



RESPONSE TO THE QUESTIONNAIRE OF THE EUROPEAN COMMISSION ON THE OPEN INTERNET AND NET NEUTRALITY IN EUROPE

About the Nexa Center for Internet & Society

The NEXA Center for Internet for Internet & Society at the Politecnico di Torino, Italy, is an academic research center founded in 2006, with activities going back to 2003. The NEXA Center studies the Internet with a multidisciplinary approach: technical, legal and economic. We believe, in fact, that the Internet is too complex and its impact too far reaching to be profitably studied from a single disciplinary point of view. The NEXA Center, besides carrying out its own internal research project, aimed at both the research community and policy makers, is the coordinator of two large European thematic networks: COMMUNIA, on the digital public domain (<http://communia-project.eu>, 2007-2011, 50 members) and LAPSI, on public sector information (<http://lapsi-project.eu>, 2010-2012, 20 members).

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Executive Summary

The NEXA Center for Internet and Society welcomes the European Commission's questionnaire on the open Internet and net neutrality in Europe. **We consider, in fact, the Internet fundamental for the future of Europe.** Not only in term of innovation and economic growth, but also as a powerful tool to preserve and develop European culture, to enrich and strengthen European democracy and to provide European citizens, on the one hand, with better, cheaper, more varied and innovative services for their daily lives and, on the other hand, with a powerful tool supporting their fundamental rights, from freedom of expression to freedom of information, from freedom of association to freedom to innovate.

We believe that **network neutrality is the key design element that makes the Internet so generative and beneficial.** It is having control is at the edge of the network, rather than inside, that makes the Internet so innovative, democratic and powerful. To allow traffic discrimination would transform the Internet into something far less positive for European economy, culture and society, while benefiting just a handful of special interests. It would be a stunning step backwards for Europe as a whole.

We believe, therefore, that it is time that **the European Commission acts decisively to ensure that network neutrality would unambiguously characterize the Internet in Europe for many years to come.**

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?*

Yes, there are currently problems of network neutrality in Europe, both for wireline and wireless networks. Such problems arise at different levels.

At the contractual level, Internet Service Providers, at least in Italy, offer very limited guarantees to their customers, also regarding network neutrality, as the NEXA Center discovered when it studied the standard contracts of fourteen fixed and four wireless broadband internet service providers in Italy, covering virtually the entire market.

The study showed that the ISPs do not clearly specify, with very few exceptions, what service will be provided to customer and with what quality. In some cases, particularly in wireless scenarios, the discrimination against certain kinds of network traffic (e.g., VoIP or peer-to-peer) and/or Internet destinations (certain Web sites that do not have an agreement with the ISP) and/or certain of devices (e.g., prohibition of using the phone as modem) is explicit – a blatant violation of network neutrality.

For the full study, see:

<http://nexa.polito.it/accesso-ad-internet-e-contratti-di-connettivit%C3%A0-business-consumer-di-quattordici-fornitori-italiani> (in Italian).

On the field, in Italy we have registered many network neutrality violations, as documented in conjunction with the volunteer experts group, NNSQUAD ITALY (also some other replies share parts with the replies by NNSQUAD ITALY, submitted separately):

Case #1: “La Casa di Alice”, a retail broadband offer by Telecom Italia which was brought to the attention of DG COMP, and going on with the blocking or degrading of P2P traffic by some operators and the filtering of VoIP traffic by others.

Case #2: retail broadband offer by the incumbent called “Ring”, whereby Telecom Italia enacted a price-based discrimination of traffic: Users were charged different prices per MB of traffic according to the source of the traffic (traffic coming from Telecom Italia’s customers was priced approximately half the price of traffic coming from non-Telecom Italia users). A discrimination of source/destination traffic based on price.

Case #3: Telecom Italia is degrading P2P, video and other kinds of heavy traffic on an "experimental basis" on all retail DSL lines that belong to 44 exchanges (<http://www.187.alice.it/cda187/c/assistenza/newsPopupAction.do?ID=19784>).

Case #4 and #5: Both largest wireless operators (Vodafone and TIM), which account for more than 65% of the market, are still degrading P2P traffic and blocking VoIP, unless the subscriber pays an extra fee to have his VoIP allowed. H3G in September 2010 has released details of its traffic management policy in case of low performance in the network.

