

Neutrality or Controlled Discrimination The Future of Internet

Luís António Reis Mata

e-Planning PhD student
ISCSP – UTL (e-Planning Consortium)
luisreismata@gmail.com

Abstract — In this paper we aim to discuss the potential for conflict intrinsic to the founding principle of the internet. If, on the one hand, the internet, as was conceived by Tim Berners-Lee¹, should uphold the principles of freedom, equality and transparency regarding point to point connections, on the other, the logic of economic action and the specific interests of operators, foster pressure to create discrimination forms of its own use. How should the internet be in the future? What about the role of regulating authorities? Should these promote the imposition of net neutrality or discrimination control? Is there or has there ever been neutrality on the net? In the present paper we approach these issues through the analysis of the main conditions of each type of strategy: net neutrality or controlled discrimination.

Keywords - *neutrality; network; technology; internet*

¹ Tim Berners-Lee “wrote the first World Wide Web server, “http”, and the first client, “WorldWideWeb” a what-you-see-is-what-you-get hypertext browser/editor which ran in the NeXTStep environment. This work was started in October 1990, and the program “WorldWideWeb” first made available within CERN in December, and on the Internet at large in the summer of 199”
(<http://www.w3.org/People/Berners-Lee/Longer.html>).

“The fact that resources are scarce is just a stimulus to imagination, creativity, ingenuity and art” [1]

I. INTRODUCTION

In the past year the worldwide debate around the rights and duties regarding internet use and management as well as the consequences of the existence, or lack thereof, of net neutrality has increased. In the United States of America (USA) the discussion revolves around the legitimacy of the regulating body, the *Federal Communications Commission* (FCC), to create regulations and impose sanctions in innovative areas with high risks of various natures, as is the case of the defence of net neutrality. In Brazil, the Secretary of Legislative Affairs of the Ministry of Justice had developed a portal where it placed under discussion a bill which aims to regulate the rights and responsibilities regarding the use of digital media. In the European Union (EU), the debate concerning net neutrality and the issues inherent to competition regulation and control is in public hearing until 30 September 2010.

Any regulation on the use of digital media as a form of preserving “net neutrality” should ensure that the core values of the Internet and its social use are preserved, in other words it should eliminate market flaws without giving rise to regulation flaws. Hence, its unquestionable complexity. Legal, practical and business considerations are brought face to face with issues of public interest. The

discussion highlights the setting of intervention limits in the holders of the physical structure and service providers so as to ensure that forms of discrimination regarding access and contents are minimized.

II. THE DEBATE ON NEUTRALITY

The internet, as conceived by Tim Berners-Lee, should uphold the principles of freedom, equality and transparency as regards point to point connections, where the telecommunication service providers (TSP) and the service and digital contents providers (SDCP) act from a merely business perspective and do not discriminate in any way information communications, access to knowledge and innovation, copyrights or freedom of speech. Internet neutrality, or net neutrality, as a concept, implies that both access to and contents on the Internet should be treated equally by service providers without any form of discrimination.

Clarke [4] defines net neutrality as the need for TSPs and SDCPs to treat data packets which travel on the net, regardless of their content, origin or destination.

Advocates of net neutrality defend that it was the principles inherent to the implementation of the neutral open internet that allowed the creation of new business processes, and it is virtually possible to compete on equal terms, regardless of the financial dimension of each participant on the net. They defend that, besides blurring geographic and economic barriers, a neutral internet fosters creativity and innovation.

Nevertheless, there are those who defend that imposing legislation which limits discrimination on the part of service providers may condition value increases made possible by those same discrimination strategies. Farber and Katz [2] defend traffic management resorting to discrimination

strategies by packet priorities, claiming it makes sense that in situations of traffic congestion priority be given to packets which concern say the monitor of a cardiac patient over music download traffic. These authors also highlight the need for TSP to restrict harmful traffic, such as virus, worms and spam.

Also Ganley and Allgrove [3] centre the net neutrality debate on the discussion of TSPs discriminating data packets that travel on their infrastructures by political-business motives as opposed to reasons that involve managing the performance of these infrastructures.

