



## **Comments of AT&T on the European Commission Public Consultation on the Open Internet and Net Neutrality in Europe**

30 September, 2010

### **Introduction**

The affiliates of AT&T Inc. that provide communications services to, from and within European Union Member States (collectively, "AT&T") respectfully submit these comments on the European Commission Public Consultation on the Open Internet and Net Neutrality in Europe, published on 30 June 2010 (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 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 the EU Member States, AT&T Inc., through its affiliates, is a competitive provider of business connectivity and managed network services and is a leading provider of bilateral connectivity services linking the U.S. with the EU Member States.

AT&T appreciates the opportunity to express its views in this public consultation on Network Neutrality and hopes that its responses will assist the European Commission in its report to the European Parliament and Council. AT&T also hopes that its comments will be helpful to the European Commission in its larger task of formulating a comprehensive strategy for the sustainable development of the Information Society within the EU Member States, and among the EU Member States 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 once 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. Further dynamic advances are likely to occur in response to future technological change and consumer demand. Indeed, the Internet's next 40 years are likely to be just as dynamic as its first 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, as the UK regulator, Ofcom, recently concluded in describing its initial position in its recent Consultation Paper, maintaining an open Internet does not require the implementation of new, prescriptive network neutrality rules that would restrict traffic management.<sup>1</sup> With the new powers attributed to the National Regulators by the EU Directive on Universal Service and Users' Rights relating to Electronic Communications Networks,<sup>2</sup> potential problems can be solved readily by the National Regulatory Authorities in the event that any market failure actually does appear. As Ofcom emphasises, any discriminatory conduct by firms with significant market power is likely to be closely scrutinised to ensure there are no anticompetitive effects.<sup>3</sup>

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 anticompetitive practices by an individual actor that have not been resolved quickly through the application of existing regulatory measures and procedures. Indeed, Ofcom

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<sup>1</sup> Ofcom, Traffic Management and 'net neutrality,' 24 June, 2010 ("Ofcom Consultation Paper"), Sects. 1.11 & 4.54

<sup>2</sup> Directive 2009/136/EC of the European Parliament and of the Council, 25 Nov. 2009.

<sup>3</sup> Ofcom Consultation Paper, Sect. 1.11.



notes that it has received “no formal complaints from industry that require investigation.”<sup>4</sup>

There is also no basis to the claims made by some that evolving Internet traffic management or prioritisation practices now threaten the historic “neutrality” of the Internet and therefore require new prescriptive regulation. The Consultation Paper refers, for example, to “[c]oncerns . . . that the openness of the internet, and therefore its benefits to society and the economy, may be undermined if network operators seek to treat traffic differently, for example on the basis of origin, destination, the type of service or content that is being transmitted, or other criteria.”<sup>5</sup> In fact, 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 demands will make the continued use of these traffic management practices increasingly important to consumers in the future to ensure their economic access to the content and information services they desire. 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.

Arguments that regulators should now 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 such policies would create significant costs and practical difficulties for operators subject to these requirements and would undermine the EU’s most pressing objectives for the digital economy: expanding deployment of more capable broadband facilities and fostering investment in related technologies and services.

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. 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 consumers. Reliance on the expansion of facilities alone to meet Internet traffic growth and changing usage patterns 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.

In fact, because of the continued growth of bandwidth-intensive services, and the increasingly large and unpredictable spikes in Internet traffic, the construction of new facilities will not be sufficient by itself to maintain economic service capability and quality. Consequently, ISPs must place increasing reliance on traffic management practices to maintain services. Any restriction on the use of these practices would limit

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<sup>4</sup> *Id.*, Sect. 1.9.

<sup>5</sup> Consultation Paper at 2.



the speed and functionality of Internet services overall and reduce the utility and value of the Internet for all users.

For these and the further reasons set forth in these Comments, AT&T submits that significant harm would be caused by the prescriptive regulation of traffic management. Today, there is no compelling rationale for imposing any ex ante restriction on the use of traffic management, or for preventing network operators entering into voluntary, fee-based commercial arrangements with both consumers and content providers for guaranteed quality of service and thereby providing significant potential benefits to consumers.

