



Comments of AT&T Global Network Services France, SAS: ARCEP Consultation Paper on Internet and Electronic Communications Network Neutrality

July 13, 2010

Introduction

AT&T Global Network Services France SAS (“AT&T”) respectfully submits these comments on the ARCEP Public Consultation Paper on Internet and Electronic Communications Network Neutrality (the “Consultation Paper”).

Operating globally under the AT&T brand, AT&T’s parent, AT&T Inc., through its affiliates, is a worldwide provider of Internet Protocol (IP)-based communications services to businesses and a leading U.S. provider of wireless, high speed Internet access, local and long distance voice, and directory publishing and advertising services, and a growing provider of IPTV entertainment offerings. AT&T Inc. operates one of the world's most advanced global networks, carrying more than 18.7 petabytes of total IP and data traffic on an average business day, the equivalent of a 3.1 megabyte music download for every man, woman and child on the planet. With operations in countries that cover 97% of the world’s economy, AT&T Inc. has extensive experience as an incumbent and a new entrant, as a fixed line operator and a mobile operator, and in the dynamic areas of converged technologies and services.

In France and other EU Member States, AT&T Inc., through its affiliates, is a competitive provider of business connectivity and managed network services. AT&T Inc. also is a leading provider of bilateral connectivity services linking the U.S. with France and all other EU Member States.

AT&T appreciates the opportunity to express its views in this public consultation on Network Neutrality. AT&T hopes that its responses will be helpful to the Authority in formulating a comprehensive strategy for the sustainable development of the Information Society within France, and among France and the globally interconnected Internet networks, allowing market participants to invest in the infrastructures and services which will benefit both consumers and businesses.



Summary

AT&T supports the goal of an open Internet, which means an Internet ecosystem that enables users to exchange ideas and communicate freely, gives them freedom to access the lawful applications and content they wish to use, and affords them the ability to choose and assemble packages of services and equipment that meet their needs.

Prior decisions by governments to avoid unnecessary regulation of the Internet are validated every day by the spectacular growth of the Internet and its remarkable contribution to culture, political discourse, and economic development throughout the world. The Internet has evolved from being a network that provided only file downloads and remote access to distant academic or government computers to being a vibrant global commercial network that now provides countless different services to millions of content and applications providers and billions of users.

The Internet has become the most powerful engine of economic growth in our time precisely because governments have wisely allowed market forces to shape its evolution free from prescriptive regulation that would have locked in place certain specific technologies or business models. And there are likely to be further dynamic advances in response to future technological change and consumer demand. Indeed, the Internet's next 40 years are likely to be just as dynamic as the past 40 years. To avoid limiting the future growth and development of the Internet, unless actual problems and harms are specifically demonstrated, Internet regulation should remain limited to protecting the basic customer freedoms associated with openness and customer value under which the Internet has always operated.

In particular, maintaining an open Internet does not require the implementation of new, prescriptive network neutrality rules, such as those proposed in the Consultation Paper. With the new powers attributed to the National Regulators by the EU Directive *on Universal Service and Users' Rights relating to Electronic Communications Networks*, potential problems can be solved readily by the National Regulatory Authorities in the event that any market failure actually does appear.¹ Certainly, there is no evidence of any such general market failure brought on by a dominant participant abusing its market power, nor has there been evidence of an anticompetitive practice by an individual actor that has not been resolved quickly through the application of existing regulatory measures and procedures.

¹ Directive 2009/136/EC of the European Parliament and of the Council, 25 Nov. 2009.



There is also no basis to the claim that Internet traffic management or prioritization practices threaten the historic “neutrality” of the Internet and therefore require new prescriptive regulation. As described in these Comments and in the attached “Engineering Background,” traffic management and other network practices to ensure quality of service for particular Internet applications and content have been widely used for many years without controversy. In addition, the rapid convergence of all electronic communications onto the IP platform and growing network congestion will make the continued use of these traffic management practices increasingly important to consumers in the future. That is especially the case for users of mobile broadband services, since mobile operators must rely heavily on the use of network management techniques to avert or respond to network failures or congestion of scarce spectrum and to allow customer use of latency-sensitive applications.

AT&T is therefore concerned that the proposals set forth in the Consultation Paper to restrict traffic management and service differentiation by ISPs fail to take account of the longstanding non-controversial use of these practices by operators throughout the world. The adoption of these policies would create significant costs and practical difficulties for operators subject to these requirements and would undermine France’s most pressing objectives for the digital economy: expanding deployment of more capable broadband facilities and fostering investment in related technologies and services.

Continued massive investment in fibre, wireless, and other network infrastructure is already required in all countries to increase the bandwidth and Internet functionality available to all consumers. Substantial new investment is needed to support the unprecedented growth of Internet traffic and the increasing demands of its changing traffic mix and to extend broadband networks to increase the availability of broadband services.² Most importantly, to fund these investments, and to expand broadband adoption, all network providers need to be able to price their services in manners that are attractive and affordable to customers.

² A recent report by Cisco notes that global IP traffic will quadruple from 2009 to 2014. The nature of Internet traffic is changing as well, placing new and increasing burdens on underlying networks. For example, Cisco expects video to account for over 90% of global consumer traffic and 66% of the world’s mobile data traffic by 2014. Cisco Visual Networking Index: Forecast and Methodology, 2009-2014, *available at* http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html. One minute of video requires 10 times the bandwidth as voice. Kleeman, Michael, "Point of Disconnect," University of California, San Diego, August 30, 2007, *available at* <http://cpe.ucsd.edu/assets/013/6535.pdf>



Reliance on the expansion of facilities alone to meet Internet traffic growth would require significant additional construction leading inevitably to the need for consumer price increases that would reduce broadband adoption, even if it was possible for network operators to avoid the use of traffic management techniques simply by building additional facilities. Yet, because of the continued growth of bandwidth-intensive services, and the increasingly unpredictable spikes in Internet traffic, the construction of new facilities will not be sufficient by itself to maintain service capability and quality. Consequently, ISPs must place increasing reliance on traffic management practices to maintain services and cannot treat these techniques as “exceptional” as the Consultation Paper would require.

The continued effectiveness of today’s traffic management techniques would be greatly impeded were network operators required to demonstrate each application of those techniques met the vaguely proposed requirements of “relevance, proportionality, efficiency, transparency and non discrimination.” New forms of applications and services are being deployed on the Internet every day, having wide ranging impacts on available network capacity, and in turn, potentially negatively affecting the consumer experience. Any such requirement to defend each specific network management decision would subject every network management decision to potential regulatory challenge and second-guessing, which would lead operators to apply these techniques with excessive caution and perhaps to curtail their use altogether. Any such result would limit the speed and functionality of Internet services overall and reduce the utility and value of the Internet for all users. And while the Consultation Paper authorizes the provision of managed services employing traffic prioritization, these would be provided subject to specific regulatory requirements that would likely require the use of separate facilities, which would significantly reduce network efficiencies and raise network costs and user prices. A major casualty of such an approach would be the convergence of multiple voice, video and other services on the IP platform that is driving the delivery of new services over the Internet throughout the world.

