

FREE INTERNET PROGRAMS: CONCEPTS, CONTROVERSIES AND UNCERTAINTIES

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INTRODUCTION

Debates on several themes involving the Internet and its governance have gained importance for public policies in Brazil and the world in general. These themes have gradually obtained notoriety, with intensification of public debates in specific conjunctures. Three main events can be mentioned at the global level: (1) in 2013, the Snowden case and the revelations of global surveillance promoted by the National Security Agency (NSA) of the United States⁵; (2) the reaction of Brazilian President Dilma Rousseff to this situation at the opening of the General Assembly of the United Nations in 2013, when she condemned the NSA actions and invited countries to discuss necessary and desirable reforms in Internet governance, at an event to be hosted by Brazil; and (3) the response of the entities in charge of coordinating critical global Internet resources; this led to the Montevideo statement⁶, which recognized the necessity of dissociating Internet root operation from supervision by the U.S. Department of Commerce.

As result of this situation, the Global Multistakeholder Meeting on the Future of Internet Governance (NETmundial) was held in April 2014⁷ in Brazil, with the participation of representatives from many countries; the goals were to debate and define guidelines for the global Internet evolution. Because of the events of 2013, especially considering the Brazilian reaction and complaints from the technical communities involved in Internet

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⁵ In 2013, Edward Snowden, a former computer contractor for the NSA, revealed details about global surveillance being carried out on American citizens and international authorities, including Brazilian President Dilma Rousseff and German Chancellor Angela Merkel. The files he leaked were posted on: <<https://www.theguardian.com/us-news/the-nsa-files>>. Accessed on: Aug 16, 2016.

⁶ The Montevideo Statement: <<https://www.icann.org/news/announcement-2013-10-07-en>>. Accessed on: June 10, 2016.

⁷ The NETmundial meeting: <<http://netmundial.br/pt/about/>>. Accessed on: Aug 17, 2016.

operation, the US government began to transfer the control that it historically had exerted over the Internet DNS (Domain Name System)⁸ to the global community, a process called IANA Stewardship Transition (ICANN, 2016). At the opening of the NETmundial, President Rousseff very meaningfully approved Law 12.965 (BRAZIL, 2014), the Brazilian Civil Rights Framework for the Internet (*Marco Civil da Internet*)⁹. It was an important achievement for Brazilian society and has been one of the most important results to the global Internet governance in the last several years (WAGNER; CANABARRO, 2014).

The Brazilian Civil Rights Framework for the Internet is like an “Internet Constitution” in Brazil, overseeing principles, guarantees, rights and duties for Internet use in the country. One of the controversial topics addressed by this law is the net neutrality principle, which states that all data on the Internet should receive isonomic treatment (Article 9), an issue that polarizes public debate. Besides technical issues, such as deployment parameters, cases of discrimination and traffic degradation accepted by law – one of the most underlying disputes regarding this theme – as well as measurement methods and accountability of net operators in the country, the theme involves the following broader considerations: operational boundaries of government organizations and private actors regarding Internet use by the society; the relationship of the Brazilian Civil Rights Framework for the Internet with the rest of the Brazilian laws, and the type of digital inclusion that is intended to the country.

This article presents the efforts of its authors to synthesize their individual and collective reflections – from their academic and scientific backgrounds – on the field of Internet governance. More specifically, it addresses the practice of zero rating, which is the implementation of free programs that exempt end users from charges for specific data traffic on the Internet. These programs are usually part of Internet access plans offered via mobile networks in contexts where limited data cap models prevail, in which users are charged according to the volume of data they consume. Debates on zero rating have become more frequent, regarding several issues that include net neutrality in a more restricted way, as well as broader topics like privacy and competition law. However, zero rating is frequently linked with debates on net neutrality, a relationship that is explored in this article. This research involved a literature review, document analysis, and remote and in-person participation in several events and discussion and deliberation processes about this subject in Brazil and worldwide (events of the Brazilian Internet Steering Committee [CGI.br], public hearings of the National Congress of Brazil, and regular meetings of the U.N. Internet Governance Forum, among others).

For a better understanding of this situation, “net” in this article refers to the Internet, which is considered in Brazil a “value-added service” (VAS), supported by a physical telecommunications structure (BRAZIL, 1995; BRAZIL, 1997). It is a very specific concept in the Brazilian regulation model, and it is critical for understanding the several nuances involved in the broader debate.

The section below presents a brief and non-exhaustive discussion of net neutrality concept. Then, zero rating and limited data caps are addressed. Based on this, the article provides

⁸ An overview of the DNS monitoring power of the U.S. is presented at: <<https://www.ntia.doc.gov/category/iana-functions>>. Accessed on: June 10, 2016.

⁹ Lemos (2015) presents an account of the development process for the Brazilian Civil Rights Framework for the Internet.

a more detailed description of these practices and discusses related challenges, benefits, and damages. Finally, some critical aspects to be taken into account when considering this subject in the Brazilian context are highlighted.

