should be paramount in setting broadband policy.

13 As OBI Technical Paper No. 4 acknowledges, the speed and performance demands of end users may change over time as applications become more data-intensive and the nature of commonly-used applications evolves. *See* Omnibus Broadband Initiative, *Broadband Performance*, OBI Technical Paper No. 4 (2010).

their experiences with a given broadband service.[14] Critically, these mechanisms avoid many of the pitfalls that a government-driven "composite" measure would encounter by: (i) being consumer-driven; (ii) including qualitative measurements along a number of different service dimensions; (iii) providing narrative explanations that lend necessary context to summary ratings; and (iv) providing fora that facilitate ongoing dialogue between current, past, and prospective users of a given service.

Moreover, because these ratings are not subject to the administrative process, their composition can be far more responsive to changes in the market and the service offerings of specific providers. This point bears particular emphasis. It is axiomatic that the law does not keep up with technology, and nowhere is that more true than in the case of the Internet. Given the speed with which changes occur in Internet applications, any attempt to have the Commission effectuate "composite" measures of broadband quality inevitable would be outdated as soon as they were released.

III. CONCLUSION

ViaSat urges the Commission to encourage broadband providers to disclose service information to consumers in a manner consistent with these comments. As discussed herein, the use of a "broadband digital label" to convey critical information about typical peak and non-peak speeds and price will ensure that consumers have sufficient information to evaluate and compare available broadband service offerings, without inadvertently biasing the continuing development of broadband services or the underlying regulatory environment. However, such a label should not focus on secondary broadband characteristics, and should not try to provide "composite" measures of broadband quality. That approach could mislead consumers, or undervalue attributes that are relevant to them, and thus adversely affect their ability to make informed choices about the broadband services they select.

---

[14] *See, e.g.*, www.broadbandreports.com.

Respectfully submitted,

/s/ John P. Janka

John P. Janka
Jarrett S. Taubman
Latham & Watkins LLP
555 Eleventh Street, NW, Suite 1000
Washington, DC 20004-1304

Keven Lippert
Vice President and General Counsel
ViaSat, Inc.
6155 El Camino Real
Carlsbad, CA 92009

Lisa Scalpone
Vice President and General Counsel
WildBlue Communications, Inc.
349 Inverness Drive South
Englewood, CO 80112

May 26, 2011