Instead of adopting onerous new regulation without having any credible data-driven evidence of any market failure requiring such an approach, AT&T supports an approach based upon the proposed First Direction set forth in the Consultation Paper. Under this approach, ISPs would be required to follow consumer-focused principles requiring that they furnish end-users with the ability to send and receive the content of their choice, use the services and run the applications of their choice, and connect the hardware and use the programs of their choice, provided they do not harm the network. These are similar to the



principles adopted by the EU Institutions in 2009 and by the U.S. Federal Communications Commission (FCC) in 2005.³

This approach would preserve the openness of the Internet, while maintaining incentives for broadband providers to make the massive investments necessary to increase broadband deployment. It also would encourage those providers to invest in the next-generation “smart” managed networks that are needed to support the innumerable new and varied Internet applications that will not only enrich our daily lives, but make us healthier, safer, more energy efficient, and more prosperous.

In addition to requiring adherence to these principles, regulators should monitor the market to see whether real problems are developing. And if any corrective action is needed, such action should be informed on a case-by-case basis by the specifically-identified problems. As the Organisation for Economic Co-operation and Development (OECD) and numerous economists have observed, the imposition of new regulation based on speculation of future harm is premature and potentially damaging.⁴ Similarly, European Commission Vice President Neelie Kroes noted at the ARCEP Conference in Paris on April 13, 2010 that “we should avoid taking unnecessary measures that may hinder new efficient business models from emerging.”⁵ The Authority should follow a similar cautious approach in this proceeding.

Response to Questions 1 & 2: Proposed Definitions and Background

The Consultation Paper refers to a “principle of neutrality” as being “widely agreed upon by stakeholders” and including the requirement that “data routing requests submitted to the network under equivalent conditions must be given equal treatment by the network.”⁶ The Consultation Paper further states this principle “finds itself confronted by an array of

³ See FCC, Policy Statement, *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 FCC Rcd. 14986 (2005) (“*Internet Policy Statement*”), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf.

⁴ Organisation for Economic Co-operation and Development, *Internet Traffic Prioritisation: An overview*, at 5 (Apr. 6, 2007), available at <http://www.oecd.org/dataoecd/43/63/38405781.pdf> (concluding that it would be “premature for governments to become involved at the level of network-to-network traffic exchange and demand neutral packet treatment for content providers”).

⁵ See EUROPA Press Releases, <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/153&format=HTML&aged=0&language=EN&guiLanguage=en>.

⁶ Consultation Paper at 6.



restrictions, such as the fact of having to protect the network from attacks, along with traffic problems, the need to install mechanisms to comply with legal obligations ...”⁷

AT&T notes, however, that the Internet has never followed a principle of completely identical treatment of different applications and content. Rather, as described in the attached Engineering Background, content providers with capital resources have long purchased specialized network services in order to distinguish their traffic from other Internet traffic and to offer their end users better Internet experiences than would be possible without those quality-of-service enhancements.

Nearly three decades ago, the Internet Engineering Task Force (IETF) – the Internet’s standard-setting organization – first included a “type of service” field within the Internet Protocol to enable prioritization of real-time and other performance-sensitive applications.⁸ The IETF expanded upon that capability in 1994 and 1998 by creating the “differentiated service code point” field (“DSCP” or “DiffServ”), and it has now incorporated an even more advanced version of this capability into IPv6.⁹ “Net neutrality” advocates who contend that no Internet packets should be provided with any transmission quality different to that given every other packet – regardless of whether this difference derives from guaranteed bandwidth or reduced packet loss, latency or jitter – are, in effect, trying to re-write the open, IETF-approved standards that have made the Internet such a tremendous success at supporting multiple services with varying transmission needs.

Broadband providers have long sold prioritized capabilities to enterprise customers, including content providers, to ensure proper handling of performance-sensitive Internet and other content through a broadband provider’s network. Such services can make use of packet-prioritization techniques on several protocol layers, including DiffServ on the IP layer and analogous mechanisms on other layers, such as the ATM, Ethernet, and MPLS protocols. Broadband providers use the same service-differentiation technologies in the residential market to guarantee quality of service for performance-sensitive IP applications and content, such as IPTV and VoIP, that are offered to consumers over the same physical infrastructure as best-effort Internet access. In addition to these longstanding prioritization techniques, application and content providers with the capital resources to purchase services from third-

⁷ *Id.* at 5-6.

⁸ See Information Sciences Institute, *Internet Protocol DARPA Internet Program Protocol Specification*, RFC 791, at 11 (Sept. 1981), available at <http://www.ietf.org/rfc/rfc0791.txt>.

⁹ See generally James F. Kurose & Keith W. Ross, *Computer Networking: A Top-Down Approach* 367 (5th ed. 2010).



party content-delivery networks (“CDNs”) such as Akamai or Limelight – or to build CDNs of their own, as Google and other large content providers have done – enjoy huge performance advantages over rivals without those resources.

Content providers are exploring even more advanced, cost-efficient new ways to distribute bandwidth-intensive, performance-sensitive content, including CDN collocation, where a content provider stores content on cache servers located within access/aggregation networks, and multicasting, where a distant access network’s routers instantaneously replicate and route multiple copies of packets to many different points within its access/aggregation network.

Just as there is nothing new about network practices that ensure quality of service for particular Internet applications and content, neither is there any basis for concern that such practices pose some new threat to the Internet’s openness. To the contrary, such practices have proliferated for years without controversy, and the Internet has never been healthier, more functional or more open. For example, just in the last few years, new social networking applications and multimedia sites have exploded in popularity:

- ⊖ The video giant YouTube did not even exist in January 2005, but now delivers nearly 10.5 billion videos each month in the United States, and has recently begun offering high-definition video with a resolution of 1080p.¹⁰
- ⊖ The social networking site Facebook, which was created in 2003 and was confined to college campuses until 2005, now claims over 350 million users and a valuation over \$10 billion.¹¹
- ⊖ Twitter, which did not exist in 2005, is now the third most-used social network, with 55 million monthly visits.¹²

¹⁰ See *1080p HD Is Coming to YouTube*, YouTube Blog, Nov. 12, 2009, <http://youtubeglobal.blogspot.com/2009/11/1080p-hd-comes-to-youtube.html>

¹¹ Facebook, Press Room, Statistics, <http://www.facebook.com/press/info.php?statistics>; Douglas McIntyre, *Facebook gets funding offer from Russian private equity firm*, Daily Finance, May 23, 2009, <http://www.dailyfinance.com/2009/05/23/facebook-gets-funding-offer-fromrussian-private-equity-firm/>.

