Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	
	)	
Broadband Industry Practices	)	WC Docket No. 07-52
	)	

COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association (TIA) hereby submits comments to the Federal Communications Commission (FCC or Commission) in response to its Notice of Inquiry (NOI) in the above-captioned proceeding.[1] TIA commends the Commission for addressing the timely matter of broadband industry practices. This issue is of great importance to TIA member companies, as it impacts investment and the deployment of next-generation broadband networks, applications, and devices across the United States.

TIA is a leading trade association for the information and communications technology industry, with 600 member companies that manufacture or supply the products and services used to provide or access broadband-enabled services.

I. INTRODUCTION

Advances in communications networks throughout the last decade have changed the way we live, learn, communicate, and do business. A competitive broadband market in the United States has thrived partly as a result of the light-touch regulatory approach the Commission has

[1] *See Inquiry Concerning Broadband Industry Practices,* Notice of Inquiry, WC Docket No. 07-52 (rel. April 16, 2007) (*Broadband Industry Practices NOI*).

taken on issues such as those addressed in this proceeding. The broadband market operates based on market signals, which encourage investment and innovation in technology and service offerings and pro-competitive network management techniques. Government should refrain from hindering such innovation and investment, and instead take part in stimulating further deployment of next-generation broadband infrastructure.

Although broadband deployment is on the rise,[2] the Commission should continue to remove barriers to, and provide incentives for, facilities-based entry into the broadband market. This can be achieved through public policies that encourage investment in intelligent network infrastructure, foster competition in the broadband industry, promote consumer access to information and connectivity of devices, and allow the market, instead of government, to dictate winners and losers. TIA supports a set of principles, *TIA's Broadband Internet Access Principles,* attached as Appendix A, that observe these goals. These principles balance the rights of broadband Internet access consumers to connect to and utilize their choice of legal Internet content, applications, and devices, with the needs of service providers in a competitive market to manage the security and functionality of their network. Adopting such policies would promote innovation at all points on the network, resulting in more services and products available to the consumer.

TIA believes the issues surrounding broadband industry practices, including connectivity, convergence, quality of service, prioritization of data, network neutrality, competition, innovation, security, and consumer protection, should only be handled by regulators in the least invasive manner possible and only when there is a clearly demonstrated need. The potential actions that any federal agency takes will ripple through industry affecting consumers, network

[2] *See, e.g., TIA's 2007 Telecommunications Market Review and Forecast*, copyright 2007, broadband subscribership passed dial-up in 2005 and by 2010 broadband will account for 87% of all Internet subscriptions. The number of broadband subscribers increased from fewer than 5 million in 2000 to nearly 57 million in 2006.

providers, and service and application providers in ways that the public debate is only beginning to consider. Recognizing that no demonstrated need to regulate exists at this time, the marketplace should be allowed to operate with the greatest latitude in an effort to deliver the experiences expected by consumers. *TIA's Broadband Internet Access Principles* provide an evenhanded and practical approach to this debate.

The Commission separates this NOI into four areas that may be addressed by commenters. The Commission inquires into (1) whether and to what extent packets are treated differently; (2) pricing practices, including what is charged to the consumer and to content providers, and whether this information is disclosed to customers; (3) whether its Policy Statement should be amended to include a "nondiscrimination" requirement; and (4) whether the Commission has legal authority to enforce its Policy Statement. In these comments, TIA will set forth a technical explanation and basis for different treatment of packets; a justification for competitive pricing; why the Policy Statement should not be modified to include a nondiscrimination provision; and the extent of the Commission's authority on this issue.

II. THE CONVERGENCE OF TECHNOLOGIES INCREASES THE NEED FOR EFFICIENT NETWORK MANAGEMENT AND QUALITY OF SERVICE (QOS).

In order to ensure that innovation inside the networks continues, it is vital that the Commission refrain from imposing premature, restrictive regulations on the broadband industry at this time. The ability to provide a satisfying consumer experience is imperative to the success of the network, as well as the services, applications, and products used in conjunction with the network. Today's broadband market offers competing and sometimes complementary infrastructure platforms that increasingly support voice, video, data and other converged multimedia services, as well as the capability to access such services at any time and any place,

and with an ever-expanding array of network agnostic devices – a notion that TIA refers to as convergence.[3]

Convergence is occurring at multiple points in the network. As a result, the ability to provide quality service on a network is an important issue.[4] For example, consumers use converged technologies, such as multimedia and voice services, to expand their use of the Internet. Carriers, on the other hand, use converged technology at the core, backbone and edge portions of their network to carry traffic more efficiently. Moreover, converged services and products are being offered to the consumer at the edge of the network, *e.g.,* handheld devices and real-time services that offer voice, video and data capabilities. As these services and products increasingly become more available, network operators must be able to effectively manage the corresponding increased flow of network traffic, to provide consumers with the quality of experience that they expect.

a. Packet management is necessary to alleviate congestion and provide a satisfying and enhanced consumer experience.