NET NEUTRALITY

Net neutrality is the principle that all Internet traffic should be treated the same way. On this topic, the Decalogue of Principles of CGI.br states: “Filtering or traffic privileges must meet ethical and technical criteria only, in which any political, commercial religious and cultural reasons or any other form of discrimination or preferential treatment is not admissible” (CGI.br, 2009). Also, Law 12.965/2014, the Brazilian Civil Rights Framework for the Internet, clearly states: “The party responsible for transmission, switching or routing has the duty to process, on an isonomic basis, any data packages, regardless of content, origin and destination, service, terminal or application.”

The theme of net neutrality has been analyzed by a number of researchers worldwide (WU, 2003; SCHEWICK, 2015; MARSDEN, 2010; YOO, 2013)¹⁰. It has increasingly been the central element of policy reports from different locations (MARCUS, 2014; OFCOM, 2015) and many investigations on data traffic monitoring tools¹¹. The controversial character of net neutrality implies a highly multifaceted debate, with intense conceptual disputes concerning the best definition of this principle. It is a debate that involves researchers, politicians, entrepreneurs, technicians, and several third-sector entities that publicly take a stance in these discussions. In this article, net neutrality is addressed as a fundamental concept that applies balanced data traffic principles to different types of Internet users (both individuals or corporate), based on the parameters set out in the Brazilian Civil Rights Framework for the Internet and the Decalogue of CGI.br.

Net neutrality is a principle that guides computer network designs. A neutral network does not favor one application over others (WU, 2003). The idea is that a useful public information network should treat all content, websites and platforms equally (WU, n.d.). This means, for example, that a data pack with video content should not be sent at a slower speed than an email data pack, and content from one social network (such as Facebook) should not have any privilege related to data traffic over content from another social network (such as Twitter).

Researches on computer network architecture and functionality posit that neutrality derives from (and incorporates) the end-to-end principle. The end-to-end notion states that specific

¹⁰ Important names currently related to this debate are: American researcher Tim Wu, who created the expression “network neutrality” in 2003; professor of law and computer scientist; Barbara van Schewick of Stanford University, one of the most important academicians involved in defining the ideal setting for regulations related to net neutrality that will ensure the potential for innovation on the Internet; Christopher Marsden, professor at the University of Sussex in the U.K., who has been the main European expert in this debate, emphasizing the coordination of actions by public and private bodies for practical implementation of net neutrality; and Christopher S. Yoo of the Law School of the University of Pennsylvania, who takes a more liberal and economic approach and has more critical opinions regarding the desirability of regulatory actions for net neutrality.

¹¹ Neutrality has also been the theme of studies on network measurement systems that can be used as indicators of a neutral Internet, such as Glasnost, a tool that compares the performance of different flows across the network coming from different applications: <<http://www.measurementlab.net/tools/glasnost>>.

functions of applications should lie in net terminal nodes, not intermediate nodes (WU, n.d.). This relationship was detailed by Lemley and Lessig (2000), who proposed that the net should be “as simple and general as possible.” With single-core and limited functionality, and intelligence placed at the ends connected through this core, innovation occurs freely and more dynamically.

Lemley and Lessig (2000) stated that although at first, end-to-end implementation was adopted because of technical demands of network operation, social and economic competitiveness features have become inherent to increasing use of the Internet, and are seen differently by the various actors that make up the Internet ecosystem. A neutral Internet has benefits such as: greater incentives for innovation through the creation of disruptive applications and new network technologies, compared to a closed architecture; the possibility of competition among new entrants and consolidated companies, in the area of applications or provision of Internet access; and access to any service that users want without extra payment to connection providers. In addition, as stated by Schewick (2015), “Net neutrality rules aim to (...) preserve the Internet’s ability to improve democratic discourse, facilitate political action and organization and to provide a decentralized environment for social, cultural and political interaction in which anyone can participate.”

ZERO RATING, LIMITED DATA CAPS AND INTERNET ACCESS

Zero rating occurs when Internet service providers exempt some services, applications or specific websites from limited data caps. Another practice, known as “sponsored data,” is when the application owner pays the connection provider directly for data use by users, so that they are not charged for the traffic in question. These practices are common, because of liberality of operators in their business strategies or specific agreements between Internet service providers and application, content and service providers.

Today, the most famous examples of these practices are those of free Internet access to social networks, like Facebook and Twitter, and messaging applications like WhatsApp, when on mobile networks, in the category of sponsored access, with limited data traffic. Other examples are access to public services (e-government applications and services, for example) and applications from connection providers themselves, in cases of commercial activity verticalization in the same actor or economic group (an Internet service provider is also a provider of content and applications). In the latter case, zero rating is applied to its own services, on its own network.¹²

Among other reasons, zero rating emerges as a market strategy for Internet service providers to attract and retain consumers who purchase limited Internet access mobile plans. This strategy is attractive because of its limited data caps¹³ on mobile Internet plans, and it is created based on the alleged insufficiency of existing physical infrastructure to meet the

¹² Like Binge On, offered the American operator T-Mobile: <<http://www.t-mobile.com/offer/binge-on-streaming-video.html>>. Accessed on June 10, 2016.

¹³ More information at: <<https://www.publicknowledge.org/issues/data-caps>>.

needs of Internet evolution and those of increasing number of users and data traffic¹⁴. This limitation is justified by providers as a mechanism to rationalize infrastructure use and, consequently, reduce Internet access costs to end users.