AT&T believes that the role of regulators in these circumstances should be to monitor the market to see whether real problems are developing. 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.<sup>6</sup> Similarly, Vice President Neelie Kroes noted at the ARCEP Conference in Paris on 13 April 2010 that “we should avoid taking unnecessary measures that may hinder new efficient business models from emerging.”<sup>7</sup> If any corrective action is needed, AT&T believes that such action should be informed on a case-by-case basis by the specifically-identified problems.

AT&T also supports the use of consumer-focused principles requiring ISPs to furnish end-users with the ability to send and receive the legal 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.<sup>8</sup> 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” networks that are needed to support the innumerable new and varied Internet applications that will enrich our daily lives, as well as make us healthier, safer, more energy efficient, and more prosperous.

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<sup>6</sup> 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”).

<sup>7</sup> See EUROPA Press Releases, <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/153&format=HTML&aged=0&language=EN&guiLanguage=en>

<sup>8</sup> 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](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf). Given the unique technical and operational challenges that the wireless broadband environment poses for network operators as well as the wireless industry’s pending migration from 3G to 4G services, AT&T does not believe it is appropriate to apply such requirements to wireless broadband Internet access services at this time.



AT&T responds to the questions asked by the Consultation Paper as follows:

**Question 1: Is there currently a problem of net neutrality and the openness of the internet in Europe? If so, illustrate with concrete examples. Where are the bottlenecks, if any? Is the problem such that it cannot be solved by the existing degree of competition in fixed and mobile access markets?**

To AT&T's knowledge, there have been no significant problems linked to net neutrality, either in the European Union or in the United States, and certainly none that have not been quickly resolved. Indeed, the speculation at the root of the current "net neutrality" debate rests on deeply flawed premises, including that the Internet has always been an inherently neutral collection of "dumb pipes" that cannot distinguish among packets based on their associated applications or content, and that new tools allowing operators to prioritise particular data now threaten the Internet's supposed historic "neutrality."

As described in these comments and in the attached Engineering Background, each of these premises is mistaken, and the strict "non discrimination" requirements proposed by net neutrality advocates to address this purported "threat" are not only unnecessary, but would have severe adverse effects on broadband providers and consumers, by prohibiting longstanding network management practices, inhibiting the provision of widely used applications and services, increasing consumer rates, and limiting further deployment and adoption of the broadband services that are increasingly important to all countries' future growth and prosperity.

The Internet has never been merely a collection of "dumb pipes" and has never been "neutral" in its treatment of different applications and content. Rather, 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 far 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.<sup>9</sup> 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.<sup>10</sup> Net neutrality advocates that contend that no Internet packets should be provided with any transmission quality superior to that given every other packet – regardless of whether

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<sup>9</sup>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>.

<sup>10</sup> See generally James F. Kurose & Keith W. Ross, *Computer Networking: A Top-Down Approach* 367 (5th ed. 2010).



this extra quality 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.

Broadband providers have long sold prioritised 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-prioritisation 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 basic types of 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 prioritisation techniques, application and content providers with the capital resources to purchase services from third-party 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. Traffic shaping, CDNs and traffic prioritisation are all forms of Internet traffic management and demonstrate that the use of such practices is not a new feature of the Internet economy.

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.<sup>11</sup>
- The social networking site Facebook, which was created in 2003 and was confined to college campuses until 2005, now claims over 500 million users.<sup>12</sup>
- Twitter, which did not exist in 2005, is now the third most-used social network, with 55 million monthly visits.<sup>13</sup>

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

<sup>12</sup> 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-from-russian-private-equity-firm/>.

<sup>13</sup> Andy Kazeniac, *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.<sup>14</sup>

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 scores 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.

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, AT&T believes that all regulators should refrain from prescriptive regulation intended to resolve *potential* future problems.

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

AT&T also concurs with Ofcom's analysis described in its recent Consultation Paper on Traffic Management and 'net neutrality' that incentives to engage in exclusionary conduct in connection with traffic management are likely to exist only where a dominant participant is able to abuse its market power.<sup>15</sup> As Ofcom further emphasizes, in competitive markets, where consumers may respond to attempted exclusionary conduct by switching to rival operators, market forces prevent any harm to competition or consumers.<sup>16</sup> Broadband markets in both the EU and U.S. are highly competitive,

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<sup>14</sup> 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>.

