

Luca Belli Editor

Net Neutrality Reloaded: Zero Rating, Specialised Service, Ad Blocking and Traffic Management

Annual Report of the UN IGF
Dynamic Coalition
on Net Neutrality

Preface by Tim Wu

IGF Internet
Governance
Forum

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For further information: www.networkneutrality.info

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PREFACE

by *Tim Wu*

The philosophy of Net Neutrality (NN) — that an open Internet is a necessary condition for innovation and for consumer welfare — has become intuitive to many. Yet, adoption of NN as a working policy was delayed as parties debated what NN should look like in practice. In 2016, we witnessed several countries adopt a hard stance and prohibit certain behaviors now widely recognized as blatantly abusive. As such, NN became the legal rule in several nations worldwide.

The very fact that NN was confirmed as law of the land in the U.S. — the place where the Internet was born — is testament to the advancement of Internet policy. For years, the Federal Communications Commission (FCC) acknowledged that the profit-seeking behavior of broadband services, when left unchecked, could impose a cost on web users, as well as diminish the innovative character of the internet. The FCC accordingly proposed a set of legal rules — otherwise known as the Open Internet Order — that would presumptively outlaw practices inconsistent with NN: degradation schemes (such as blocking and throttling access to content) and paid “fast lane” prioritization. As might be expected, broadband providers challenged these regulations as interfering with efforts to recapture network costs and warned that it would have an inhibiting effect on future investments in internet infrastructure.

In due course, the FCC invoked its full authority and reclassified broadband services as a public utility — a move that would give the FCC ancillary jurisdiction to compel ISPs to adhere to the Open Internet Order. Indeed, FCC’s rationale was simple: the internet, like the telephone, had become an essential communications platform for its users and thus subject to government scrutiny. The U.S. Court of Appeals for the D.C. Circuit agreed with this line of reasoning and granted the FCC with requisite authority to design bright line rules for outlawing practices wholly inconsistent with NN — namely network degradation and paid prioritization.

Indeed, the U.S. was not the only democratic nation that adopted a hardline stance in instituting NN as a working principle. The Body of European Regulators for Electronic Communications issued final guidelines, which effectively closed several loopholes that would have, for example, allowed for “fast” lane arrangements in the E.U.

India similarly sided with NN and banned ISPs from offering pricing differentials for web services. In short, democratic institutions worldwide were outlawing behaviors clearly in contravention of an open Internet — an acceptance of NN as the norm.

That we see democratic nations tending towards NN should come as a surprise to few. First, NN should be understood as form of non-discrimination: it “gives *users* the right to use non-harmful network attachments or applications, and gives innovators the corresponding freedom to supply them.” (Wu 2003). A neutral network would ensure that developers of online applications succeed based on the quality of their product, and not merely by how much money they can immediately put forth. Put differently, NN, as a non-discriminatory regime, is indispensable for promoting technological innovation through fair competition in the secondary application market.

Second, the non-discriminatory character of NN is consistent with values of free expression and an open society. Indeed, a neutral network enables the free flow of information; it is “a necessary condition for exercising freedom of expression on the Internet...” (OAS 2014). For this reason, the very language in Article 19 of the International Covenant on Civil and Political Rights seems to codify the non-discriminatory tenet of NN: “[t]here should be *no discrimination* in the treatment of Internet data and traffic, based on the device, content, author, origin and/or destination of the content, service or application” (Joint Declaration 2011).

At this juncture, it is clear that network degradation and paid prioritization, because they discriminate against certain content, are inconsistent with a NN regime; thus, by banning such practices, democratic governments have demonstrated a commitment to preserving NN as a legal norm. Yet difficult questions have persisted in the debate about NN — for example, is it a violation of NN when a network provider offers certain content in a preferential manner through practices, such as “Zero Rating” (ZR)? To put it differently, if broadband providers are prohibited from *hindering* user access to certain content, then does the negative inference also hold? Should broadband providers be prohibited from *encouraging* user access to certain content?

Indeed, the topic of ZR should be approached cautiously. On the one hand, ZR is a mechanism that can increase overall welfare: users, in certain instances, have greater network access at no cost while broadband providers have the liberty to improve its quality of service. Unlike network degradation and paid prioritization, ZR does

not deter users from accessing content and preserves a competitive market for content. Some have even heralded ZR as a potential remedy to the current digital divide by increasing internet access to underserved communities. Altogether, proponents believe that the positive effects, as it relates to innovation and user welfare, are reason enough for limiting government regulation in this area.