The relationship between the network and the edge is exemplified by the offering of "triple play" services, which refers to offering of voice, video, and data services over a single broadband connection. Using a single network, however, can cause congestion due to increased traffic-flow. In order to address the problems surrounding congestion, networks must use traffic management and Quality of Service (QoS) to ensure that time sensitive traffic reaches the user at the appropriate time. These traffic management systems can include traffic prioritization end-to-end virtual connectivity (often known as "traffic prioritization"), which is a form of QoS, to limit

[3] TIA Broadband Agenda (2006) *at* http://www.tiaonline.org/policy/publications/white%5Fpapers/documents/TIABroadbandAgenda.pdf.
[4] *See, e.g.,* Angele A. Gilroy and Lennard G. Kruger, *U.S. Congressional Research Service*,*Net Neutrality: Background and Issues* (IB 10045; May 16, 2006) *available at* http://www.fas.org/sgp/crs/misc/RS22444.pdf.

packet loss of time sensitive traffic. Such connectivity acts similarly to a virtual private network (VPN) connection to ensure that packets arrive as needs to time sensitive applications.

QoS refers to the capability of a network operator to provide high-level service to selected network traffic that it views as more critical and latency-sensitive than other various technologies and IP-routed networks that may use a variety of underlying technologies. To ensure QoS, a network operator may create end-to-end connectivity for certain types of traffic, such as video, health care, and public safety. In instances of network congestion, this traffic will not be randomly dropped (which is how ordinary traffic is handled), and therefore reaching the end-user quickly and reliably.

Most Internet traffic is delivered on a "best efforts" basis; best efforts service is basic connectivity with no guarantees on quality or even actual traffic delivery. Best efforts services use random dropping of packets when network congestion occurs. When packets are dropped, they are then resent from the originating point which can cause delay. The quality of service needed for the delivery of the currently most popular applications and services, such as email or browsing the Web, is not as demanding because minor delivery delays are essentially unnoticeable and even some network interruptions are tolerated. In comparison, other applications, such as Voice over Internet Protocol (VoIP), high-quality video services, and online gaming, sometimes require sophisticated network engineering to ensure synchronized arrival and re-assembly of packets. The quality of the application may deteriorate significantly at times without this careful engineering.

b. Operators must have ability to assure network security in an IP world.

In the circuit-switched world, network security was not an especially troubling issue. For the most part, the network was closed with few interconnections and those interconnections that

did exist were to other closed networks. As networks have evolved, the interconnections have multiplied, the services have evolved and the underlying transport technology has evolved to TCP/IP. As networks become more open, while supporting the services and applications that transit the Internet and private digital networks, there is also increased susceptibility to worms, viruses, and so forth. To deal with such threats, network operators have developed sophisticated network management responses in addition to those deployed by end-users.

c. There are two types of network management: grade of service and source of content.

It is important to distinguish between the two major issues associated with packet management – grade of service and source of content. Grade of service refers to the discussion above, whereby network operators give special treatment to content based on its *type*, whether voice, video, or data, due to the high-bandwidth characteristics of that traffic. In other words, all similar voice applications are treated the same, certain video applications are treated the same, and all data types are treated the same, but each may require prioritization over other, less urgent packets, such as peer-to-peer, Web browsing or email. Such packet differentiation is already occurring, and even the most extreme Net Neutrality proponents recognize, or should recognize, that treating all packets the same could have dire unintended consequences. As stated previously, providers seek to provide QoS guarantees to certain kinds of traffic in order to ensure a satisfying consumer experience, and net neutrality rules could, if misapplied, harm these guarantees by requiring that all traffic, regardless of the nature of that traffic, of any type be treated the same. The imposition of such rules would stifle investment, innovation, and competition in both the physical broadband networks and in the applications that ride over them.

The second type of network management, source of content, refers to special treatment of content based on the *source* of the traffic, whereby different treatment of packets is based on justifiable financial and business decisions.[5] Broadband Internet access service providers may consider entering into commercially negotiated agreements with content providers to ensure QoS for those content providers' higher-capacity applications, such as voice and high-quality video applications such as Internet Protocol Television (IPTV). Rigid imposition of regulations that would require network operators to treat all packets the same without regard to the sender of the traffic, however, could frustrate the introduction of such new and innovative services. This is not only because the network operator might be unable to guarantee the necessary QoS, but also because it could undermine its incentive to deploy next-generation communications infrastructure in the first place, due to uncertain return on that investment. TIA thus believes that, on balance and in the absence of demonstrable harm, policymakers should continue to refrain from interceding in the continued development of the broadband marketplace.