<sup>15</sup> Ofcom Consultation Paper, Sect. 4.18.

<sup>16</sup> *Id.* Although Ofcom is rightfully concerned only with the possibly exclusionary practices of operators with market power, certain groups promoting net neutrality believe that *any* exclusionary practice should be prohibited – even by operators without market power. This, of course, ignores the significant consumer value that may be delivered by rivalrous practices among competitive operators and rejects free markets as facilitators of customer interest and welfare.



providing effective choice for end users. Past experience has shown that offers by network operators limited to specific content and services, so-called “walled gardens,” tend not to be successful with customers. Therefore, operators almost always choose to provide customers with alternatives that allow them access to the complete range of content available on the Internet.<sup>17</sup> Indeed, Internet users are generally very attentive as regards restrictions on their access to internet services, and many declare that they would switch providers in case of such restrictions.<sup>18</sup> Ofcom also properly concludes that any discriminatory conduct by dominant firms is likely to be closely scrutinised under existing regulatory and competition law procedures and there is therefore no reason to impose new blanket restrictions on traffic management to address such concerns.<sup>19</sup>

In addition, 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.<sup>20</sup> The European Parliament and the Council underscored the importance of this threshold requirement in the November 2009 telecom package, which noted that “[c]onsidering 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.”<sup>21</sup>

To AT&T’s knowledge, there have not been at the EU level formal complaints from industry regarding traffic management that require investigation. In the United States, the FCC has found it necessary to take action only twice: first, to stop Madison River Communications, a small rural 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 using a particular congestion management capability to unreasonably interfere with certain peer-to-peer applications used by its customers.<sup>22</sup> In both instances, FCC actions directly targeted the specific practices in question and led

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<sup>17</sup> Note the general disappearance of walled garden information services previously provided by AOL, CompuServe or Minitel in favor of broad internet access. But also note that certain walled gardens may be quite attractive to customers (e.g., Apple’s iPhone Apps Store) relative to broader alternatives. In either case, the market functions to ensure that customers receive the content they want.

<sup>18</sup> An Internet service provider restricting or limiting the use of internet services or applications would lose between a quarter and a third of its customers to competitors with either the same or higher prices. Customer survey by Synovate, *Consumer expectations of the Internet*, February 2009, at 18.

<sup>19</sup> Ofcom Consultation Paper, Sect. 1.11.

<sup>20</sup> 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. See Commission Recommendation of 17 December 2007 on Relevant Product and Service Markets, Art. 2, 2007/879/EC.n law alone.

<sup>21</sup> Directive 2009/140/EC of the European Parliament and of the Council, 25 Nov. 2009, at L337/37.

<sup>22</sup> 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).



to the voluntary resolution of both cases rapidly and effectively.<sup>23</sup> In fact, in the case of Madison River, the FCC quickly reached a consent decree with Madison River without the need for protracted investigation. In the case of Comcast, the FCC adopted a declaratory ruling that ultimately validated the changes that Comcast had already voluntarily made to its congestion management capability.

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-specific prescriptive rules is unwarranted.<sup>24</sup> The FCC's oversight of industry adherence to the principles embodied in the *Internet Policy Statement* it adopted in 2005 has been more than sufficient to ensure compliance with those principles and to foster an open Internet.<sup>25</sup> 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.

**Question 2: How might problems arise in future? Could these emerge in other parts of the internet value chain? What would the causes be?**

For the end-user to fully benefit from an open Internet environment, AT&T believes that the debate on Internet openness should not be limited to the 'network layer' in the Internet. Key elements for users' unrestricted access to information, content and services are located on other layers of the Internet value chain, such as Internet search or content and service platforms. It is in these areas that complaints over alleged anti-competitive behaviour have been raised in the recent past.

Against this background, regulatory principles to ensure openness, such as competition and transparency rules, should as far as possible be applied symmetrically and equally

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<sup>23</sup> 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.

<sup>24</sup> 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> .