On the other hand, ZR can have the effect of distorting the secondary market and in fact, often functions as an end-run around NN norms. In many ways, ZR is similar to paid prioritization. First, ZR creates a bifurcated system in which users are incentivized to use certain forms of content over others and thus creates an unlevelled playing field. Second, ZR tends to favor incumbent content providers, or those who have more resources, because the content provider typically must meet certain standards in order to be zero-rated. Third, ZR may keep certain emerging forms of expression at the fringe. Altogether, it is not difficult to imagine instances in which ZR can distort the content provider market and reduce both innovation and opportunities for greater expression, which is why many skeptics have urged application of per se illegality.

Perhaps at present, it is difficult to conclude whether ZR will always be irreconcilable with the principles of NN. In fact, many democratic institutions that have embraced NN have yet to decide whether ZR should similarly be presumptively banned. Thus, while it is clear that NN has, for the most part, become the legal norm, we yet to fully explore how the full range of practices should be regulated. The writing set forth in this report illuminates the type of issues and perspectives that can be found in the ZR debate and serves as the type of discourse necessary for further evaluation of NN as a working principle.

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INTRODUCTION

1 The Evolutions of the Net Neutrality Debate

The Annual Report of the Dynamic Coalition on Network Neutrality¹ (DCNN) of the United Nations Internet Governance Forum gathers a series of case studies on a variety of Net Neutrality (NN) issues from the perspective of different stakeholders. The double purpose of this report is to trigger meaningful discussion on NN trends, while providing informative material that may be used by researchers, policy-makers and civil society alike. Any interested individual can submit papers to be included in the report and submissions are evaluated for their novelty and undertake blind peer-review process. Researchers, practitioners and policy-makers regularly contribute to the DCNN report, providing a wide range of heterogeneous views on NN trends.

In 2016, Zero Rating (ZR) was by large the most debated NN issue, as reflected by the considerable number of contributions focusing on the topic within the DCNN report. Such high number of ZR-focused studies seems particularly useful to meet the increasing demand of research analysing the pros and cons of ZR. Furthermore, the report analyses other very important and debated topics, such as specialised services, ad blocking and reasonable traffic management, providing useful insight on some of the most recent policy evolutions and on the implementation of NN laws in a variety of countries.

The report is structured in three sections analysing (i) Zero Rating Policy; (ii) Zero Rating Pros and Cons; (iii) Net Neutrality Exceptions and Violations.

1.1 Zero Rating Policy

The first section encompasses three analyses, providing insight on ZR practices, ZR policies as well as the consideration of ZR from the perspective of international human rights law. In his contribution on “Zero Rating: From Generative Internet to Mobile Minitel?” Luca Belli stresses that the ZR debate is the latest chapter of the NN saga. The author argues that although the sponsorship of applications may seem beneficial to improve access to specific

¹ See <http://www.networkneutrality.info/sources.html> as well as <http://www.intgovforum.org/cms/dynamic-coalitions/1330-dc-on-network-neutrality#stakeholders>

content and services, some ZR models may trigger a phenomenon defined by Belli as “Minitelisation of the Internet.” This phenomenon consists in the Internet’s evolution from a generative and general-purpose network, where users may freely generate and share innovation, into a predefined-purpose network, characterised by a centralised — and easy-to-control — configuration, where passive customers merely access predefined applications, as it happened in the old Minitel network. Belli notes that ZR practices are generally matched to reduced data caps and mainly implemented within mobile networks. ZR offerings consist in the sponsorship — by an operator or a third party — of the data consumption related to a limited set of applications, or class of applications, depending on the type of ZR. The author provides a taxonomy of ZR practices which is instrumental to stress the existence of various flavours of ZR and to identify which ZR practices conflict with the NN rationale and may lead to Minitelisation. Several ZR schemes are based on the provision of unlimited access exclusively to the applications approved by the operator, while billing and capping access to the rest of the Internet, in order to orient user experience towards a limited selection of applications. Belli stresses that such practices have the potential to restrain Internet openness, fostering a centralised model that characterised less innovative and more controlled networks, such as the Minitel. The author argues that Internet users cannot be deemed as mere consumers but should rather be considered as active “prosumers,” for they can both produce and consume content and applications and, therefore, can directly contribute to the evolution of a generative network. Hence, to avoid Minitelisation and promote sustainable connectivity, policy makers should consider the entire spectrum of options available and encourage the experimentation of alternative connectivity models, such as e.g. community networks, rather than merely relying on ZR.