¹² Andy Kazeniak, *Social Networks: Facebook Take Over Top Spot, Twitter Climbs*, Compete.com, Feb. 9, 2009, <http://blog.compete.com/2009/02/09/facebook-myspace-twittersocial-network/>.



- Amazon.com, which sold its first Kindle in late 2007, has altered the way that millions of people obtain and read books, periodicals, and blog content and has already prompted several competing services.¹³

These content and application providers and others have changed the face of the Internet and society at large—all without any impediment from broadband providers or any need for government regulation. Indeed, the Internet has succeeded largely because broadband providers invested hundreds of billions of dollars into broadband network infrastructure to accommodate demand for these applications. Similarly, 3G wireless broadband services have surged, and the wireless marketplace also boasts a range of wireless platforms that have spawned literally hundreds of thousands of wireless applications from third-party developers.

The Consultation Paper properly recognizes that “a total lack of traffic management” would “create[] a clear risk of network degradation and ultimately of the quality of service for end users.”¹⁴ However, the claim that unregulated traffic management practices “can lead to discriminatory and anti-competitive practices,” as further stated by the Consultation Paper, is completely speculative and does not justify adopting the prescriptive regulation proposed here. Notwithstanding the huge growth in Internet usage and massive global increase in Internet traffic in recent years, there is no evidence that unregulated traffic management has in fact led to any anticompetitive or discriminatory practice that has not been fully and swiftly addressed through the application of existing regulatory measures and procedures. Any structural concern with the market performance is speculative rather than fact-driven, and as long as this is the situation, the Authority should refrain from prescriptive regulation intended to resolve potential future problems.

If implemented, this proposed regulation would limit or prohibit longstanding network management practices, inhibit the provision of widely used applications and services, increase consumer prices due to mandated inefficient network design and management, and thus reduce the deployment and adoption of the broadband services that

¹³ See Mellissa J. Perenson, *Amazon Kindle Review: Igniting Interest in E-Books?*, PC World, Nov. 21, 2007, <http://www.washingtonpost.com/wp-dyn/content/article/2007/11/21/AR2007112100030.html>; BBC News, *Plastic Logic e-reader aims to challenge Kindle*, Jan. 7, 2009, <http://news.bbc.co.uk/2/hi/technology/8446959.stm>.

¹⁴ Consultation Paper at 7.



are increasingly important to all countries' future growth and prosperity.¹⁵ Rather than take such action based on speculation that a market failure *might* arise someday in the future, the Authority should require adherence to consumer focused principles and should take further action only if real problems in fact arise.

**Response to Questions 3 and 4: the Terms and Conditions
Governing Internet Access and the Six Proposed Directions**

The First Direction: The proposed First Direction would require ISP's providing Internet access to furnish end-users with the ability to send and receive the content of their choice, use the services and run the applications of their choice, and connect the hardware and use the programs of their choice, provided they do not harm the network. These are similar to the principles adopted by the EU Institutions in 2009 and by the U.S. Federal Communications Commission (FCC) in 2005.

AT&T supports an approach based on the application of these principles. In the United States, the FCC's oversight of industry adherence to the principles it adopted in 2005 has been more than sufficient to ensure compliance with those principles and to foster an open Internet. Indeed, in the ensuing five years, the FCC has found it necessary to apply those principles only *twice*: first, to stop Madison River Communications, a small rural competitive local exchange carrier, from unreasonably blocking the use of certain VoIP services by its customers; and second, to prevent the cable service provider Comcast from unreasonably interfering with certain peer-to-peer applications used by its customers.¹⁶ In both instances, FCC actions directly targeted the specific practices in question and led to the voluntary resolution of both cases rapidly and effectively.¹⁷

For the reasons described in these comments and in AT&T's comments filed with the FCC, AT&T believes that the FCC's more recent proposal to adopt broadband provider-

¹⁵ *Id.*

¹⁶ See FCC Memorandum and Order, *Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications*, 23 FCC Rcd. 13028 (2008); Order, *Madison River Commc'ns, LLC*, 20 FCC Rcd. 4295 (2005).

¹⁷ Although an appellate court subsequently found that the FCC had not identified an appropriate jurisdictional basis for its actions in the Comcast matter, Comcast has not suggested that it would reinstate the network management practices it used prior to the FCC's review of those practices.



specific prescriptive rules is unwarranted.¹⁸ Instead of adopting onerous new regulation based on no credible data-driven evidence of any market failure, as the FCC proposes, AT&T supports an approach based on the consumer-focused principles adopted by the FCC in 2005, perhaps together with adoption of a new, fifth principle to encourage greater consumer-oriented transparency about network-management practices.

Similarly, AT&T urges the Authority to require adherence to the principles set forth in the proposed First Direction, together with competition law enforcement, to ensure end user access to and use of the Internet, rather than introducing unnecessary regulation that will raise consumer rates and harm the future growth of the Internet.

The Second Direction: Under the proposed Second Direction, traffic management practices by ISPs would “remain exceptional and comply with the general principles of relevance, proportionality, efficiency, transparency and non discrimination.”¹⁹ The Consultation Paper states that operators’ response to the greater consumption of bandwidth by consumers “must be to invest in increasing the network’s’ capacity” and that “[i]n cases where network management does occur,” capacity should be shared “under the most fair and efficient conditions possible.” According to the Consultation Paper, ISPs may achieve this objective by “slowing all data packets to the same degree” or “reducing the bandwidth supplied to each user in the same proportions.”²⁰

As described above, there is nothing “exceptional” about the longstanding use of traffic management practices by Internet providers to ensure quality of service for their users. Indeed, Internet providers will be required to place even greater reliance on traffic management techniques in the future as the rapid convergence of all electronic communications onto the IP platform allowing the integration of voice, video and text into

¹⁸ See Comments of AT&T Inc., GN Docket No. 09-191, (filed Jan. 14, 2010), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=7020377217>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020377218>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020377220>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020377221>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020377222> ;
and Reply Comments of AT&T Inc., GN Docket No. 09-191, (filed Apr. 26, 2010), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=7020437362>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020437363>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020437364>,
<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020437365> .

¹⁹ Consultation Paper at 17.

²⁰ *Id.*



new multi-media applications for consumers raises the critical engineering challenge of making applications with different quality of service needs function as well as possible over a shared and sometimes congested network infrastructure. Internet providers also will be unable to avoid the use of traffic management practices simply by increasing their investment in higher capacity facilities, even if there were no economic constraints on this approach.