<sup>25</sup> See 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](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf)



across the players in the Internet value chain. EU policies should address issues of competition, openness and consumers' rights not only at the level of electronic communications networks and services but wherever they emerge in the Internet value chain.

AT&T believes that the EU's existing measures on Internet openness are serving consumers well in their present form and that there is no need to expand these measures. AT&T suggests that the the more imminent threat to consumers and competition is inadequate competition and diversity in the search market, where one provider has an overwhelmingly dominant position. Thus, the European Commission cannot responsibly protect Internet "neutrality" without considering the significant role that search engines play in influencing and limiting 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 determining which Web sites users will visit means they affect the free flow of information on the Internet more than any broadband Internet access provider. And one search engine in particular—Google's—dominates that market in selecting the winners and losers on the Internet. Google's share of the search market is around 90% to 96% in France<sup>26</sup>, 94% in Europe<sup>27</sup>, and between 83% and 90% worldwide for the year to Q1 2010<sup>28</sup>.

Furthermore, Google is decidedly non-transparent about how it affects consumers' experience. In its own words, "opening up the code [to our search and advertising 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."<sup>29</sup> 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 other countries such as Japan, combined with general antitrust

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<sup>26</sup> 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](http://gs.statcounter.com), available at: <http://gs.statcounter.com>.

<sup>27</sup> See [statcounter.com](http://gs.statcounter.com), available at: <http://gs.statcounter.com>.

<sup>28</sup> See [marketshare.hitslink.com](http://marketshare.hitslink.com/searchenginemarket-share.aspx?qprid=4#) available at: <http://marketshare.hitslink.com/searchenginemarket-share.aspx?qprid=4#> [statcounter.com](http://gs.statcounter.com) available at: <http://gs.statcounter.com>

<sup>29</sup> See Jonathan Rosenberg, The meaning of open, Google Public Policy Blog, Dec. 21, 2009, <http://googlepublicpolicy.blogspot.com/2009/12/meaning-of-open.html>



enforcement, are sufficient to govern all Internet-based services and applications. But the European Commission could not 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 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.

**Question 3: Is the regulatory framework capable of dealing with the issues identified, including in relation to monitoring/assessment and subsequent enforcement?**

AT&T believes that the existing EU regulatory framework, together with competition law enforcement, is fully capable of addressing any issues that may arise from Internet traffic management.

Europe has a robust regulatory and competition framework for protecting consumers against anti-competitive behaviour. The revised EU framework for electronic communications includes additional transparency measures that further enhance consumers' ability to make informed choices regarding their Internet service. In addition, the National Regulatory Authorities have been given authority to prevent degradations of service quality to consumers.

Consumers in Europe also benefit from competitive markets for broadband services that provide them with a range of providers and options to access and use the Internet. As noted above, competitive market forces prevent harm to consumers and competition from exclusionary conduct because consumers may respond to any attempt to engage in such conduct by switching to alternative providers. The adoption of new, prescriptive regulation that would restrict traffic management and service differentiation is not only unwarranted but would undermine Europe's digital economy by excluding new business models, locking in today's technologies, and hampering necessary innovation.

AT&T therefore encourages the EU to continue following its established policy approach to the open Internet in support of Europe's digital agenda under the new



framework for electronic communications. As the new framework is still subject to implementation by the National Regulatory Authorities and the market does not exhibit any persistent competition or consumer issues regarding traffic management, any review of the EU regulatory framework at this early stage appears both premature and unnecessary. The proper role of the National Regulatory Agencies and the National Competition Authorities in these circumstances should be to monitor the market and to intervene only in case of a market failure.

**Question 4: To what extent is traffic management necessary from an operators' point of view? How is it carried out in practice? What technologies are used to carry out such traffic management?**

As described in response to Question 1, Internet providers have made longstanding use of traffic management practices to ensure quality of service for their users. Moreover, 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 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 increasingly challenged network infrastructure.

There can be little doubt that threats to network performance from congestion in the networks comprising the Internet are likely to continue for the foreseeable future. Even during the current economic downturn, Internet traffic continues to grow at a tremendous rate. A recent report by Cisco notes that global IP traffic will quadruple from 2009 to 2014.<sup>30</sup> The nature of Internet traffic is changing as well, with the fast-increasing usage of bandwidth-intensive applications like streaming video placing greatly 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.<sup>31</sup> In an environment of increasing network congestion, Internet providers have a critical need to use the various traffic management techniques and technologies available to manage competing demands on finite bandwidth.