The data cap model is older than zero rating practice, but both these practices exist in free Internet programs. In this context, there are many questions related to Internet organization, conditions of service provision, and regulatory solutions to be adopted (which interfaces with the theme of net neutrality). There is no consensus that zero rating and data caps are topics to be addressed within the scope of net neutrality regulations, since in a strictly technical sense, discrimination of data packs and traffic degradation are not always considered necessary in the implementation of free access models. However, since such elements are likely to be present, the subject can be addressed from the perspective of neutrality. In addition, from a broader socioeconomic and legal perspective, the purpose of a regime of neutrality protection is not limited to the integrity of network technical operation, but is also – and mainly – related to non-creation of unequal conditions for Internet use by different users. Many countries apply their neutrality rules to zero rating cases. In Brazil, there is no clear definition of this subject¹⁵.

To understand zero rating, one should first understand how the limited data cap model works. Despite some controversy, it has been implemented in several countries, in Internet access via mobile technologies or fixed connection. In general, Kehl and Lucey (2015) define data caps as limits on how much data an individual customer – or a group of customers on a shared data plan – can receive or send in a given billing period. For Public Knowledge¹⁶, data caps are limits applied to monthly data that can be used in Internet connections; when users reach these limits, they are subject to different actions, such as reduced traffic speed, extra charges or suspended connections.

Zero rating and limited data caps reinforce each other. When selling low data caps in a context of increasing demand for data, Internet service providers encourage users to favor free apps and purchase plans with higher data caps. This ends up encouraging app providers to start purchasing zero rating services to offer free services to users.

Data caps represent limits imposed on users that make it difficult or impossible to use certain applications (or groups of applications). This type of obstacle involving data caps generates a direct effect on Internet use profiles. As users become interested in disseminating information through social media and various apps, they gladly accept zero rating offerings, hoping to find a solution that allows free use of services and apps available on the Internet. According to Rossini and Moore (2015), this practice is “harmful,” because of its “effect on user’s behavior.”

¹⁴ An overview of data consumption evolution by individual and corporate users of the Internet in Brazil can be obtained through statistics on Internet exchange points from the Brazilian Network Information Center (NIC.br): <<http://ix.br/>>.

¹⁵ Decree 8.771/2016 was published on May 11, 2016; it regulates the Brazilian Civil Rights Framework for the Internet. Available at: <http://www.planalto.gov.br/CCIVIL_03/_Ato2015-2018/2016/Decreto/D8771.htm>. Right after it was published by the Federal Official Gazette of Brazil, a broad debate began on the interpretation of several portions of the Decree. One refers to commercial agreements between service providers and app, content and service providers. The focus is now on aligning understandings about limitations that will be imposed on such agreements. There is no consensus as to whether prohibitions due to this decree will have an impact on zero rating and similar agreements. Since it is a recent and changing decree, this study will not address it deeply.

¹⁶ More information on: <<https://www.publicknowledge.org/>>. Accessed on June 10, 2016.

An assessment of data produced by the Regional Center for Studies on the Development of the Information Society (Cetic.br)¹⁷ about “activities carried out on the Internet” showed a trend of increasing use of apps that consume more bandwidth (CGI.br, 2015). Three activity groups can be highlighted: the first refers to activities with low bandwidth consumption, that is, activities like sending e-mails and text messages; the second includes activities related to looking up information and accessing social networks; and the third represents activities with high bandwidth consumption, like for watching movies and videos, blog development and making calls via the Internet. In summary, low bandwidth activities are losing their user base, while the proportion of users performing high bandwidth activities is increasing.

This situation highlights a conflict between the desires of users and the evolution of service provision, primarily in terms of the size of data caps provided in data plans. Some researchers assert that the data cap model itself affects net neutrality, through an indirect impact on the type of content consumption by end users. Marsden (2016) said that data caps are “at best a blunt weapon for handling congestion, though there is little argument that data caps per se do not infringe net neutrality.”

For example, one specific case is zero rating service offered when a user has no active data cap. Some stakeholders maintain that this situation violates net neutrality, since using zero rated apps whose Internet access is blocked because the data cap limit has been reached would represent a clear block to other Internet websites, which would constitute an infringement of the net neutrality principle. However, mobile access operators have partially resolved this issue, as most have already adopted a business model that allows zero rating services only for users who subscribed to data plans¹⁸. That is, users have free access (zero rating) to specific apps only with valid data caps. This model has been used in Brazil and Chile (MARSDEN, 2016)¹⁹.

THE BRAZILIAN CONTEXT: STRUCTURAL ASPECTS

The data cap business model is widely used by operators that provide Internet connections in the personal mobile service market. In Brazil, it is characterized by relatively low data caps, based on cost-benefit analyses or restricted assessments of data caps in relation to increasing Internet use, or data volume consumed by the main apps; therefore, users have a number of restrictions in mobile Internet use in the country.

¹⁷ Cetic.br was created in 2005 to monitor the adoption of information and communication technologies (ICT) in Brazil. Data from the ICT Households 2014 survey.