Following the argument of these authors, discrimination is a reality, and the discussion focuses on how discrimination is made. This argument confirms our opinion and answers the question of whether there ever was neutrality on the net. In fact, the utopian ideology of total net neutrality is just an anachronism, and one can identify several forms of discrimination to the "net neutrality" dogma ever since its inception.

The only ways of introducing discrimination in the freedom of access to the net must therefore be designed on tools with a strong legal base, at the level of the very founding Treaties of the European Union, whose norms from Rome (1957) to Lisbon (2009) have remained constant: in this issue two areas become prominent, that of freedom of content circulation and that of freedom of competition.

As regards the former only reasons of public order, public safety and public health can justify any derogation to the freedom of access and mobility.

As regards the latter, in order to design any controlled discrimination a justification of the positive economic balance would have to be constructed using the tests envisaged in Article 101 (3) of the Lisbon Treaty.

III. DISCRIMINATION – TYPES AND EVIDENCE

Many are the known cases that reveal the practice of discrimination and violation of this concept of neutrality. We consider that there is discrimination every time a particular traffic or user is treated differently from others.

From the differences between places as for the technical solutions made available to access networks to the technical-commercial limitations in their use, such as for instance the bandwidth asymmetry provided by operators, where upload speeds are evidently disproportionate vis-à-vis download speeds, or even the differentiation in transmission speed according to the type of traffic, giving priority to some types of information, many are the cases mentioned which reveal the practice of acts of discrimination by TSPs and SDCPs.

Although regulation methodologies have become tighter in electronic communications and in the debate on the advantages of implementing regulation measures to preserve net neutrality, many are the cases of discrimination considered necessary, and which we can call positive discrimination:

- Security and privacy – verifying and filtering data packets in order to neutralize virus, spyware, malware or spam;
- Redirecting traffic by temporary inoperability of a particular server or node;
- Managing a scarce resource by managing different levels of service quality and price;
- Applying measures to control traffic based on the need to inspect the legality of contents.

On the pretext that it is necessary to implement mechanisms capable of controlling growing overload phenomena of the dimensions of existing networks (bandwidths),

technologies were developed to control and inspect data packets which circulate on the net, such as for instance the Deep Packet Inspection (DPI) technology. This technology allows service providers to inspect networks and block malicious applications and data packets, essentially sent by multiple net-connected spam and virus servers, which besides endangering consumers' use also promote the quick depletion of existing bandwidths.

If, on the one hand, this is evidently a useful and socially accepted technology, since it fosters "positive policing" of available contents, on the other hand, it raises questions regarding impartiality and transparency in the use TSPs and SDCPs make of this type of technologies. Issues such as violation of privacy are added to debate on neutrality. Another area of questions, such as the use of this type of technologies by service providers to discriminate particular contents over others is at the core of the present discussion on net neutrality.

The inspection and prioritization of contents according to their type (emails, P2P, VOIP, IPTV, etc.) raise the discussion to the level of the ethical, sociological and legal authority of such practices by the involved parties. The decision as to which contents may enjoy priority over the remainder and also the potential blocking of particular contents due to the widest range of interests, such as business or anti-competitive interests, fuel the worldwide discussion on the need to implement regulation policies on operators.

This kind of anti-competitive practices will be more evident in markets where the operators enjoy a monopolistic position. It is admissible that such practices will be least considered in markets where there is a diversified supply, and the supply-demand market rules are in operation. There are many authors who defend that it is preferable to focus the efforts on achieving incentives and

investment for promoting competitiveness in markets where there is none.

Is there then an effective need to implement better regulation on the operators so as to promote higher net neutrality? Are such policies true advantages in the future development of the Internet? What measures can be taken in order to ensure healthy growth of the Internet of the future?

Considering that the answer to these questions should be the object of deeper studies on the intensity of the repercussions of the different measures and/or strategies, we cannot help but provide our contribution in the guise of a manifest on some of the issues that condition the present debate on net neutrality.