III. IMPEDING THE ABILITY TO RECEIVE A REASONABLE RETURN ON THE INVESTMENT REQUIRED TO BUILD-OUT NEXT-GENERATION BROADBAND NETWORKS, WILL HINDER ITS DEPLOYMENT IN THE UNITED STATES.

The imposition of unnecessary regulations on broadband industry pricing practices could have the unintended consequence of reducing marketplace incentives to create innovative products and investment in next-generation broadband infrastructure. Like any other participant in a free market, network operators base business decisions on economic signals, which help determine where there is an opportunity to receive a suitable return on economic investment. The benefits of broadband deployment in a free market are investment and competition that will,

[5] In this context, "source" refers to commercial offerings from various entities, including telephone companies, cable operators, content providers, IP telephony companies, ISPs, and so forth.

in turn, enable greater bandwidth, greater competition, and lower cost to consumers. However, the preservation and improvement of network infrastructure, deployment, and maintenance are associated with immense costs and effort. Market participants are reluctant to invest in new and upgraded infrastructure when their return on their investment is uncertain. TIA recommends that the government stand back and allow competitive market forces to encourage investment and pro-competitive network management techniques to spur new services rather than impose restrictive regulations at this time.

a. Regulating broadband industry pricing practices would be akin to imposing common carrier-like regulations, but in this case, on a rapidly changing, competitive industry.

Broadband Internet access service providers are under both product and service innovation pressure and pricing pressure. They continually strive to respond sensibly and creatively to these market demands. The ability to implement tiered and differentiated pricing offerings can allow providers to respond to these pressures and to customize service plans for consumers. Consumers have always benefited from competition, including differentiated pricing and product offerings. Broadband Internet access service is no different than any other market. Unreasonable network neutrality rules that restrict such market-based responses could end up harming consumers and driving up costs because providers will lose the incentive to maintain and upgrade their increasingly congested networks.

While sounding egalitarian, the regulatory proposals advocated by some are remarkably comparable to the common carrier notions embedded in Title II of the *Communications Act,*[6] with an accompanying comparable regulatory regime to ensure compliance. Instead of imposing of onerous price regulations, the government should allow competitive market forces to operate,

[6] 47 U.S.C. §§201-231 (1934).

thereby encouraging investment, innovation in technology and service offerings, and pro-competitive pricing techniques that are employed in almost every other U.S. industry. Government has the ability to act in the interests of protecting competition and consumers, but precipitous action in the absence of threats to either may likely have the unintended consequence of immediate, long-term and damaging results.

b. Consumers should receive meaningful information regarding their broadband service plans.

The Commission also asks "whether providers disclose their practices to their customers, to other providers, to application developers, and others."[7] The original High-Tech Broadband Coalition (HTBC) connectivity principles (which the RBOCs and TIA endorsed),[8] included a requirement that consumers receive clear, meaningful disclosure of service plan capabilities and limitations. That principle was somehow lost in the recent FCC-endorsed iteration, and must be reinstated.

Full disclosure is an important cornerstone of the connectivity principles. Today the majority of broadband offerings disclose no more than price and a peak bandwidth number that in actuality is only attained on a limited basis. Quantity, duration, and time-of-day limitations that affect the quality of the bandwidth are not being disclosed. Any application and device limitations (*i.e.*, that are deemed necessary to protect the integrity of the network) also must be disclosed so that the connectivity principles can work together. This disclosure helps create an environment where market forces and regulatory oversight could more readily distinguish between acceptable network management practices and anti-competitive or unreasonably discriminatory behavior.

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[7] *Broadband Industry Practices NOI*, *supra* note 1, at para. 9.
[8] Letter from the High-Tech Broadband Coalition, to the Honorable Michael Powell, Chairman, Federal Communications Commission, filed in CC Docket Nos. 01-338, 96-98, 98-147 (Sept. 25, 2003).

IV. THE COMMISSION SHOULD REFRAIN FROM INCLUDING A "NONDISCRIMINATION" REQUIREMENT IN ITS POLICY STATEMENT.

TIA fully supports the Commission's Policy Statement adopted in August of 2005, and urges the Commission not include a "nondiscrimination" principle. As the Commission noted in this NOI, "Since [the Policy Statement], the Commission has had the occasion to review several providers' practices. In several proceedings evaluating wireline mergers, the Commission found that no commenter had alleged that the entities engage in packet discrimination or degradation, and that, given conflicting incentives, it was unlikely that the merged companies would do so.[9] For the reasons delineated throughout these comments, the imposition of such a nondiscrimination principle would be an attempt to solve a problem that does not exist and would only encumber the growth of the broadband Internet access services market.