In his contribution on “Better Regulation of Net Neutrality: A Critical Analysis of Zero Rating Implementation in India, the United States and the European Union” Christopher Marsden critically examines the relatively few examples of regulatory implementation of NN enforcement at national level. The analysis draws on co-regulatory and self-regulatory theories of implementation and capture, and interdisciplinary studies into the real-world effect of regulatory threats to traffic management practices. Most academic and policy literature on NN regulation has focussed on legislative proposals and economic or

technological principles, rather than specific examples of comparative national implementation. This is in part due to the relatively few case studies of effective implementation of legislation. In his contribution, Marsden presents the results of empirical interviews conducted with regulators, government officials, Internet Access Providers, content providers, academic experts, NGOs and other stakeholders. The article notes the limited political and administrative commitment to effective regulation thus far, and draws on that critical analysis to propose reasons for failure to implement effective regulation. Finally, it compares results of implementations and proposes a framework for a regulatory toolkit. Notably, the contribution offers some elements that may be suited to a toolkit for regulators to respond to NN concerns, providing guidance on:

- how to engage stakeholders, an especially important issue in the US and Indian case studies;
- how to measure NN, essential to implementing BEREK Guidelines for the European Union/Economic Area in 2017;
- how to access technical advice, which will help in defining the forensics of the regulation of ZR and NN more broadly; and
- an example of how regulators may respond to ZR offers, short of the total prohibitions seen in Chile, India.

In his contribution on “Zero Rating and the Holy Grail: Universal Standards for Net Neutrality” Arturo Carrillo argues that frontline battles that have focused on ZR (as in India) have been largely devoid of rigorous reference to technical human rights considerations. But national debates on NN and ZR have and will continue to play out differently in other regions of the world that are subject to more robust human rights legal frameworks, such as Europe and Latin America. There, universally-recognized human rights norms codified in regional treaties — the American Convention on Human Rights; the European Convention on Human Rights — provide objective standards for consistently and justly analysing NN issues through region-specific human rights mechanisms. The purpose of Carrillo’s contribution is to take one region as a case study in progress — Latin America — to map the human-rights framework that governs freedom of expression online, including NN and ZR, with reference to the challenges that a number of Latin-American countries are facing. The paper argues that the implementation of NN protections by States in Latin America (and elsewhere), when oriented by a respect for fundamental human rights, can lead to more just and sustainable policies and outcomes than when

it is not. In the end, the human rights framework will increasingly shape national policy-making in this area, and not just in Latin America. What emerges is a clearer picture not only of the human rights standards that, in fact, already apply to the Net Neutrality principle everywhere in the world, but also of the manner in which the constructive application of that framework can shape its implementation globally in more equitable terms.

1.2 Zero Rating Pros and Cons

The second section of this book includes four contributions debating the supposed benefits and potential harms of ZR practices.

In their contribution on “Zero Rating: a global threat to the open internet,” Gustaf Björkstén, Raman Jit Singh Chima and Estelle Massé argue that ZR is the opposite of NN, the notion that all data on the internet should be treated equally. The authors argue that NN is central to maintaining the Internet’s potential for economic and social development, and for the exercise of internationally recognised human rights such as the right to free expression. Its principles help ensure that anyone, anywhere in the world, can receive and impart information freely over the Internet, no matter where they are, what services they use, or what device they operate. Seen in this light, ZR is a form of “network discrimination” — it deliberately sets up a system where “the Internet” you get is different for different people. The authors highlight that, around the world, advocates, tech companies, and users are debating this crucial issue. The contribution explores ZR, its technical impact on our use of the Internet, and what decisions lawmakers and telecoms regulators around the world have already made regarding its use. After having provided a brief analysis of how ZR practices may affect users, the contribution explores a selection of regulatory approaches and wishes for vigilance from national regulators while arguing that multiple approaches should be considered to expand access to infrastructure.