IV. THE FUTURE OF THE INTERNET - MANIFEST

Every sector has, at its start, unregulated ways of acting where the economic dimension of the markets requires regulation so as to ensure equality rights. Thus, achieving neutrality goals implies that regulation frameworks be set which will allow an activity representing today significant forms of economic and social integration to be controlled. Maybe for lack of intervention and regulation, modern economies have been faced with the loss caused by an excess of *laissez faire* in financial markets. Thus, we believe it is pertinent to create ways of regulating the digital market, creating, on the one hand, ways to control the actions of economic agents and, on the other, fostering forms of equality regarding the availability of services, which tend to promote the principles of neutrality. But what would be the main measures to be adopted for the internet of the future? We leave below, in the form of a manifest, some of the issues that should be taken into account in the multiple consultations that are currently underway all over the world:

A. Digital gap

The technological gap, whether between more and less developed societies, or between urban and rural regions, does not allow us to continue to classify the internet as open or neutral. The main concern of world economies should focus on this topic.

In this field, the EU seems determined to move forward, by means of innovative commitments, achieving syntheses between the new technological potential and the set of rights, freedoms and guarantees that are part of its civilization heritage. Initially by the i2010 initiative, and now with Europe 2020, it has been fostering synergies with a view to defining political guidelines for the information, knowledge and media society, through three priority goals: "creating a single European information space; reinforcing innovation and research funding in the area of information and communication technologies (ICT); and promoting an inclusive information and media society" [5].

In May 2010, the European Commission (EC) presented a new digital agenda for Europe, under the title "*Defining a new Digital Agenda for Europe: from i2010 to digital.eu*" (INI/2009/2225). Among its objectives, as referred in item 2 of the report dated 25 March 2010 in the motion for a European Parliament resolution, "the importance of continuing efforts towards ubiquitous and high-speed access to fixed and mobile broadband for all citizens and consumers, including by safeguarding competition to the benefit of consumers; [it] emphasizes that this requires targeted policies that promote competition and efficient investment and innovation in new and enhanced access infrastructures and consumer choice in delivering access, on fair terms and at competitive prices for all citizens, irrespective of location, thereby ensuring that no European citizen faces exclusion" [6].

B. Legislation

The growing pressure towards creating specific legislation that will regulate actions in the virtual world is considered by many legal experts as nonsensical and unnecessary. They claim that "little is not covered by the present legislation" [7]. The Brazilian lawyer Amaro Moraes e Silva Neto, when questioned about the construction of a "regulation framework" within the context of the public hearing on neutrality conducted in Brazil, is adamant when he states that "the internet has not created new legal possessions to be protected, it is merely a new technological medium. What is forbidden in the physical world is also forbidden in the virtual world" [8].

Although apparently clear-cut, the issue is far from being as simple as this kind of discourse seems to make it. In fact, nowadays, when it comes to the Internet, we face old crimes committed in a different manner (the *modus operandi* changes), at the same time that we find ourselves before a new kind of criminality, computer criminality and cyber criminality, impacting new social values.

We thus witness, for instance, cases where the internaut, violating the digital security system, encourages the usurpation of personal data by computer media.

We draw attention, by way of example, to Law nº 109/91, of 17/08 (law of computer criminality), which creates the following crimes: computer falsehood, damage regarding computer data or software, computer sabotage, illegitimate access, illegitimate interception, and illegitimate reproduction of protected software.

As regards the penal code, we can mention, for instance, article 193 (computer trespassing) and 221 (computer and telecommunications fraud).

On the other hand, there are also criminal types which, not having been legislated as

such, must cover computer and internet situations, by reason of present-day interpretation (articles 153 - threat; 172 - child molestation; 180 - slander).

Published more recently, Law nº 109/2009, adapts internal law to the Convention on Cybercrime of the Council of Europe.

Regulation which promotes the defense of the internauts' rights is therefore considered necessary, in the right measure, provided it is designed so as not to limit the creative ability of the parties involved.

C. Market

The practice of anti-competitive actions, such as negative discrimination and content blocking, becomes more evident in markets where the operators enjoy significant market leverage.

It is up to the governments to control abuse of the dominant position by operators, and these actions are punishable by the legislation applicable in each of the States. In the Portuguese case, these practices are punishable under article 102 of the Treaty on the Functioning of the European Union (TFEU) and article 6 of Law nº 18/2003, of 11 June, of the Competition Legal Regime. It is also governments' task to promote conditions and incentives to the entry of new competitors and to encourage the energizing of the sector. In the case of the EU, the legislation which regulates the sector of the networks and electronic communications services is established in Directives 2009/136/CE and 2009/140/CE of the European Parliament and of the Council of 25 e November 2009.