Other kinds of violations are emerging throughout Europe: for example, there is a trend towards the establishment of special rates for wireless Internet connectivity that are either limited to accessing

specific content (e.g. specific websites and services) or favour certain service/content providers over others by applying special rates (or free access) only to traffic directed towards them, under specific agreements between the operator and the service/content provider itself. See as an example the “Facebook Zero” service by Facebook, where users from 45 countries (including several European ones) can gain free wireless access to the service. Of course, this creates a very high entry barrier to any service provider willing to compete with Facebook for the provision of social networking services.

This trend could be especially troubling if it started to be applied to content-providing services which are able to shape the public opinion, such as newspapers and Internet television services.

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

The behaviors exposed above are the troubling examples of pricing differentiation based on the type of application used (not on priority). An application not approved by the Internet Service Providers is discriminated and de facto inhibited using pricing policy.

If this kind of business practice becomes more widely adopted, the consequences would be severe because the operators would become, literally speaking, the gatekeepers of the Internet. They would be able determining which applications can flourish and which ones will starve. They would be able to extract up to the full value of the bits carried on their network. Only the operators would benefit by such extreme power, depaupering everyone else, from companies to NGOs and single citizens.

Technological countermeasures based on strong cryptography are possible, at least in certain domains. Policy makers, however, should ask themselves whether the emergence of a vast “dark net” of crypted traffic is in the best interest of society, knowing well that it is not conceivable to reverse the clock and ban cryptography.

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

In principle, current regulations, both telecommunications and antitrust, could allow for an ex post intervention to sanction these behaviors.

However, at least in the Italian case, the regulators, understaffed and with limited resources, are unlikely to sanction the behaviors described above in a timely and effective fashion. For example, the economic discrimination of VoIP traffic started a long time ago and yet the Italian Telecommunications Regular authority, AGCOM, has lamentably not yet taken any measure.

Therefore, we believe that ex ante regulation is necessary to address these problems timely and effectively.

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?*

Fixed network can have backhauling in fiber or copper; in fiber network, removing congestion is cheaper than managing it; copper networks need fiber as a backhauling upgrade. **Policies should**

favour investments to remove bottleneck on backhauling. Without policies to promote or require investments, operators could find traffic management attractive, thus inducing scarcity to leverage on it with anticompetitive practices.

In the case of wireless networks, wireless per-user capacity can be increased by increasing the number of the cells and reduce the size of their coverage, in order to reduce user contention. Presently, in Italy, the congestion of the wireless access network is widely considered to be a major issue. It has been caused by the extraordinary promotional push by the wireless operators to gain customers not backed by an adequate expansion of the network itself. Customers often complain of very slow actual connection speeds, in the range of a few hundred kilobits or even of a few kilobits, which hamper those who made the ill-judged decision to switch from fixed to wireless access, lured by advertising and promotional rates. In fact, many business users who made this switch have seen their businesses severely stifled, based on newspapers reports. In this situation, operators claim to be “forced” to implement traffic management practices and to filter out heavy traffic by application type.

In fact, this is a situation that was actively created by the operator themselves, and should not be allowed as an excuse to introduce anti-neutral behaviors: operators should not oversell their transport capacity and then cut out specific traffic to cope with the problem.

Instead, a push towards the increase of the number of wireless network cells is desirable; their backhauling connectivity can be managed via fixed or even wireless point-to-point connections. Policies should be directed to this effect.

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?*

Except tiny minorities, consumers will never be influenced by the complex provisions of contracts. It is thus necessary to require operators to provide a base service which is neutral, non-discriminatory, not unreasonably overbooked, and based upon best effort transport policies; any services prioritizing specific services, content or applications should just be additional, for people who really need connectivity of higher quality than the best effort one. The base service must be the cheapest one, otherwise operators will force their customers into cheaper walled gardens or into using only a limited range of predetermined services, thus stifling any chance of third-party innovation. The degree of overbooking could still be used as a way to provide access services of different quality at different prices.

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

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

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?*

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?*

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?*

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?*

NRAs should intervene by regulating ex-ante those cases where management of traffic could lead to distortion of effective competition between operators or service/application providers or limitation of users' ability to use the devices and applications of their choice.

Best effort Internet access should be the basis of all offers by the operators. Managed access, consumer-requested prioritization of specific types of traffic on the network access segment should always be an incremental commercial proposition. Any prioritization of specific types of traffic on the network access segment should always be requested by the user and not imposed or induced by the operator with technical or commercial practices.