Increased investment certainly is a critical element in responding to the unprecedented demands on the capacity of Internet access and backbone networks resulting from the increasing usage of bandwidth-intensive applications like streaming video. Competition and the unpredictability of consumer demand also make these investments exceptionally risky for the companies that underwrite them. While these risky, capital-intensive capacity upgrades are necessary steps that any network provider must take to keep pace with escalating bandwidth demands, alone they are insufficient steps to address these challenges.

As described in the attached Engineering Background (at pp. 11-12), operators cannot economically enlarge network capacity to ensure instantaneous delivery of all packets at all times, particularly with the escalating magnitude of unpredictable spikes in Internet traffic.²¹ Any reliance solely on increased investment to meet escalating Internet usage would greatly increase network costs and in turn require huge increases in user prices. And even if there were no economic constraint on network expansion, experience has shown that network usage, particularly in the form of peer-to-peer file transfer applications, inevitably expands rapidly to fill new capacity. As a result, network operators require not only more networks and higher-capacity facilities, but also greater network intelligence, including the ability to identify and provide the appropriate level of performance required by different applications traversing the network so that users can receive the service quality they desire.

Thus, in an environment of increasing network congestion, broadband providers have a critical need to use the various traffic management techniques and technologies available to manage competing demands on finite bandwidth. Under the proposed regulation, however, Internet operators' use of these techniques would be subject to significant restrictions that would severely impede their ability to respond to these challenges. As well, the proposed regulation would distort the Internet ecosystem by reducing the incentives for content

²¹ Like conventional telephone networks, IP networks are sized to handle demand during periods of peak usage. The closer that peak usage is to average usage, the more efficient the network's cost structure will be, and the more predictably the network operator can recover those costs from the users of its network. According to some estimates, however, video applications roughly double the "peak-to-mean" ratio of traffic on IP networks because of the "viral" (self-intensifying) nature of popular video files.



developers to design applications and services in a manner that efficiently utilizes network resources.

Traffic Management: The proposed Second Direction of the Consultation Paper is to apply the principles of “relevance, proportionality, efficiency, transparency and non discrimination” to Internet operators’ traffic management practices. According to the Consultation Paper, “[a]bove all, this means that the general rule for Internet access is not to differentiate how each individual data stream is treated, whether according to the type of application/service/content or to the stream’s transmission or reception address.”²²

Prohibiting differential treatment in this way would prevent different services, applications, and content from obtaining the quality of service they need to function efficiently and effectively. Under this view, latency-sensitive applications like streaming video would have to be given the same priority as email or large file transfers; an Internet VoIP emergency call could be treated no differently than a YouTube download; and a telemedicine application would need to be handled in precisely the same manner as the contents of a Web page. Indeed, imposing this form of “neutrality” on the Internet would have decidedly non-neutral results by discriminating *against* quality of service-sensitive applications like streaming video and VoIP that will not function reliably unless they are accompanied by quality of service enhancements that non-performance sensitive applications do not need in order to continue to function well.

Carried to its logical conclusion, prohibiting all differential treatment would also mean the abolition of content-delivery networks like Akamai or Limelight that leverage edge networks to provide online customers with lower latency and higher quality of service than the competition. Likewise, requiring that all data streams must receive equal treatment regardless of their application or content would force all application and content providers to design their applications and content using the same transport protocol – so that, for example, UDP-based applications that lack the ability to automatically “self-throttle” when faced with congestion do not arrogate network resources from TCP-based applications that can “self-throttle.”²³

²² Consultation Paper at 17.

²³ UDP applications “send out data as fast as [they] can,” even when they encounter congestion, “while [conventional] TCP-friendly applications deliberately send fewer and fewer packets” and may thus end up “starved of network resources.” Jon M. Peha, *The Benefits and Risks of Mandating Network Neutrality, and the Quest for a Balanced Policy*, 1 Int’l J. of Comm’n 644, 651 (2007), available at



As well as preventing the use of any traffic management tool that might be deemed to “discriminate” against certain applications or services, these proposed principles would subject every network engineering decision to potential regulatory challenge and second-guessing. Network operators would need to be able to demonstrate that each traffic management technique met requirements for “relevance,” including whether a congestion problem had been “proven,” in addition to “proportionality,” which would require showing “the least possible impact on the network’s operation,” and “effectiveness,” which would require showing that the measure “lead[s] to a real improvement in access to certain services, without significantly degrading the rest of the services that can be accessed via the Internet.”²⁴ Although network operators seek to apply traffic management techniques in as relevant, proportional and effective manner as possible, any need to demonstrate that each separate measure is undertaken in absolute compliance with these vaguely-defined principles would exert a significant “chilling” effect on network operations.

These proposed requirements would compel engineers to determine in advance whether a measure is narrowly tailored enough to avoid liability, and to err on the side of excessive caution. These are luxuries that may not be available to an engineer seeking to address a threat to network security or to preserve network performance in the wake of a sudden spike in usage or a rogue application.²⁵ There would rarely be settled precedents to guide an engineer’s decisions—and whatever precedents do exist would be valuable for only a short period. And since there are many legitimate management techniques, no decision would be immune from debate about whether there might have been a more “proportional”

<http://www.ijoc.org/ojs/index.php/ijoc/article/viewFile/154/90>. Nonetheless, when properly managed, UDP’s attributes can be beneficial for a range of purposes, including Domain Name System (DNS) queries. By the same token, some applications that use TCP can and do aggressively consume disproportionate amounts of subscriber bandwidth simply by opening up multiple streams (or “torrents,” as featured in some P2P technologies) to seize capacity for themselves. See, e.g., Bob Briscoe, *Flow Rate fairness: Dismantling a Religion*, 37 *Computer Comm’n Rev.* 63 (2007), available at http://www.cs.ucl.ac.uk/staff/bbriscoe/projects/2020comms/refb/fair_ccr.pdf (“*Flow Rate Fairness*”). Under a requirement to provide “equal treatment” of all Internet communications, the disparate characteristics of these and other transport protocols would need to be homogenized to ensure that no packets receive priority over others.

²⁴ Consultation Paper at 18.

²⁵ Effective security frequently requires quick fixes, which can include exigent measures to block a suddenly infected website. See, e.g., Scott Morrison, *Symantec Takes Aim at Mobile Hackers*, *Wall St. J.*, at B7A, Mar. 10, 2010, <http://online.wsj.com/article/SB20001424052748704784904575111670217803884.html>. Such approaches are becoming more important in the wireless context, as consumers increasingly transition to more powerful smartphones for their Internet use. *Id.*

or “effective” practice to achieve the desired end. The proposed principles would therefore leave providers at the mercy of after-the-fact second-guessing. That threat would suppress technological creativity in responding to rapidly evolving network pressures. Faced with the prospect of such intensive regulatory scrutiny of their network operations, Internet operators may respond by ceasing some or all traffic management activities, which would likely result in diminished service quality, and potential risks to network security and reliability, and would reduce the value and utility of the Internet for all.