¹⁸ Example from mobile operator Claro, which offers zero rating services only with active data caps: <<http://www.claro.com.br/infodadospos>>. Example from mobile operator TIM, which does not offer zero rating services without an active data cap: “7 – What happens if the customer reaches his Internet data limit offered in the plan (500MB or 1GB or 1.5GB)? When the monthly data plan is reached, the customer will have his data connection blocked, except for the app WhatsApp, for which the connection will remain free until the limit of 100 MB daily for this app is reached.” FAQ: <<http://www.tim.com.br/sp/para-voce/atendimento/perguntas-frequentes/planos-controle/tim-controle->>.

¹⁹ Another case worth mentioning is that India implemented prohibition of zero rating services through its regulatory agency. cf. Santos (2016).

It is important to consider that, although the data cap model is focused on personal mobile services, data cap practices are also applied in the provision of fixed Internet access which, in general, is less common and has caused less controversy among consumers. However, it should be noted that this scenario has changed in Brazil, with a clear movement of large service providers towards the consolidation of limited data caps in fixed connections, which could attract zero rating practices to this access category. This scenario reinforces the need for broader debate and engagement of civil society with regulatory bodies and legislators to ensure guarantees and protections to users.

Regarding implementation, one of the most important discourses that support the model of data caps in Brazil is precisely the problem of infrastructure. The most common argument for legitimize sales through data caps (and even low data caps) is that deficits in the physical infrastructure and presence of the Internet in the country do not allow unrestricted use by users due to possible network collapse. Even though it is a relevant issue, this discussion has several other elements that should be taken into account, and needs more explicit evidence of a direct relation between data caps and traffic rationalization.

Data from the ICT Households 2014 survey make it possible to observe an increase in Internet users in Brazil. In 2005, data from Cetic.br showed that 24% of Brazilians said they had used the Internet at least once in the three months prior to the interview. In 2014, the proportion of users had increased to 55% of the population, that is, more than double. Considering population projections, the country gained about 21 million new Internet users during the last decade. Despite this remarkable increase, the growth of Internet use in Brazil has remained within the international average. In 2005, Brazil occupied the 82nd position among 193 member countries of the United Nations, according to data from the International Telecommunication Union (ITU)²⁰. In 2014, the country was 81st, suggesting that the growth in Internet users in the country has been stable in relation to the average international rate.

Regarding mobile Internet access, progress has been faster. Data from Cetic.br showed a stable proportion of Internet users via mobile telephones between 2005 and 2008. During the first four years after the first study was conducted, the proportion of users via mobile telephones remained between 5% and 6%. Between 2009 and 2014, the use of mobile Internet showed a significant increase, reaching 47% of the Brazilian population. And it is exactly in this Internet use category that data cap models were consolidated in the country.

The infrastructure problem affects both fixed and mobile Internet access in terms of legitimization of data caps. However, it is not possible to ignore differences in the history of use of such technologies in Brazil and, most importantly, in the characteristics of the types of infrastructure and how they are technically configured. The scarcity in this area of infrastructure may be a result of several factors, not just high implementation costs and rapid increases in the number of users and online video apps. Factors such as low investment, high legislative complexity, and limited public service resources for inspection of private stakeholders, among others, may be strong determinants of insufficient infrastructure.

²⁰ More information at <<http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>>.

In 2003, Tim Wu warned of the risks of a possible inversion of economic logic in the Internet service provision sector. According to this author, economic theory suggests that the interests of Internet service providers should match the public interest in terms of building a neutral platform, with the ability to encourage innovation and supports the emergence of the best applications on the Internet. However, his study showed that network operators end up imposing significant architectural and contractual limits on certain applications. The continuing lack of investment in infrastructure is an example of imposition of structural limits. Favoring mobile Internet to the detriment of fixed Internet as a vector of access massification (rather than universalization²¹), deployed in shorter times and at lower costs, is a possible example in this context, and can consolidate the zero rating model and significantly impact the innovation environment.

POSITIVE AND NEGATIVE ASPECTS OF ZERO RATING CONSOLIDATION FOR THE INTERNET IN BRAZIL

Christopher Marsden (2016), a researcher at the University of Sussex in the United Kingdom, conducted a comparative study of zero rating regulation in many countries. The results showed that, in most countries, zero rating is considered an issue that belongs in the scope of debate about net neutrality. There were three important points in the author's discussion that are related to the arguments presented in this article. Zero rating practices exist in the context of limited data cap plans. These practices, once implemented, result in the creation of "walled gardens," reactivating a very common model for the provision of Internet services from the 1990s. Also of note is incompatibility between the conception of neutrality usually linked with zero rating practices and the practices on which regulatory action in general is based.

The practices of walled gardens are related to two distinct concepts of neutrality, one negative and one positive. "Negative" neutrality, explains Marsden (2016), is the blocking and throttling of content that threaten the business model of connection providers. According to the author, this action can have two consequences: benign in the case of blocking due to spam and viruses; and anti-competitive in the case of unjustified or unreasonable blocking of user content. "Positive" neutrality, rather than direct and deliberate blocking, is related to actions favoring the traffic of specific content to the detriment of other content that travels on the Internet (MARSDEN, 2016). In this case, walled gardens "reappear with much more "Specialized Service" walls – restrictions that affect only certain non-affiliated types of Internet traffic, such as social networks or video".