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

The most effective way to determine quality of service levels (from a user experience perspective) is by ensuring a vibrant, competitive and efficient market with many competing operators. The effective implementation of bitstream wholesale access is therefore very important.

The most important issue for NRAs is therefore to monitor competition and efficiently intervene in cases abuse of market power and to determine the conditions for a strong competition.

However, **we also believe in bottom-up solutions**. More specifically, we believe that simple, user-friendly **network monitoring tools directly in the hands of users** could go a long way in improving transparency, in correcting the shameful current information asymmetry and in policing ISPs behavior. If such tools are also collaborative, the collective knowledge of the users could easily reach levels never approached by the most efficient NRA. The NEXA Center has designed and developed a bottom-up network monitoring tool, NEUBOT (Network Neutrality Robot), freely available at: <http://nexa.polito.it/neubot>.

It is a tangible, yet still limited contribution. Since other similar projects have been launched in the past two years (see, e.g., project Glasnost by the Franhauser Institut in Germany), none of them ever reaching maturity, at least so far, **we kindly ask the European Commission to, at the very least, facilitate the merging of such projects, by providing proper venues for collaboration and, if possible, funding.**

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?*

In order to foster the development of the single market, we deem it necessary to impose the provisions of interoperability with QoS also to cross-border peerings. The monitoring procedures and sanctions need therefore to be harmonized by all NRAs at the EU level.

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

Transparency standards are currently minimal, if not completely lacking.

As we mentioned, the contracts say very little and what remains in the minds of customers are almost exclusively the three words promoted by aggressive advertising: “Internet”, “Up to X Mb/s” and “Y euro”.

The first and foremost issue is to agree on and then adopt at the EU level a definition of what “Internet access provision” means. “Internet access” should mean the possibility for the user, with the device of her choice, to use the application/service of her choice to interact with any other peer of her choice by exchanging traffic on networks which are interconnected based on the coordination activities set forth by IANA.

Any network access service not compliant with the above, should not be allowed to use the label “internet” in its name (e.g. internet service, internet access, internet connection, etc.). There are now many access services which do not comply with the provision above and yet are marketed and sold as “internet access”.

In the purchase of an “internet access” like defined above, throughput (although being the major choice driver together with price) is not the only parameter that should be made transparent, but also capacity planning policies, network architecture, security and privacy practices, network management policies, etc.

Some basic information should be mandatory for all access providers while some other information could be published on a discretionary basis by willing ISPs, yet is important that all information published are simple to understand and are all in a comparable format. There are some best practices in Italy of minor ISPs which autonomously publish their network management policies, the absence of Deep Packet Inspection (DPI) on their network, under a common logo and similar descriptions (not considering the fact that DPI is most likely utterly illegal in most EU countries due to constitutional protection of private communications); some ISPs publish network monitoring data from their management systems, for each DSL area, so users are

adequately informed on what they can expect, see network upgrades, congestion, etc.

The quality of the data needs to be ensured: Relevant stakeholders like operators, Consumer Associations, research centers and NRAs should be involved in the definition of types of information provided and definition of formats; NRAs should ensure sanction cases of false or incomplete information.

After an initial period, best practices should be standardized at the EU level.

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?*

It is clear that network neutrality as described above is a bulwark in defense of freedom of expression, media pluralism and cultural diversity on the Internet. Any node of the network, in fact, can communicate using any valid Internet protocol to any other node of the network, without gatekeepers – or censors – standing in the way.

As a consequence, the Internet is today the most uncensored and the less concentrated media of all; in countries with a media system which is not entirely free (as in the case of Italy, see, for instance, the Freedom House's annual reports) the Internet is the main instrument for the circulation of free information and news that would not appear in mainstream media.

Allowing online discrimination would certainly stifle those sources of information, ideas and culture that are minoritarian and therefore have less economical and political clout than the mainstream.

Moreover, it can be expected that attempts will be made to introduce controlling points over the flow of information over the Internet, with excuses related not only to traffic management, but also to the prevention of unlawful activities or of activities which, while not illegal, affect the business of the operators; this could easily happen outside of the public sphere, through market consolidation efforts or through private deals between operators, content providers and other powerful private parties.

It is paramount that any kind of filtering or controlling activities over the Internet are managed in the public interest and respecting free communication principles and, in general, all the provisions of the Charter of Fundamental Rights of the European Union.