Increased investment is also a critical element in responding to these unprecedented and increasing demands on the capacity of Internet access and backbone networks. Continued massive investment in fibre, wireless, and other network infrastructure is necessary to increase the bandwidth and Internet functionality available to consumers, even though competition and the unpredictability of consumer demand often make these investments exceptionally risky for the companies that underwrite them. While these

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<sup>30</sup> 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](http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html)

<sup>31</sup> One minute of video requires 10 times the bandwidth as a minute of voice. Kleeman, Michael, "Point of Disconnect," University of California, San Diego, August 30, 2007, available at <http://cpe.ucsd.edu/assets/013/6535.pdf>



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.

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. The use of traffic management techniques to maintain service quality over increasingly congested networks thus provides ISPs with a greater ability to maximize the efficiencies of future investment in additional network capacity. But even if there were no economic constraint on network expansion, Internet providers would be unable to avoid the use of traffic management practices simply by increasing their investment in higher capacity facilities, since experience has shown that network usage, particularly in the form of peer-to-peer file transfer applications, inevitably expands rapidly to fill new capacity and user behavior is difficult to predict far in advance.

As the attached Engineering Background explains (at pp. 11-12), operators cannot economically enlarge network capacity to ensure immediate delivery of all packets at all times, particularly with the escalating magnitude of unpredictable spikes in Internet traffic.<sup>32</sup> Consequently, network operators cannot simply construct higher-capacity facilities, but must also use greater network intelligence, including the ability to identify and provide the appropriate level of performance required by different applications traversing the network, to ensure that users can receive the service quality they desire.

The attached Engineering Background also explains (at pp. 16-24) how network operators have adopted IP transmission protocols that allow their customers to identify different types of packets to the network so that more critical or quality-sensitive packets (e.g., VoIP or medical telemetry) can be prioritised over other types of internet traffic (e.g., peer-to-peer filesharing or email) during periods of peak demand. .

Further, there is no basis to 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. As noted above, this practice has been followed because it is far more cost-efficient to prioritize applications that need specialized handling than to construct massively overbuilt networks and pass the unnecessary costs through to consumers.

This longstanding practice of handling IP packets differently, 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

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<sup>32</sup> 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.



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 relatively “long delays” are “not particularly harmful.”<sup>33</sup> 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. But even these tiny delays are unlikely to occur because upgrading the bandwidth of shared networks to accommodate prioritized services generally *improves* the performance of nonprioritized traffic.

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.<sup>34</sup> 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.<sup>35</sup> The best-effort Internet access service that 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.

As noted by the Consultation Paper, “The amended telecoms framework accepts the principle that traffic/network management can be a legitimate tool for the provision of differentiated services and in the interests of the efficient functioning of networks, provided that the requirements of the framework are adhered to and customers are kept informed, in particular with regard to the minimum service quality they can expect.”<sup>36</sup> To prohibit all differential treatment, as some net neutrality advocates propose, would not only greatly increase network costs and user prices, as noted above, but would also prevent different services, applications, and content from obtaining the quality of service they need to function efficiently and effectively. 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 may

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<sup>33</sup> James F. Kurose & Keith W. Ross, *Computer Networking: A Top-Down Approach* 598 (5th ed. 2010)

<sup>34</sup> 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.

<sup>35</sup> 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-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>.

<sup>36</sup> Consultation Paper at 5.



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. 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.”<sup>37</sup>

However, AT&T is concerned that in a fast evolving sector it will be equally difficult, if not impossible, to define *ex-ante* what would be “reasonable traffic management” – a task the Consultation Paper suggests the Commission may seek to undertake.<sup>38</sup> Such an approach would subject every network engineering decision to potential regulatory challenge and second-guessing, which would compel engineers to determine in advance whether every measure they consider is narrowly tailored enough to avoid liability. The result is that these engineers will almost certainly err on the side of excessive caution. 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.