Instead of impairing operators’ ability to serve their customers’ needs in this way, regulators should trust network engineers with sufficient flexibility to respond to the multitude of issues that can undermine the efficient and secure operation of their networks and reduce the quality of the services they offer their customers. The Authority should accordingly clarify that network management will be deemed presumptively reasonable if it is intended to address a legitimate provider interest. The Authority also should reject any requested limit on the types of permissible management techniques. There is no way to impose such restrictions in advance without placing the network at risk by delaying or altogether deterring critical network-management measures.

For these reasons, the traffic management restrictions proposed by the Consultation Paper are likely to reduce rather than maintain or improve the quality of service to end-users. It is therefore questionable whether the proposed Second Direction by the Authority is consistent with Article 22(3) of the EU Universal Service Directive authorizing national regulatory authorities to set minimum quality of service requirements “[i]n order to prevent the degradation of service and the hindering or slowing down of traffic over networks.”²⁶ Indeed, it is doubtful that requiring compliance with a list of vaguely-defined principles establishes any minimum service quality requirement. Further, under the EU regulatory framework, any attempt to regulate traffic management would first have to demonstrate that the market fulfils the “three criteria” test to be susceptible to ex ante regulation.²⁷

²⁶ Directive 2009/136/EC of the European Parliament and of the Council, 25 Nov. 2009 (“EU Universal Service Directive”), Art. 22(3).

²⁷ The three cumulative criteria for ex ante regulation are: high and non-transitory barriers to market entry; the market displays characteristics such that it will not tend towards effective competition over time; and insufficiency of ex post application of competition law alone. See Commission Recommendation of 17 December 2007 on Relevant Product and Service Markets, Art. 2, 2007/879/EC. See also, Directive 2009/140/EC of the European Parliament and of the Council, 25 Nov. 2009, at L337/37 (“Considering that the markets for electronic communications have shown strong competitive dynamics in recent years, it is essential that ex-ante regulatory obligations only be imposed where there is no sustainable competition.”)



Mobile Networks: The imposition of traffic management restrictions on mobile broadband services also would cause significant difficulties to network operations. Mobile operators must contend with mobility, spectrum constraints, interference, and other unique issues in a dynamic environment that is changing even more rapidly than its wireline counterpart. While it is impossible to predict which business models and engineering solutions will best meet consumers' diverse needs in this environment, subjecting the mobile industry to restrictions on network management would preclude many service-enhancing business arrangements and practices altogether, undermine efforts to manage scarce spectrum resources, chill sensitive engineering and business decisions through endless regulatory second-guessing, and deter investment in new network technologies.

Mobile broadband networks must contend with spectrum constraints, a shared "last mile" radio access network, interference sensitivity, and other concerns that make it far more challenging to provide mobile broadband than fixed wireline broadband. Capacity and quality-of-service challenges for wireless broadband providers are particularly acute in the "last mile" radio access network, where spectrum is shared among both users and cell sites; bandwidth can fluctuate based on interference and other issues; the number of users located in particular cells and their dispersion within those cells at any given time is variable; and the spectrum available for use is not infinitely (or even readily) expandable. These factors make it exceedingly difficult for carriers to ensure a constant supply of sufficient bandwidth to provide high-quality data transmission for broadband Internet access customers. Because of this, providers use a range of dynamic network-management techniques to respond to or avert network failures or severe congestion and to ensure that customers can enjoy latency-sensitive applications. While the Consultation Paper recognizes these challenges to some extent, the lack of clear boundaries between the "acceptable" and prohibited conduct it describes may adversely impact the ability of mobile operators to address these issues.²⁸

Third Direction: The Consultation Paper properly notes the importance of "avoid[ing] a degradation of the quality of the Internet connection" and "the shared social interest in having an Internet connectivity that operates in a satisfactory way for the

²⁸ See Consultation Paper at 19 (restricting access to "certain sites or applications for objective, non-discriminatory and justified reasons" is "acceptable," but a constricting practice can "never involve banning or blocking an application or a protocol.").



maximum number of users.”²⁹ The Paper accordingly proposes to require Internet connections to be “provided with a sufficient and transparent quality of service” and invites operators and industry associations to assist in identifying minimum quality of service parameters addressing “availability, bandwidth, latency, packet loss, jitter, etc.”

At the same time, under the proposed Second Direction, as described above, the Consultation Paper proposes to limit the use of traffic management practices in ways that are likely to prevent different services, applications, and content from obtaining the quality of service they need to function efficiently and effectively and to result in the delivery of diminished service quality to Internet users. Any requirements for minimum quality of service parameters will need to take account of such effects. Indeed, as noted above, the Authority should recognize that undue constraints on network management practices will have a harmful impact on overall minimum quality of service.

Moreover, some network users may desire service quality *below* “best effort” handling if it is offered at a commensurately lower price (sometimes referred to as “scavenger” class). For example, in the machine-to-machine (M2M) context, some devices and applications may be highly tolerant of latency but may also need very low cost network connectivity to be economically viable. Government mandated service quality requirements could thus have the unintended consequence of preventing these devices and applications from entering the market.

Fourth Direction: The Consultation Paper further requires “all operators” to “be able to market ‘managed services’ both to end users and information society service providers (ISV).”³⁰ The Paper describes managed services as differing from “Internet access” by including “guaranteed bandwidth, packet loss, jitter, latency, or increased network security.” Examples of such services listed in the Consultation Paper include VoIP, IPTV and business VPN services that are marketed separately from Internet access.³¹ While recognizing the importance of these and other services requiring end-to-end quality of service enhancements that would be adversely affected if they were subject to the restrictions on Internet access proposed in the Second Direction, the Consultation Paper also proposes to require that the managed service must “not degrade the quality of Internet access.”

²⁹ *Id* at 20.

³⁰ *Id.* at 21.

³¹ *Id.*



This proposal appears to reflect misplaced concerns that the prioritization of packets associated with some content or applications necessarily “degrades” the performance of all other non-prioritized content and applications. Network engineers have been prioritizing real-time and other performance-sensitive applications for years and have developed sophisticated algorithms to ensure proper handling of all traffic. These engineers have followed that practice because it is far more cost-efficient to prioritize applications that need prioritization than to waste millions or billions of Euros in massively overbuilt networks and pass the unnecessary costs through to consumers.