This proceeding arises in an environment where policy makers are assessing the status of broadband deployment in terms of what is being deployed, where, and by whom, while taking into account the latest statistics released by the Organization for Economic Development (OECD). Strict imposition of onerous nondiscrimination requirements on broadband Internet access services would negatively impact broadband deployment in the United States. It is important to note that of the 14 nations ahead of the United States in the OECD rankings – or the 15 behind the United States, for that matter – not one has adopted Net Neutrality-like rules. In fact, many of these countries are not even having a debate on the subject.

Reviewing broadband policies of other OECD participating nations – to the degree any relevance can be attributed to OECD rankings, a point of some debate itself – reveals many other

[9] *Broadband Industry Practices NOI, supra* note 1, at para. 3.

policies that *are* in place and obviously playing far more of a role in promoting broadband deployment than never-adopted Net Neutrality policies.[10]

V. THE FCC HAS THE AUTHORITY TO MONITOR THE BROADBAND INDUSTRY MARKET ON A CASE-BY-CASE BASIS.

TIA believes that the broadband marketplace can be vigilantly monitored and complaints of anticompetitive activity can be addressed through appropriate legal and regulatory oversight. TIA has maintained that the Federal Communications Commission (FCC) has such authority today. However, as no significant evidence of a problem exists at this time, it is not now necessary to impose any Net Neutrality-like regulations. Rather, such oversight should address any problems on a case-by-case basis in the event they arise, using the Commission's Policy Statement as guidance.

VI. CONCLUSION

TIA's Broadband Internet Access Connectivity Principles strike a balance between the rights of consumers to connect to the broadband Internet and to receive meaningful information regarding their broadband service plans. It preserves innovation, both in the core and at the edge of the network. As the number of American consumers who connect to the Internet continually increases, so do the number of converged technologies and the need to provide rapid, high-

[10] *See Comments of the Telecommunications Industry Association, Inquiry Concerning the Deployment of Advanced Telecommunications Capabilities 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,* Notice of Inquiry, GN Docket No. 07-45 (rel. April 16, 2007).

quality service. TIA urges the FCC to foster a light-touch regulatory regime that will allow the Internet, convergence of technologies, and competition to continually advance in the telecommunications marketplace.

Respectfully submitted,

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Appendix A

Broadband Internet Access Connectivity Principles

TIA has long supported the rights of broadband Internet access service consumers to connect to and utilize their choice of legal Internet content, applications and devices, while also recognizing the needs of service providers in a competitive market to manage the security and functionality of their networks. TIA reaffirms its pro-consumer principles, as outlined below, while continuing to observe that currently no significant evidence exists of these principles being abused in the marketplace. As such, it is not now necessary for the Federal Communications Commission to promulgate detailed rules in this area. Rather, the FCC should address any such problems on a case-by-case basis in the event they arise.

1. A competitive broadband Internet access market offers consumers choices with respect to "connectivity" – that is, the ability to access any lawful Internet content, and use any device, application, or service over the public Internet – so long as they do not harm the network. In particular:

   1.1. Consumers should receive meaningful information regarding their broadband Internet access service plans.

   1.2. Broadband Internet access consumers should have access to their choice of legal Internet content within the bandwidth limits and quality of service of their service plan.

   1.3. Broadband Internet access consumers should be able to run applications of their choice, within the bandwidth limits and quality of service of their service plans, as long as they do not harm the provider's network.

   1.4. Consumers should be permitted to attach any devices they choose to their broadband Internet access connection, so long as they operate within the bandwidth limits and quality of service of their service plans and do not harm the provider's network or enable theft of services.

2. A competitive broadband Internet access market also gives facilities-based broadband Internet access providers competitive incentives to undertake risky, new investments, while precluding anticompetitive behavior against unaffiliated businesses. In particular:

   2.1. Broadband Internet access service providers should remain free to engage in pro-competitive network management techniques to alleviate congestion, ameliorate capacity constraints, and enable new services, consistent with the technical characteristics and requirements of the particular broadband platform.

2.2. Broadband Internet access service providers should remain free to offer additional services to supplement broadband Internet access, including speed tiers, quality of service tiers, security and spam services, network management services, as well as to enter into commercially negotiated agreements with unaffiliated parties for the provision of such additional services.

2.3. Such network management tools would enable operators to continue to optimize network efficiency, enable new services, and create incentives for continued build-out to meet increasing capacity demands.

2.4. Broadband service providers should also remain free to innovate in the deployment of managed services, such as packaged video programming, which utilize the same networks but are distinct from public Internet access services.

TIA believes that the FCC has jurisdiction to vigilantly monitor the broadband Internet access service market and expeditiously review any complaint of anticompetitive activity. However, as no significant evidence of a problem exists at this time, it is not now necessary for the FCC to promulgate detailed rules in this area. Rather, the FCC should address any such problems on a case-by-case basis in the event they arise.