Also in the EU, a consulting group was recently created, the Body of European Regulators for Electronic Communications (BEREC), composed by the representatives of National Regulatory Authorities (NRA). Its main goals are to prepare and disseminate regulatory best practices, prepare expert

opinions and monitoring reports on the European electronic communications sector and to assist the NRAs, the European Commission and the European Parliament.

The EU's initiatives in the area of the regulatory package on the electronic communications sector encourage not only the achieving of competitive markets, main and true factor for implementing a more neutral and transparent internet, giving the consumer alternatives and the right to choose [9], but also innovation dynamics through increasing implementation of coordinated R&D strategies, with the participation of suppliers, authorities and universities, organized in technology consortiums, clusters and parks.

D. Service rendered

Authorities should strive to impose regulation which forces the TSP to promote the services they offer in a transparent manner. Thus the future of the internet will involve making services available through which users contract levels of service quality as opposed to today's models, where packages of services are advertised on the basis of maximum speeds that can seldom be achieved. The discussion on net neutrality does not focus on the different price rates, according to the quality of the service provided, since the consumer-payer principle is naturally accepted.

The incentives planned in the recent EU initiatives to achieve a European sector for electronic communications where there are market conditions for effective competition allows the promotion of differentiated offers by service quality level where transparency policies are imposed so that service providers be forced to present clearly and transparently the conditions of priority and blocking, minimum guaranteed speed, maximum expected speed, as well as price structures and plans according to the services

contracted. This line of reasoning is corroborated by the Universal Service Directive (USD) of the EU. This directive in the revised version of nº 5 of Article 20 and nº 3 of Article 22 proposes measures to reinforce the protection of end users' interests and right to information regarding any limitation in access to services which are lawful and to the specification of the minimum quality of services, so as to prevent them from degradation.

When it is momentarily impossible to increase bandwidth capabilities, moments of congestion should be managed by resorting to "discrimination by need", where depending on conditions previously announced, service providers prioritize contents sensitivity to latency, such as video and sound services. Authorities should encourage the supervision of "active discrimination" practices, in other words, when providers use discrimination whether there is congestion or not.

Many authors propose that the internet be restructured by service layers with different levels of control, service quality and price. A layer-modelled internet structure would allow higher levels of neutrality to be ensured in certain layers, dedicated to such contents as personal and business web pages, blogs and emails, and another type of layers where the latency of their contents would allow higher levels of discrimination, such as for instance IPTV or VOIP services.

E. Control mechanisms

National authorities should promote the development of tools to monitor levels of service quality practiced by operators, as well as form panels to evaluate and supervise constantly the discrimination policies practiced by service providers. Besides the imposition of sanctions over unlawful practices, an informative portal on market conditions should be created, where using multiple indicators consumers may be able to

take conscious decisions and the service providers may promote best practices. In this portal, such indicators as efficiency barometers, discrimination levels, and service quality levels should be highlighted as well as different rankings of service providers. All stakeholders should be invited to participate in the definition of indicators to be considered.

CONCLUSIONS

Far from being peaceful, the debate around net neutrality fosters today conflicting positions from the different stakeholders as to how internet working should be considered in the future. On one hand, the banners of ideological neutrality and net openness are brandished. On the other, the paradigm of competition laws is defended as promoting agent of a natural development with no need for additional regulation. Regarding this issue, it is important to keep a holistic view which allows us to derive from it perspectives for future evolution, rational and balanced perspectives. On this topic, we emphasize that "conflicts, as antinomy of perspectives, are sources of innovation, of new ideas, of new capabilities so that we can be more competent" [1].

The internet has encouraged a change in the habits of its users, innovation in manufacturing processes and the rise of new forms of innovation. Changes inherent to the nature and evolution of the internet have conditioned how the definition of net neutrality should be seen. The principle of "net neutrality" as originally idealized does not exist. Without moving into demagogy, and based on what was stated above, it is important to highlight that the discussion on net neutrality is centred on the implementation of strategies that will allow greater equality, transparency and justice in the use of the means made available by the internet.