AT&T believes that a conservative approach as championed by Vice President Kroes, and proposed for example by Ofcom in its own consultation, is preferable.

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<sup>37</sup> 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

<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](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.

<sup>38</sup> Consultation Paper at 7.



**Question 5: To what extent will net neutrality concerns be allayed by the provision of transparent information to end users, which distinguishes between managed services on the one hand and services offering access to the public internet on a 'best efforts' basis, on the other?**

As described in response to Question 10, AT&T believes that customers should receive information on how traffic management practices may affect the user experience. Such information would both assist consumers in choosing between Internet providers and allay any misplaced concerns about the effects of those practices on Internet services. Transparency can address any concerns about openness and competition in the Internet while empowering consumers and businesses to make choices according to their individual preferences. Such transparency requirements, moreover, should apply to all actors in the Internet value chain.

Managed services, which are assumed to refer to services for which the network operator pre-defines a certain quality of service on its network as opposed to best efforts provisioning, will often be part of the offer made to the end-user, as is for example the case today for the IPTV offer of the network operator. Thus, the terms and conditions for, as well as the technical features of, these offers will be part of the information provided to end-users.

**Question 6: Should the principles governing traffic management be the same for fixed and mobile networks?**

The EU regulatory framework for electronic communications does not distinguish between fixed and mobile networks. The provisions of the revised framework, such as the provisions on transparency, apply regardless of the network technology used. General competition rules equally apply to both fixed and mobile network operators. As stated above, AT&T believes that no further rules are required to safeguard the open Internet and that the existing set of rules and principles should continue apply to all networks.

Nonetheless, mobile and fixed networks do have different characteristics. Due to the shared spectrum of individual mobile cells, mobile networks today tend to face more severe capacity restrictions. As a general principle, competent authorities should apply existing rules in a proportionate manner, taking into account the relevant technical and other characteristics of the network concerned. This may result in different regulatory treatments for fixed and mobile networks.

Indeed, the imposition of traffic management restrictions on mobile broadband services 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.

While all broadband networks share the need for traffic management, given the ever rising demand for and proliferation of new quality-sensitive, bandwidth-intensive applications, mobile broadband networks also 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 weather, 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.

**Question 7: What other forms of prioritisation are taking place? Do content and application providers also try to prioritise their services? If so, how – and how does this prioritisation affect other players in the value chain?**

As described in response to Question 1 and in the attached Engineering Background, application and content providers with the capital resources to purchase services from third-party CDNs or that build CDNs of their own enjoy significant performance advantages over rivals without those resources. Content providers also are exploring even more advanced, cost-efficient new ways to distribute bandwidth-intensive, performance-sensitive content that would provide similar advantages over their rivals. These new developments include 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.

To give examples from other parts of the value chain, Internet search also involves prioritization. In particular, search providers prioritize certain websites over others in search results, which can dramatically affect the likelihood of success (or failure) for those websites. The pre-installation of specific applications on an end-user device is a further example of prioritising.

**Question 8: In the case of managed services, should the same quality of service conditions and parameters be available to all**



**content/application/online service providers which are in the same situation? May exclusive agreements between network operators and content/application/online service providers create problems for achieving that objective?**

AT&T believes that the freedom to provide managed services (also known as specialized services) is a key element of a successful model for developing the Internet and the underlying broadband infrastructure. Reliability of IP-based services and pre-defined quality of service are likely to be key drivers of competition and future innovation. Managed services provided alongside access to the open Internet, such as network operators' IPTV services today, have a positive impact on the development of the Internet access service. They are an important driver for the take-up of high-speed broadband connections and a key generator of revenues for operators, enabling the deployment of fast and very fast broadband networks.

For example, the recent extraordinary development of the mobile internet and of compelling devices, such as the Blackberry and iPhone, has been possible thanks to the development of mobile infrastructure and technologies that were largely driven by the popularity of mobile voice telephony services. Innovation in the operators' networks carried out for their own managed services thus leads to infrastructure roll-out and bandwidth increases, fuelling innovation in Internet services and applications.