²¹ Traditionally, telecommunications services in Brazil are subject to universalization goals defined by the Presidency of the Republic that ensure a minimum service level to be met by service providers. According to the legislation in force (Law 9.472 of July 16, 1997 – the General Telecommunications Law - LGT), universalization goals should be met by services provided under the public system (in this case, fixed telephony only). Other technologies, including those supporting the Internet, operate under the private system and, for this reason, their operators prefer "massification" to "universalization" when referring to increases in the number of users, with no connection to universalization principles. However, the Decalogue of CGI.br states that "Internet access must be universal so that it becomes a tool for human and social development, thereby contributing to the formation of an inclusive and nondiscriminatory society, for the benefit of all."

Marsden argued that zero rating “is only possible when users take an ISP subscription which as a data cap, which is generally a much lower limit imposed by mobile than fixed ISPs,” The author explained that there is a perception among politicians and telecoms executives – who claim to be in favor of net neutrality – that blocking and throttling user traffic is no longer an acceptable practice. However, they focus only on “negative” neutrality, to the detriment of broader debates on practices of “positive” neutrality.

“Positive” net neutrality is a much more contested topic, and where download limits apply of ill-defined “Specialized Services” carry the zero-rated content, this concept of zero rating will be heavily contested. That is more the case with mobile than fixed networks, and also with developing nations’ mobile ISPs than developed. (MARSDEN, 2016, p. 9).

Barbara van Schewick (2014) contended that the rules of net neutrality focus on mitigation of distortions generated by the actions of some network providers, especially regarding the adoption of differentiated treatment for different applications and interference in the way users use the Internet plans they have purchased. Despite these distinctions regarding the type of discrimination used in zero rating practices, this researcher views the “discriminatory conduct” of zero rating as the same as that of traditional practices that violate the neutrality principle.

Some commenters assume that zero-rating is less harmful than technical forms of discrimination (such as slowing down or speeding up certain applications), because applications that are zero-rated continue to receive the same technical treatment as applications subject to the cap. However, while zero-rating operates slightly differently, the discriminatory effect is the same: Zero-rated applications are more attractive to users than applications that are not. (SCHEWICK, 2014, p. 1-2).

These types of actions cause direct and indirect effects on use patterns of end users, who lose some autonomy in their individual choices. Ramos (2014) explained that “sponsored data plans may appear advantageous for end-users, especially heavy users of specific applications” but can lead to negative consequences, especially in developing countries, that affect innovation, encourage market concentration and maintain technological dependency in the sector of mobile applications.

This is also the view of Kehl and Lucey (2015), especially regarding the deployment of data caps. They support the idea that data caps create “artificial scarcity,” in which only providers are benefitted, but have a detrimental effect on consumers. The authors say this practice does not promote informed decisions by users, reduces adoption and use of new online services, and undermines safety, because security updates may consume data and, for this reason, users tend to postpone them or not conduct them at all. In addition, they say data caps have a disproportionate impact on low-income and minority communities, as well as telecommuters and students.

Besides the discussions of limited infrastructure mentioned above, debates about zero rating and data caps have frequently been disseminated because of the enterprises freedom discourse to create new business models. In this sense, business models are developed to support zero rating practices, changing the argument to benefit companies: zero rating would work – besides being a tool of inclusion of new Internet users – as a driver of service diversification from connection and app providers.

The debate on business models was noticeable during discussions about the Brazilian Civil Rights Framework for the Internet, when representatives from the business sector defended wording in the law that would include explicit protection of various business models on the Internet. They claimed that, otherwise, the law would allow for interpretations that could limit the concept of neutrality, affecting innovation and the creation of new businesses on the Internet. The final law consolidated, as one of the principles that regulate Internet use in Brazil, the “freedom of business models promoted on the Internet, provided that they do not conflict with the other principles established in this law.” The Brazilian Civil Rights Framework for the Internet had already mentioned “promotion of innovation” and respect for “free initiative” and “free competition,” which made this insertion unnecessary. Even so, considering the need to manage different positions, the text was finally incorporated into the final version of the law.

An important aspect for understanding this issue is that the appeal to “freedom of business models” became a virtual “motto” for the defense of market practices in general, even when questions were strictly based on the other principles presented by the law. This is what has happened with zero rating, which is defended in absolute terms, especially from a market perspective, with arguments based on the protection of business freedom.

Zero rating has been debated globally and there is no consensus in the controversy about whether it infringes the net neutrality principle – the main argument against this practice. Discussion has basically focused on two directions: One is related more to the economic and marketing area, while the other is more related to a “technical” explanation, to legitimate either side of the debate. To a lesser extent, but no less important, zero rating is also referred to in discussions of user privacy. Various explanations support positions on questions involving zero rating, considering whether or not this infringes neutrality.