Thus, the main debate involves the legitimacy of TSPs discriminating contents transported on their infrastructures. If, on the one hand, the exponential increase in internet use causes congestion of the networks, promoting the discussion as to how best manage content traffic, on the other hand the growing availability of new types of contents sensitive to response times and available bandwidth, fosters the need to ensure the affectivity of their transport using differentiation techniques.

Given the pressing evaluation issues regarding net capacity and congestion control, two types of strategies come face to face:

- 1) To promote the creation of specific legislation which allow control of the capacity for action of service providers, preventing discrimination and traffic prioritization on the internet, defending the implementation of net neutrality paradigms;
- 2) To implement "controlled discrimination" policies, where the NRAs play a policing role of the TSPs and the SDCPs' activities so as to ensure the highest possible degree of neutrality.

In our opinion, as has been mentioned throughout this paper, it seems that the solution will involve the latter alternative. Nevertheless it will be necessary to ensure various complementary aspects discussed above in the form of manifest, such as for instance, the need for authorities to strive to achieve truly competitive markets so as to minimize anti-competitive practices on part of market players and thus ensure approximations to the principles of neutrality, without conditioning the creative freedom to construct business models on the part of service providers, by imposing specific legislative models.

This goal should take into account that the market has two sides, and the supply end should not be exacerbated, since this will always be conditioned by the motivation of demand. Thus, the future of the internet is naturally conditioned by the investments that TSPs make in increasing the infrastructure and by the investments that SDCPs make in improving the quality and format of their contents, prompted by the attracting capabilities of interest on the demand side.

There are many other concerns regarding the debate on net neutrality which have not been dealt with in this paper, but which will be the object of future discussion in similar reflection documents, among which bandwidth differences, privacy, data protection or technological architecture issues.

REFERENCES

- [1] Rodrigues, Eduardo Lopes. Newsletter do ISCSP - Nº 6 - April 2009. ISCSP. [Online] 2009. [Citation: 11 July 2010.] http://www2.iscsp.utl.pt/archive/doc/Entrevista_Eduardo_Lopes_Rodrigues.pdf.
- [2] Farber, David e Katz, Maichael. Hold Off On Net Neutrality. The washington Post. [Online] 19 de Janeiro de 2007. [Access: 11 July 2010.] <http://www.washingtonpost.com/wp-dyn/content/article/2007/01/18/AR2007011801508.html>.
- [3] Ganley, Paul and Allgrove, Ben. Net Neutrality Debate. Computers & Law, Vol. 17, No. 3. 2006.
- [4] Clarke, Luvisha. Definition - Net Neutrality - An Objective Simple Look at What is Net Neutrality. ezinearticles. [Online] 28 October 2009. [Access: 11 July 2010.] <http://ezinearticles.com/?Definition---Net-Neutrality---An-Objective-Simple-Look-at-What-is-Net-Neutrality&id=3168252>.
- [5] UE. i2010: a sociedade da informação e os media ao serviço do crescimento e do emprego. Europa - Sínteses da legislação da UE. [Online] 09 December 2009. [Access: 12 July 2010.] http://europa.eu/legislation_summaries/information_society/c11328_pt.htm.
- [6] PE, Parlamento Europeu. Processo: 2009/2225(INI). Parlamento Europeu. [Online] 25 March 2010. [Access: 12 Julho 2010.] <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A7-2010-0066+0+DOC+XML+V0//PT>.
- [7] Kaminski, Omar. Marco civil da internet - Advogados questionam necessidade de lei para regular a web. Jornal da Ordem, nº 139 - May 2010. [Online] 2010. [Access: 11 July 2010.] nº 139. <http://www.oabpr.org.br/imagens/jornal/artigos/41.pdf>.
- [8] Neto, Amaro Moraes e Silva. Interview - Amaro Moraes and Silva Neto. Jornal da Ordem, nº 139 - May 2010. [Online] 2010. [Access: 11 July 2010.] <http://www.oabpr.org.br/imagens/jornal/artigos/41.pdf>.
- [9] CE, Comissão Europeia. Europe 2020. European Commission. [Online] 2010. [Access: 7 July 2010.] http://ec.europa.eu/eu2020/index_en.htm.