As regards future offers for pre-defined quality of service offered to third party content and online service providers, individual arrangements with third parties may exist alongside offers which are open to all interested parties. Where operators are able to enter commercial arrangements for superior quality of service at the wholesale level, this creates positive commercial incentives to offer the service to all parties to increase revenues. Any unwarranted restrictions regarding the provision of managed services by network operators going beyond the application of competition law rules would significantly slow down broadband investment and take-up.

Therefore, differentiated commercial offers should in principle be allowed in the Internet as in other areas of the economy. Quality and price differentiation in most markets and circumstances enlarges consumer choice and increases consumer welfare. There is no case for *per se* banning discrimination by operators providing access to the Internet. At the same time, any anti-competitive discrimination by a market dominant undertaking should be addressed by the competent authorities, whether at the network layer or other layers of the internet value chain. However, such agreements are likely to raise competitive concerns only where a dominant participant is able to abuse its market power.

Quality of service-based offers by network operators to Internet-based businesses would increase the options for content delivery available to content and applications providers and increase choice and competition, effectively lowering barriers to entry in this field. Against this background, claims by large, established internet companies that quality of service offers by network operators would allegedly impede the "next Google" from succeeding are unconvincing.



Claims that regulators should ensure equality of treatment for smaller applications and content providers also fail to recognize that the Internet today treats various applications and content providers quite differently depending on their capital resources. As described in response to Question \_\_\_ and in the attached Engineering Background, applications and content providers that can afford access to the content-delivery networks of Akamai and others, or that can build their own such networks, as Google and Microsoft have done, already enjoy substantial performance advantages over rivals that cannot afford the use of such networks. Yet, there is no suggestion that this inequality of treatment warrants a regulatory solution. Indeed, prohibiting all such differential treatment would require the abolition of these CDNs that leverage edge networks to provide online customers with lower latency and higher quality of service than the competition.

There is also 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. Competitive market pressures prevent any such conduct, which would quickly drive customers to switch to rival operators that offered better performance. 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, best-effort 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.

**Question 9: If the objective referred to in Question 8 is retained, are additional measures needed to achieve it? If so, should such measures have a voluntary nature (such as, for example, an industry code of conduct) or a regulatory one?**

As stated above, a *per se* ban on differentiated traffic handling is neither warranted from an economic perspective nor adequate under the EU legal framework. With regard to Question 9, AT&T believes that regulators should take an active role in encouraging industry collaboration to resolve network management issues. Indeed, certain applications on unmanaged networks can use a disproportionately high amount of bandwidth and cause network congestion. This is a classic tragedy-of-the-commons dynamic, in which each network user or application has strong incentives to hoard shared bandwidth for itself at the expense of others. Left unchecked, the resulting congestion and degradation of Internet service for other users and applications would impose deadweight losses on the industry and consumers alike. And those who use and need only moderate amounts of bandwidth would suffer the most, since they would both see their service quality suffer *and* be forced to subsidize higher system-wide costs attributable to those users and applications with the greatest bandwidth needs.

To date, however, network providers have been forced to cope with network congestion on their own. The goal should be to engage all stakeholders in a cooperative effort to



tackle the real-world congestion-management problems that ultimately harm the entire Internet economy. Achieving this goal will require all parties to recognize that, in addition to their own rights, each has responsibilities to help ensure a healthy and open Internet.

Just as one example, AT&T has been part of an industry-wide working group, composed of representatives from BitTorrent, Joost, LimeWire, Cisco, Verizon, Verisign, and researchers from Yale and Washington Universities, among others, that is trying to develop an efficient, network-aware, peer-to-peer technology. Known as « P4P », this new generation of technology is being developed to optimize network resources rather than hoard them. In addition, some in the technical community are considering how to improve the Internet's transfer protocols. Researchers at BT and University College London, for example, have suggested that there are some inherent problems in TCP's focus on relative flow rate fairness, for example, and that cost fairness – a concept that would judge transport control mechanisms by how well —they share out the cost' of each user's actions on others would be more appropriate.

Regulators should seek to promote these and similar cooperative efforts to find overarching technical solutions going forward, which would be far more productive than continued disputes over different policy positions.