From a technical perspective, some arguments do not consider free access to social media and messaging apps as an infringement of neutrality, because this practice involves neither more deficient data transmission in the network as a whole, nor includes specific degradation in user data traffic. Furthermore, this type of service is said to be additional to the service purchased by users; then, it does not need to be discussed, because it benefits consumers. This argument characterizes the zero rating practice as “positive discrimination” – or “positive neutrality”, according to Marsden (2016) – since it is “discrimination” that supposedly benefits users, who use services “freely,” without paying for the data volume consumed, and with no impact on the remaining portion of the network.

This argument is based on several types of traffic analysis that allow classification of different types of Internet traffic and extract information that is useful for data measuring and billing. Sandvine, a company that provides technological solutions for broadband networks, presents various techniques and tools that can be used in this type of Internet traffic analysis and rating (SANDVINE, 2015a; 2015b). The company’s documents indicate that Internet traffic can be rated using various parameters, from simple lists of IP addresses and analysis of domains accessed by certain users to the installation of specific devices that identify traffic types according to data transmission technologies, protocols, apps, etc. When these techniques are implemented, operators can clearly see and manage their traffic and create new ways to capitalize on their services and meet new business demands.

Zero rating services are possible due to such techniques for traffic identification and rating, allowing network operators to rate different types of traffic differently. In this case, for example, traffic identification and rating for social media apps is what allows them to be part of zero rating programs, with traffic free of charge to users participating in such programs. According to this line of argument, it is possible to measure and bill specific data packs without affecting the sending and receiving of packs and traffic itself on the network in general. It should be noted that, despite any recurring claims that this practice does not impact the rest of the Internet usage and users, it will depend on how companies implement these techniques for traffic analysis and billing differentiation. Also in technical terms, another line of argument states that it infringes the net neutrality principle, because it involves network fragmentation. It is the walled garden practice addressed above, which questions the definition of “Internet access” itself. Here, the thematic connection is with the famous AOL²² case of the early 2000s, which allowed users to access only selected “portions” of the Internet. This example has been referred to frequently worldwide in discussions of zero rating.

This explanation is interesting, because it involves arguments useful to both supporters and detractors of this model. That is, when considering zero rating as a walled garden case, it is said to infringe net neutrality, because it fragments the Internet for end users – which contradicts the net neutrality regime proposed by the Brazilian law, which is based on the recognition of global scale and Internet openness. At the same time, precisely because this practice does not offer full “Internet access,” some emphasize the argument that it is not a “violation of Internet access neutrality,” because there is no “Internet access”; it only offers a limited group of services and apps (although they are supported by the Internet) to specific entities. But it should be noted that this argument is valid only for cases in which zero rating is implemented after purchased data caps have expired, or in more explicit walled garden cases, like Free Basics (CANABARRO, 2015; SANTOS, 2016).

From an economic perspective, the net neutrality concept expands beyond local technical treatment that is focused solely on the paths and limits of data packs. In this view, competition between different services may involve violations of net neutrality. Free access to a specific social app using a mobile phone to the detriment of other social media in the same category can be considered a case of violation of neutrality because it favors a service or provider. This “differentiated billing” system could be considered a discriminatory practice (and even an anti-competitive practice) in terms of the application scope of the neutrality principle. As stated by Schewick (2014), the “discriminatory conduct” is the same.

Here, an important example to be mentioned is from Chile. In this country, the Undersecretary of Communications prohibited this practice in May 2014, considering it a violation of net neutrality under Chilean law (CHILE, 2010). This practice would be allowed only if the operator could ensure the same conditions of service for member of “the same class,” which means that giving free access to a certain social network would force the benefit to be extended to other social media. This involves the challenge of how to rate services that are formally “from the same class,” but provided by entities of different legal nature and

²² The AOL case is described by Wu (2012).

distinct organizational and operational purposes (such as the distinction foreseen in Article 15, header of Law 12.965/2014²³ of the Brazilian Civil Rights Framework for the Internet). Yet, there is also the problem of how “application classes” can be defined, a concept for which there is no explicit consensual definition, and which is increasingly imprecise due to growing diversification of functions in certain applications (for example, applications that simultaneously operate voice, video and text).

A technical report issued by Sandvine with recommendations for large broadband providers indicated that the best way to keep transparency and parity in these relations and prevent violations of net neutrality is to create free access programs based on general application classes, avoiding exempting specific applications only (SANDVINE, 2016). It also suggested that operators should give more options for customers to choose from, or suggest preferred applications. In Brazil, this is not yet the rule. Most free access programs focus only on selected groups of applications. Notably, the most-recurring apps in free access programs in force in Brazil include Facebook and WhatsApp – the most popular applications in the country, according to the ICT Households 2014 survey – and Twitter, with increasing popularity.

However, in Brazil, any position assumed in relation to zero rating and similar practices, when linked with debates on net neutrality, must necessarily be based on Article 9 of the Brazilian Civil Rights Framework for the Internet. At first glance, this practice does not seem to be under the two exemptions for traffic discrimination permitted by the law (I – essential technical requirements essential to the adequate provision of services and applications; and II – prioritization of emergency services). Violation of net neutrality occurs in any zero rating category whenever the activity involves non-isonomic treatment of data packs in transmission, switching and/or routing operations required to perform it. Understanding of these situations should be improved. The report issued by Sandvine (2015a; 2015b) – aligned with the technical framework presented above – states that, for a zero rating program to prevent net neutrality infringement, “data free of charge should not be prioritized in the network, in actions that otherwise would be adopted for reasonable network management.”