This longstanding practice of handling IP packets differently, depending on the performance-sensitivity of their associated applications, is not a “zero-sum game” in any meaningful sense of that term. Some applications are highly performance-sensitive and thus *need* quality of service enhancements to function optimally, and accommodating those application-specific needs will not materially impair the performance of other, less latency-sensitive applications. For example, “in many multimedia applications, packets that incur a sender-to-receiver delay of more than a few hundred milliseconds are essentially useless to the receiver,” and such “characteristics are clearly different from those of elastic applications such as the Web, e-mail, FTP, and Telnet,” for which even “long delays” are “not particularly harmful.”³² In other words, if ensuring quality of service for gaming or real-time video applications means a loss of several milliseconds in the loading of a webpage or a P2P file-sharing session, users of the latter applications will neither notice nor care.

In the United States, large, medium, and small providers alike have built IP-based, double- and triple-play platforms that are shared between prioritized IP traffic (IPTV and/or VoIP) and unprioritized, best-effort Internet traffic.³³ As AT&T’s own experience has shown, differentiation among these service categories gives consumers a high-quality, high-value experience for *all* of these services.³⁴ The best-effort Internet access service that

³² James F. Kurose & Keith W. Ross, *Computer Networking: A Top-Down Approach* 598 (5th ed. 2010)

³³ These providers range from AT&T, which provides IPTV services to millions of consumers over its shared U-verse platform, to mid-sized provider Surewest to more than *two hundred* rural telephone companies. See National Exchange Carrier Association, *Trends 2009: A report on rural telecom technology*, at 11 (2009) (“NECA Trends 2009 Report”), <https://www.neca.org/cms400min/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2392> And, all of the major US cable companies offer managed VoIP services over the same shared facilities as their broadband Internet access services.

³⁴ See AT&T, Press Release, *AT&T Wins Frost & Sullivan 2009 Market Leadership Award in Dedicated Internet Access Service*, Mar. 11, 2010, <http://www.att.com/gen/press->



AT&T offers today, over the shared U-verse platform, is far faster and more robust than it was just a few years ago when it was provided over a legacy DSL network that was *not* shared with managed IPTV and VoIP services. Indeed, the introduction of advanced services generally enhances the quality and capacity of best efforts traffic because the advanced services use on average only a small fraction of increased capacity installed for these services and router queuing algorithms ensure that the unused incremental bandwidth is available for use by best-efforts traffic.

Nonetheless, operators may be concerned that even minimal non-material effects on other services may fall afoul of the proposed prohibition, and may consequently take the conservative and highly inefficient approach of avoiding the use of shared networks for Internet access and managed services. The result would be increased costs and user prices and reduced service offerings, since few if any operators would be able to provide these services economically over separate facilities.

There also is no basis to claims that operators would have an incentive to degrade best efforts Internet access in order to increase revenues obtained from managed services arrangements. As the Consultation Paper emphasizes, competitive market pressures prevent any such conduct, which would quickly drive customers to switch to rival operators that offered better performance.³⁵ Indeed, providers have long offered quality of service enhancements to business-class customers, and no one has suggested that they have degraded bandwidth for the best-effort Internet access platform to increase the value of their prioritized services. To the contrary, Internet access speeds keep increasing year after year across the industry; broadband providers are investing billions to increase those speeds; and they are spending millions more on advertising to compete on the basis of such bandwidth.

The Consultation Paper also incorrectly suggests that competitive market forces are insufficient to prevent such concerns in the United States because of the absence of unbundling requirements for DSL networks. In fact, US carriers are required to provide their competitors with unbundled access to stand-alone copper loops to provide broadband transmission services.³⁶ Also, US consumers obtain these services from multiple

room?pid=4800&cdvn=news&newsarticleid=30631; AT&T, Press Release, *AT&T Wins Frost & Sullivan 2009 Video Company of the Year Award*, Mar. 11, 2010, <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=30629>.

³⁵ Consultation Paper at 24.

³⁶ See FCC, *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 FCC Rcd. 14853, n. 157 (2005) (“The Commission’s Triennial Review Order expressly



infrastructures. FCC data show that 36 percent of US fixed broadband connections are for DSL service, while 58 per cent are for cable and 4 per cent are for fiber. Further, 13 percent of US broadband connections use mobile wireless services.³⁷ In addition, all US wired broadband access providers have limited geographic footprints, no such provider has more than 22 percent of broadband subscribers nationally, and none has more than 3 percent of broadband subscribers globally.³⁸

Fifth Direction: The Consultation Paper states that a “periodical collection of information” may be necessary to “eradicate the opacity that currently exists in data interconnection markets” and that the Authority will use this information to assist its assessment of “whether it is necessary to implement regulation in these markets.”³⁹ In fact, there is no reason for any regulatory intervention in Internet interconnection markets, which are highly competitive and have brought massive reductions in transit prices to ensure that application and content providers can reach end users quickly and reliably. The “heterogeneous and complex” nature of these arrangements is the result of the increasing complexity and dynamism of the Internet itself and the blurring distinctions between different functionalities, and further demonstrates the highly competitive nature of these markets.

As described in the attached Engineering Background, Internet backbone providers use commercially-negotiated peering or transit agreements for traffic between their networks depending in part on the traffic volumes exchanged. The use of distributed interconnection between peers and transit customers using neutral Internet Exchange Points also has led transit customers to interconnect directly at these points. In fact, ISPs and content providers have many options to exchange traffic while avoiding Internet backbone transit costs including secondary peering arrangements between ISPs and paid peering arrangements between ISPs and content providers. Additionally, some content providers have constructed huge content delivery networks (CDNs) to deliver their content to cache servers closer to ISP

reaffirmed the competitive LECs’ right to obtain unbundled access to stand-alone copper loops in order to provide broadband transmission services.”)

³⁷ See FCC, High Speed Services for Internet Access: Status as of December 31, 2008, February 2010, Table 6.

³⁸ See Comments of Verizon and Verizon Wireless, FCC WC Docket No. 07-52, at 51 (June 15, 2007); see also Alex Goldman, *Top 23 U.S. ISPs by Subscriber: Q2 2008*, ISP Planet, Dec. 2, 2008, <http://www.isp-planet.com/research/rankings/usa.html>.