**Question 10: Are the commercial arrangements that currently govern the provision of access to the internet adequate, in order to ensure that the internet remains open and that infrastructure investment is maintained? If not, how should they change?**

AT&T believes that the phenomenal growth and success of the Internet is the direct result of the ability of Internet providers to enter into commercial arrangements unhampered by prescriptive regulation that would lock in place specific technologies or business models.

Internet interconnection markets, for example, which have always been unregulated, 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. 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 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, as noted above, some content providers have constructed huge content delivery networks (CDNs) to deliver their content to cache servers closer to ISP 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.<sup>39</sup>

There is also no reason for regulatory intervention to address operators' agreements for enhanced service quality with applications providers. The traditional model under which broadband providers recover all of the costs of access networks solely 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 through voluntary commercial arrangements with providers of those applications, and would artificially depress broadband subscribership. Further, the use of new cost recovery models increase the incentives for content providers to develop applications and services that efficiently utilize network resources. Thus, as the UK regulator, Ofcom, concluded in describing its initial position in its recent Consultation Paper, prohibiting network operators for charging content and application providers for access to consumers "is unlikely to lead to efficient market outcomes."<sup>40</sup>

**Question 11: What instances could trigger intervention by national regulatory authorities in setting minimum quality of service requirements on an undertaking or undertakings providing public communications services?**

**Question 12: How should quality of service requirements be determined, and how could they be monitored?**

**Question 13: In the case where NRAs find it necessary to intervene to impose minimum quality of service requirements, what form should they take, and to what extent should there be co-operation between NRAs to arrive at a common approach?**

As Ofcom recently recognized in its Consultation Paper, while it (or any EU National Regulatory Authority) is empowered to impose a minimum quality of service, it is likely to "explore existing competition tools and consumer transparency options before considering a minimum quality of service."<sup>41</sup> AT&T believes that all EU national regulators should exercise similar restraint before mandating a requirement that may

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*See, e.g.*

[http://drpeering.net/a/Ask\\_DrPeering/Entries/2009/4/28\\_Transit\\_Prices\\_Race\\_to\\_the\\_Bottom.html](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](http://drpeering.net/a/Peering_vs_Transit_The_Business_Case_for_Peering.html).

<sup>40</sup> Ofcom Consultation Paper at Sect. 4.40.

<sup>41</sup> Consultation Paper at Sect. 1.12.



impose significant burdens on network operators and result in increased consumer rates. Indeed, AT&T's view is that a minimum quality of service requirement should rarely, if ever, be necessary in competitive markets where multiple operators compete vigorously based on their quality of service, in addition to price, service features, and the various other factors that customers may consider in making their choice of provider. Operators in these markets that fail to provide the service quality their customers expect risk losing business to operators that meet or exceed those expectations.

To replace this highly effective, market-based discipline with a mandated minimum quality of service requirement may increase operators' costs and force up customer prices. Furthermore, any mandated standard may also fail to recognise that some network users may desire service quality *below* current "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. Minimum service quality requirements could thus have the unintended consequence of preventing these devices and applications from entering the market.

**Question 14: What should transparency for consumers consist of? Should the standards currently applied be further improved?**

AT&T believes 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 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<sup>42</sup>.

However, there is no reason to require providers to disclose the technical and often highly proprietary details of their particular 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

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<sup>42</sup> 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").



employ a new management technique whether its prior disclosure would be required, and whether such disclosure would, or would not, create critical infrastructure vulnerabilities. Such disclosures also would 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.

**Question 15: Besides the traffic management issues discussed above, are there any other concerns affecting freedom of expression, media pluralism and cultural diversity on the internet? If so, what further measures would be needed to safeguard those values?**

**Any other issues**

In response to the Commission's invitation to raise any other issues they may wish to address in connection with net neutrality, AT&T also would like to note the international dimension of this debate. 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. Internet governance requires a fruitful participation of public and private sector players. 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."<sup>43</sup> The WSIS also emphasized that "[t]he process towards enhanced cooperation" would involve "all relevant organizations" and "all stakeholders."

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

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<sup>43</sup> WSIS, Tunis Agenda, ¶¶ 69-70.



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 European Commission has long been a supporter of this multi-stakeholder approach, which we commend, and also encourage as a policy to maintain going forward.

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

Respectfully submitted,

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