FINAL CONSIDERATIONS

Based on the discussion presented here, it is reasonable to conclude that zero rating is a complex practice that can be analyzed from different perspectives. Besides being a simple business model – as disseminated by several players – zero rating raises important questions about Internet service provision and use in a country. It can affect essential characteristics of the Internet, such as its free and open architecture and market issues inherent to Internet economy, competition, innovation, etc., which, ultimately, are related to the question of digital inclusion in broader terms. Zero rating should not be analyzed without considering this multidimensionality.

²³ In this rule, the Brazilian Civil Rights Framework for the Internet imposes on app providers that are “created as legal entities and perform this activity in an organized, professional manner, for profit” a number of obligations not applicable to other app providers that do not fit this category.

In addition, there are a number of distinct positions in relation to this practice, which makes it difficult to resolve interests inherent to the consolidation process of public policies. A contrast can be observed between the Brazilian case and cases from other countries, such as Chile and India, where this practice has been prohibited. Besides the challenge of resolving various interests, Brazil faces the challenge of linking debates on Internet policies with the international debate, taking into account relevant experiences of other countries.

The complexity of the Internet ecosystem and the transnationality of actions from all players indicate the need to formulate public policies based on the perspective of the societies in which they will be implemented, especially considering a robust group of indicators and statistics. In this sense, the work carried out by Cetic.br for the ICT Households 2014 survey and other studies is very important, providing more and more insights for the formulation of Internet development policies, based on data that precisely represents the reality of society.

The conceptual debates described in this article about zero rating and its interface with issues related to net neutrality are necessary to understanding of the popularization of this phenomenon in Brazil and the direction this issue should take in the future. But that is not enough. Zero rating and net neutrality, besides being issues that should be analyzed under the technical and economic lenses, should be guided by the fundamental questions about political life in society: Who gets what, when, how? (LASSWELL, 1936). There is no single or static answer for these questions. Together, all possible answers define the directions for the Internet desired in Brazil.

REFERENCES

BRAZIL. Ordinance no. 148, of May 31, 1995. Approves Norm no. 004/1995 about the use of public telecommunication networks for Internet access. Available at: <<http://www.anatel.gov.br/legislacao/normas-do-mc/78-portaria-148>>. Accessed on: Jun 10, 2016.

———. Law no. 9.472, of July 16, 1997. General Telecommunication Law – LGT. Article 61. Added-Value Services. Available at: <http://www.planalto.gov.br/ccivil_03/leis/L9472.htm>. Accessed on: Jun 10, 2016.

———. Law no. 12.965, of April 23, 2014. Establishes principles, guarantees, rights and responsibilities for Internet use in Brazil. Available at: <http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2014/lei/l12965.htm>. Accessed on: Jun 10, 2016.

———. Decree no. 8.771/2016, of May 11, 2016. Establishes Law no. 12.965, April 23, 2014, to address admitted cases of data pack discrimination and traffic degradation (...). Available at: <http://www.planalto.gov.br/CCIVIL_03/_Ato2015-2018/2016/Decreto/D8771.htm>. Accessed on: Jun 10, 2016.

BRAZILIAN INTERNET STEERING COMMITTEE – CGI.br. *Principles for the governance and use of the Internet*. Resolution CGI.br/RES/2009/003/P. São Paulo: CGI.br, 2009. Available at: <<http://cgi.br/principios/>>. Accessed on: Jun 10, 2016.

———. *Survey on the Use of Information and Communication Technologies in Brazilian Households – ICT Households 2014*. Coord. Alexandre F. Barbosa. São Paulo: CGI.br, 2015. Available at: <http://www.cgi.br/media/docs/publicacoes/2/TIC_Domicilios_2014_livro_eletronico.pdf>. Accessed on: Jun 10, 2016.

CANABARRO, D. *As controvérsias em torno do projeto Internet.org*. Brazilian Internet Observatory, 2015. Available at: <<http://observatorioidainternet.br/post/as-controversias-em-torno-do-projeto-internet-org>>. Accessed on: May 13, 2016.

CHILE. Law no. 20.453, of August 18, 2010. Establishes the net neutrality principles for Internet consumers and users. Available at: <<http://www.leychile.cl/navegar?idNorma=1016570>>. Accessed on: Jun 10, 2016.

INTERNET COORPORATION FOR ASSIGNED NAMES AND NUMBERS – ICANN. *NTIA IANA Functions' Stewardship Transition*. Available at: <<https://www.icann.org/stewardship>>. Accessed on: Jun 10, 2016.

KEHL, D.; LUCEY, P. *Artificial Scarcity*. United States: Open Technology Institute, 2015. Available at: <https://static.newamerica.org/attachments/3556--129/DataCaps_Layout_Final.b37f2b8fae30416fac951dbadb20d85d.pdf>. Accessed on: Jan 4, 2016.

LASSWELL, H. D. *Politics – Who Gets What, When, How*. New York: Whittlesey House, 1936, 264 p.