³⁹ Consultation Paper at 25.



networks. As a result, there is intense competition for transit business among the many choices for the delivery and exchange of transit traffic, as shown by the huge reduction in transit prices from approximately \$1200 per Mbps in 1998 to less than \$12 per Mbps in 2008 and even lower levels today.⁴⁰

Because of the highly competitive nature of these markets, participants do not make the specific terms and conditions of their Internet interconnection arrangements publicly available and any requirement for such transparency is more likely to reduce than increase this competition. As the US Federal Communications Commission found in abolishing former requirements for the public filing of international telecommunications traffic termination agreements in 2004, public disclosure of rate information may create ‘free rider’ or ‘chilling’ effects that may reduce incentives to negotiate aggressively.⁴¹ In any event, there is little “opacity” regarding the nature of these agreements, contrary to the claims made by the Consultation Paper.⁴² AT&T’s general requirements for settlements-free peering, for example, are described on AT&T’s website, and information on other operators’ peering arrangements is also available from other public sources.⁴³

The Consultation Paper also suggests that regulatory intervention may be required to address operators’ agreements for enhanced service quality with applications providers.⁴⁴ To be sure, the traditional model under which broadband providers recover essentially all of the costs of access networks from fees imposed on end user subscribers will become increasingly unsustainable as network operators continue to make the huge investments to accommodate the network demands imposed specifically by bandwidth-intensive applications, services and content providers that are used extensively by limited subsets of subscribers. Any regulatory requirement to forever adhere to the consumer-pays-all model championed by major applications providers would undoubtedly subject consumers to higher broadband rates than they would pay if broadband providers could recover some of the costs of bandwidth-intensive applications from the providers of those applications, and would artificially depress

⁴⁰ See, *e.g.*, http://drpeering.net/a/Ask_DrPeering/Entries/2009/4/28_Transit_Prices_Race_to_the_Bottom.html; DrPeering, Why care about Transit Pricing?, http://drpeering.net/a/Peering_vs_Transit_The_Business_Case_for_Peering.html.

⁴¹ FCC, *International Settlements Policy Reform*, 19 FCC Rcd. 5709, ¶ 61, (2004).

⁴² Consultation Paper at 25.

⁴³ See <http://www.corp.att.com/peering/>; <http://www.peeringdb.com/private/>

⁴⁴ Consultation Paper at 27.



broadband subscribership. Further, the use of new cost recovery models would increase the incentives for content providers to develop applications and services that efficiently utilize network resources.

Claims that regulators should intervene to provide equality of treatment for smaller applications and content providers, as further suggested by the Consultation Paper, fail to recognize that the Internet today treats various applications and content providers quite differently depending on their capital resources. As described in the Engineering Background, applications and content providers that can afford access to the content distribution networks of Akamai and others, or that can build their own such networks, as Google and Microsoft have done, enjoy substantial performance advantages over rivals that cannot afford the use of such networks. Yet, no one suggests that this inequality of treatment warrants a regulatory solution.

As with the proposed regulation of traffic management, the EU regulatory framework requires that any attempt to regulate data interconnection would first have to demonstrate that the market fulfils the “three criteria” test for ex ante regulation.⁴⁵ In this regard, AT&T notes the recent veto by the European Commission of the attempt by UKE, Poland’s authority, to regulate IP transit and IP peering.⁴⁶ In ruling that UKE must withdraw the plans, European Commissioner Neelie Kroes noted that “our assessment is that regulation of these particular markets for Internet traffic exchange services is not necessary to protect consumers or competition. If the market itself is able to provide for fair competition, don't disturb it with unnecessary regulations." AT&T fully agrees.

Sixth Direction: The Consultation Paper also proposes that ISPs must provide end users with relevant information on accessible services and applications, traffic management practices and quality of service.⁴⁷ AT&T agrees that transparent disclosures of the terms and conditions applicable to a customer’s service are critical to create the conditions for genuine competition because they enable consumers to make educated choices based on real

⁴⁵ See Commission Recommendation of 17 December 2007 on Relevant Product and Service Markets, Art. 2, 2007/879/EC (requiring high and non-transitory barriers to market entry; that the market displays characteristics such that it will not tend towards effective competition over time; and the insufficiency of ex post application of competition law alone).

⁴⁶ *Telecoms: Commission rules against plans to regulate Internet traffic exchange services in Poland*, Commission Press Release IP/10/240, Mar. 5, 2010

⁴⁷ Consultation Paper at 29.



differences among service providers. Under this principle, a broadband network operator should inform consumers, at an appropriate level of detail, about any material restrictions or limitations on their broadband Internet service so that they can make informed choices about which providers and service plans best meet their needs.

To make such choices, consumers need to know what they can do with the service they purchase, how much of it they can use, what applications they can run, and what quality they can expect. Such information should therefore include maximum and minimum connection speeds (where applicable), usage limits, and a general description of how traffic management practices may affect the user experience.⁴⁸

However, there is no reason to require providers to disclose the technical and often highly proprietary details of their network-management techniques that may assist their broadband competitors or third parties who may seek to evade those techniques to the detriment of the network and consumers. Otherwise, network engineers would face the impossible challenge of having to decide each time they employ a new management technique whether its disclosure would, or would not, create critical infrastructure vulnerabilities. Such disclosure would also be highly impractical because of the need for constant updates. Network management practices may change on a monthly, weekly, or even an hourly basis as the Internet ecosystem evolves and new congestion challenges and security threats emerge.

Response to Questions 5 and 6: the Other Dimensions of Neutrality

Neutrality and Competition: While the Consultation Paper properly notes that exclusivity arrangements may under certain circumstances raise competitive concerns,⁴⁹ it is also important to emphasize that exclusivity arrangements are commonplace in competitive markets and that it is widely accepted both in economics and the law that they generally provide important benefits to consumers. Exclusive marketing and distribution arrangements are simply one more form of beneficial product differentiation. Exclusive wireless handset arrangements, for example, encourage collaboration to optimize handset performance and to develop innovative features that will be available through the combination of handset and

⁴⁸ See Directive 2009/136/EC of the European Parliament and of the Council, 25 Nov. 2009, Art 21(3)(d) (requiring “information on any procedures put in place by the provider to measure and shape traffic so as to avoid filling or overfilling a network link, and on how those procedures could impact on service quality”).

⁴⁹ Consultation Paper at 36-37.



network. They increase a carrier's incentives to make purchase commitments and to invest in promotions, network improvements and special training of sales staff. They also lower manufacturer entry barriers and serve as a key tool to maintain brand value.

Not only do consumers reap the benefits of the exclusive handset arrangements directly, in the form of new innovations, features, and often lower prices, but the new competitive offering also encourages other handset makers and carriers to respond with equal or better products and services, either by launching new handsets or by improving the prices, features and other key characteristics of their existing offerings. As well, exclusive arrangements incentivize parties to develop highly innovative and often risk-intensive offers. It is notable that exclusive arrangements have been identified as a concern only for the small number of highly successful collaborations, but little public attention is placed on the numerous exclusive arrangements that end without commercial success.⁵⁰

State of Competition in Search Engine and Online Advertising Markets: AT&T believes that the Authority's existing measures on Internet openness are serving consumers well in their present form and that there is no need to expand these measures as the Authority proposes in the Directions discussed above. AT&T suggests that the real threat to consumers and competition is in the search market, where one provider has a super-dominant position.

In particular, the Authority cannot responsibly address Internet "neutrality" without considering the significant role that search engines play in affecting consumers' access to online content, applications, and services – and online content, application and service providers' access to consumers.