LEMLEY, M. A.; LESSIG, L. The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era. *Social Science Research Network*, Rochester, NY, Oct 1 2000. Available at: <<http://papers.ssrn.com/abstract=247737>>. Accessed on: Mar 4, 2016.

LEMOES, R. Uma breve história da criação do Marco Civil. In: LUCCA, N. de; SIMÃO FILHO, A.; LIMA, C. R. P. *Direito & Internet III*. São Paulo: Quartier Latin, 2015. p. 79-100.

MARCUS, J. S. *Network Neutrality Revisited: Challenges and Responses in the EU and in the US*. Brussels: European Union, 2014. Available at: <http://www.europarl.europa.eu/RegData/etudes/STUD/2014/518751/IPOLE_STU%282014%29518751_EN.pdf>. Accessed on: Jun 10, 2016.

MARSDEN, C. T. *Net neutrality: towards a co-regulatory solution*, 2010. Available at: <<http://dx.doi.org/10.5040/9781849662192>>. Accessed on: May 7, 2016.

_____. Comparative case studies in implementing net neutrality: a critical analysis of zero rating. *SCRIPTed*, v. 13, n. 1, Apr 2016. Available at: <<http://dx.doi.org/10.2966/scrip.x.x>>. Accessed on: Aug 16, 2016.

OFCOM. *Traffic Management Detection Methods & Tools*. Available at: <<http://stakeholders.ofcom.org.uk/market-data-research/other/technology-research/2015-reports/traffic-management>>. Accessed on: Jun 10, 2016.

RAMOS, P. H. S. Towards a developmental framework for net neutrality: the rise of sponsored data plans in developing countries. *Telecommunications Policy Research Conference*, 2014. Available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2418307>. Accessed on: May 7, 2016.

ROSSINI, C.; MOORE, T. *Exploring Zero-Rating Challenges: Views from Five Countries*. Public Knowledge, 2015. Available at: <<https://www.publicknowledge.org/documents/exploring-zero-rating-challenges-views-from-five-countries>>. Accessed on: Aug 16, 2016.

SANDVINE. *Best Practices for Zero-rating and Sponsored Data Plans under Net Neutrality*. An Industry Whitepaper, n. v1.0. Sandvine: Intelligent Broadband Networks, 2016. Available at: <<https://www.sandvine.com/resources/whitepapers/best-practices-for-zero-rating-and-sponsored-data-plans-under-net-neutrality.html>>. Accessed on: Aug 16, 2016.

_____. *Identifying and Measuring Internet Traffic: Techniques and Considerations*. An Industry Whitepaper, n. v2.20. Sandvine: Intelligent Broadband Networks, 2015. Available at: <<https://www.sandvine.com/downloads/general/whitepapers/identifying-and-measuring-internet-traffic.pdf>>. Accessed on: Aug 16, 2016.

_____. *Internet Traffic Classification: A Sandvine Technology Showcase*. Sandvine: Intelligent Broadband Networks, 2015. Available at: <<https://www.sandvine.com/downloads/general/sandvine-technology-showcases/traffic-classification-identifying-and-measuring-internet-traffic.pdf>>. Accessed on: Aug 16, 2016.

SANTOS, V. W. O. *Como a Índia baniu o zero rating*. Brazilian Internet Observatory, 2016. Available at: <<http://observatoriodainternet.br/post/como-a-india-baniu-o-zero-rating>>. Accessed on: May 13, 2016.

SCHEWICK, B. V. Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like. *Stanford Law Review*, v. 67, n. 1, p. 1, Jan 1, 2015. Available at: <http://www.stanfordlawreview.org/wp-content/uploads/sites/3/2015/01/67_Stan_L_Rev_1_van_Schewick.pdf>. Accessed on: Mar 4, 2015.

———. *Network Neutrality and Zero-rating*. Contribuição à FCC, 2014. Available at: <<http://apps.fcc.gov/ecfs/document/view?id=60001031582>>. Accessed on: May 13, 2016.

WAGNER, F.; CANABARRO, D. A governança da Internet: definição, desafios e perspectivas. In: PIMENTA, M. S.; CANABARRO, D. R. (Org.). *Governança Digital - Coleção CEGOV: Capacidade Estatal e Democracia*. 1 ed. Porto Alegre, 2014, v. 1. p. 191-209.

WU, T. *Impérios da comunicação: do telefone à Internet, da AT&T ao Google*. Translation by Cláudio Carina. Rio de Janeiro, RJ: Jorge Zahar, 2012. 431 p.

———. Network Neutrality, Broadband Discrimination. *Journal of Telecommunications and High Technology Law*, v. 2, p. 141, 2003. Available at: <<http://ssrn.com/abstract=388863>> or <<http://dx.doi.org/10.2139/ssrn.388863>>. Accessed on: May 7, 2016.

———. *Network Neutrality FAQ*. Available at: <http://www.timwu.org/network_neutrality.html>. Accessed on: Apr 29, 2016.

YOO, C. Protocol Layering and Internet Policy, 161. *U. Pa. L. Rev.*, 1707, 2013. Available at: <http://scholarship.law.upenn.edu/penn_law_review/vol161/iss6/7>. Accessed on: May 7, 2016.