The crucial role that search engines play in directing users to Web sites means they affect the free flow of information on the Internet more than any broadband Internet access provider. Just as search engines dominate the selection of winners and losers on the Internet, *one* search engine in particular—Google's—dominates the search engine market. Google's

⁵⁰ See Written Testimony of Paul Roth, President – Retail Sales and Service AT&T Inc. before the United States Senate Committee on Commerce, Science & Transportation, at 7 (June 17, 2009) (describing market failure of iTunes-enabled ROKR handset jointly developed by Apple, AT&T and Motorola), available at http://commerce.senate.gov/public/?a=Files.Serve&File_id=e14b7d7e-0494-43ad-84e2-c4044f9b23e6.



share of that market is around 90% to 96% in France,⁵¹ 94% in Europe,⁵² and between 83% and 90% worldwide for the year to Q1 2010.⁵³

Google is decidedly non-transparent about how it affects consumers' experience. In its own words, "opening up the code [to our search and ads products] would not contribute to these goals [of Internet openness] and would actually hurt users. . . . Not to mention the fact that opening up these systems would allow people to 'game' our algorithms to manipulate search and ads quality rankings, reducing our quality for everyone."⁵⁴ Thus, by Google's own design, consumers have no basis to make any kind of informed choice when selecting their search provider, and may simply continue using Google based on habit or its preeminence in the search and online advertising markets.

In contrast, the largest broadband Internet access provider could at most theoretically foreclose access only to a small percentage of Internet users (and even then, only to those that connect to the Internet exclusively through one broadband access provider, and not those who may have a connection both at home and at work, or who use both wireline and wireless broadband Internet access).

To be clear, AT&T contends that adherence to existing Internet principles as adopted by the EU, the FCC and as proposed in the First Direction here, combined with general antitrust enforcement, are sufficient to govern *all* Internet-based services and applications. But the Authority cannot rationally regulate broadband access providers on the basis of hypothetical misconduct, when this approach would leave search providers unregulated in the face of Google's market power, its gatekeeper capabilities, and its actual demonstrated abuse of both.

Google's already widely-distributed network and data center system also gives it a significant incentive to prevent potential competitors from being able to obtain prioritization for their services. As described in the attached Engineering Background, Google has constructed a vast "overlay" content-delivery network (CDN) that enables it to out-perform

⁵¹ See [atinternet-institute.com](http://www.atinternetinstitute.com/Images/etudes/en-US/moteurs-200905-1.png), available at: <http://www.atinternetinstitute.com/Images/etudes/en-US/moteurs-200905-1.png> (figure for May 2009); statcounter.com, available at: <http://gs.statcounter.com>.

⁵² See statcounter.com, available at: <http://gs.statcounter.com>.

⁵³ See [marketshare.hitslink.com](http://marketshare.hitslink.com/searchengine-market-share.aspx?qprid=4#) available at: <http://marketshare.hitslink.com/searchengine-market-share.aspx?qprid=4#>; statcounter.com available at: <http://gs.statcounter.com>.

⁵⁴ See Jonathan Rosenberg, *The meaning of open*, Google Public Policy Blog, Dec. 21, 2009, <http://googlepublicpolicy.blogspot.com/2009/12/meaning-of-open.html>.



its rivals in the delivery of search results to users throughout the world. While Google can obtain settlement-free peering directly with end-user broadband networks, less well-funded application and content providers must purchase CDN services or rely on traditional access/aggregation and backbone services to send their traffic through potentially congested routers and links en route to other Internet users. Google thus has every interest in promoting government-enforced “network neutrality” regulations that would prohibit or limit network operators’ use of traffic management techniques that would allow competitors to match some of Google’s self-provisioned advantages.

International Issues: The Internet has become a vitally important resource throughout the world because of its unregulated and decentralized nature, which has encouraged competition, innovation, new value propositions, openness and individual freedom. Increased globalization has made continued reliance on non-regulatory, consensus-driven, multi-stakeholder governance mechanisms even more important to the future growth of the Internet. As the Consultation Paper recognizes, Internet governance requires “a fruitful participation of public and private sector players.”⁵⁵ To meet these key concerns and objectives, international cooperation regarding issues affecting the Internet is most effectively provided through existing mechanisms that support broad, multi-stakeholder dialogue involving international organizations, governments, businesses, civil society and the Internet technical community.

A primary example is the Internet Governance Forum (IGF), which was established by the World Summit on the Information Society (WSIS) in Tunis in 2005 as a multi-stakeholder forum for the discussion of Internet governance issues. The WSIS recognized “the need for enhanced cooperation in the future, to enable governments, on an equal footing, to carry out their responsibilities, in international public policy issues pertaining to the Internet” and particularly those “associated with the coordination and management of critical Internet resources.”⁵⁶ The WSIS also emphasized that “[t]he process towards enhanced cooperation” would involve “all relevant organizations” and “all stakeholders.”⁵⁷

Since then, the IGF has facilitated and promoted cooperation among governments, business, civil society and the Internet community that has helped to bring substantial

⁵⁵ Consultation Paper at 46.

⁵⁶ WSIS, Tunis Agenda, ¶¶ 69-70.

⁵⁷ *Id.*, ¶ 71.



progress on a broad range of issues affecting the future of the Internet. Among the issues raised and advanced at the IGF through workshops, forums and other IGF activities involving international organizations, governments, the private sector and other stakeholders are increasing multilingualism on the Internet, increasing accessibility to the Internet for persons with disabilities around the world, reducing international bandwidth costs in the developing world, cybersecurity, encouraging the safe use of the Internet by children, and the independence, accountability and transparency of the Internet Corporation for Assigned Names and Numbers (ICANN). As a multi-stakeholder forum linked to the UN Secretary General, but with an independent secretariat, the IGF has successfully promoted the enhanced cooperation sought by the WSIS Tunis Agenda.

Similarly, ICANN is an independent, non-governmental entity that functions somewhat like a private sector standards body in managing a set of unique indicators that require central management and coordination. Since ICANN was created in 1998 as a new and unique entity, it hardly surprising that experience has now shown that the ICANN model requires further development and enhancements. In particular, certain changes should now be made in the ICANN charter to ensure that ICANN remains accountable to those affected by its actions and policies. However, AT&T is also convinced that this remains the best model for international domain name and addressing system management to ensure continued innovation and to meet the needs of the global Internet community.

AT&T believes that Internet governance issues should continue to be addressed through these and other existing mechanisms that support broad, multi-stakeholder dialogue. The Authority has long been a supporter of this multi-stakeholder approach, which we commend, and also encourage as a policy to maintain going forward.

AT&T would be pleased to answer any questions concerning these comments.

Respectfully submitted,

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