In his paper on “The Economics of Zero Rating,” Jeff Eisenach explores the ZR debate from a different perspective. The author presents an assessment of the benefits and costs of ZR, concluding that ZR programmes in general represent an economically efficient mechanism for increasing consumer welfare given the unique characteristics of information technology markets. The author describes the state of play with respect to different types of ZR plans currently in the marketplace, and efforts by regulators in some countries to limit or prohibit their

availability. The contribution goes on to present a brief explanation of the economic characteristics (i.e., dynamism, modularity, and demand-side effects) that distinguish information technology markets from markets for other types of goods, and which affect both market performance and the nature of the competitive process. It outlines the primary issues involved in assessing the impact of ZR plans on economic efficiency, competition, and overall economic welfare. Eisenach then presents an assessment of the two primary criticisms of ZR, namely the asserted potential for anticompetitive market foreclosure and concerns about diversity of expression. He argues that the ZR plans currently being offered almost certainly generate benefits well in excess of any costs. While regulatory authorities should remain vigilant in monitoring business practices, Eisenach argues that broad-based bans or restrictions on ZR plans are far more likely to harm consumer welfare than improve it.

In his paper on “Mobile Zero Rating: The Economics and Innovation Behind Free Data,” Doug Brake highlights that ZR programmes, which allow consumers to access certain Internet content and services without it counting against their monthly data plans, have proven polarising, being met with reactions ranging from derision to praise. The crux of the controversy is whether the practice of ZR violates the spirit of NN principles. Strictly speaking, zero-rated data is treated differently than other data in a way that influences consumer behavior. But the author affirms that adhering to such a strict interpretation of NN would be misguided. Brake argues that ZR products are unlikely to harm the open Internet; instead, they are a sign of healthy product differentiation that more efficiently allocates scarce resources in a competitive market, ultimately improving consumer value. The Federal Communications Commission – along with other regulators around the world – is examining ZR, and while its case-by-case approach to overseeing these programs is sound, telecom regulators should make it clear that they believe nonexclusive ZR programmes are in the public interest.

Lastly, Tomiwa Ilori concludes the second section with his paper on “The Politics of Algorithms and Net Neutrality in the Zero Rating Debate.” Ilori argues that commercialization is fast becoming the best reason for justifying inequality, especially on the Internet. Fast and innovative ideas are first considered for their market value before any consideration is made for equality, equity and fairness. As it is fate of glass to break, so is it the fate of the Internet to be commercialised. The

author measures the tenacity of the NN debate within the politicisation of commercial interests between states and tech companies in the context of ZR debates and tries to assess how much equality has been the opportunity cost. Academic articles, newspaper reports, workshop feedbacks, submissions by stakeholders in the Telecommunication sector, public statistical figures are used by Ilori to draw conclusions. Ilori's findings reveal that there is a power play in sustainability of the NN debates but with no victor in sight just yet.

1.3 Net Neutrality Exceptions and Violations

The final section includes three contributions focusing on several crucial issues, with regard to NN violations and exceptions. In his paper on "European Net Neutrality at the beginning of a new era," Frode Sørensen provides an insightful perspective on the most recent development regarding NN in Europe. Notably, Sørensen stresses that the NN Regulation adopted in 2015, and the corresponding NN Guidelines issued by BEREC in 2016, lay the foundation for protection of the open Internet in Europe. In concrete terms, NN boils down to equal treatment of traffic on the Internet, whereby end-users themselves can decide how to use their own Internet access, and whereby entry barriers for content and application providers are low. As a result of non-discriminatory treatment, the Internet should remain an open platform for communication useable for any purpose, stimulating the flourishing of social, democratic, cultural, and economic development. The fundamental characteristic of such an open platform is that it becomes application-agnostic, where applications running on end-user equipment receive equal treatment of traffic transmitted over the Internet. The author explores the background and emergence of the European Net Neutrality Regulation, as well as the the newly adopted regulatory framework, focusing on three core issues that have attracted policymakers' and regulators' attention: Zero Rating and other commercial practices; the distinction of different levels of traffic management; and the so-called specialised services. This contribution illustrates how the European NN Regulation facilitates flexible network technology innovation, at the same time as it safeguards innovation at the edge of the network.

In her paper on "Users' rights, ad blocking and Net Neutrality," Roslyn Layton analyses one of the most debated NN topics in 2016: the compatibility of network-level ad blocking with the NN principle. Layton stresses that, at the global level, in 2016 more than 400 million

users employ ad blocking on mobile phones, twice the rate of desktop ad blocking. Users employ ad blockers to ensure privacy, security, energy efficiency, usability, and to speed the running of mobile apps and websites. Layton explores the arguments both for and against ad blockers and how they may either support or conflict with NN. Noting the growing tension between user-centric solutions and rigid NN rules, the article suggests that policymakers consider the unintended consequences of NN legislation. Layton argues that ad blocking, a suboptimal solution to addressing unwanted ad tracking, is indicative of the unchecked oligopolistic ad tech industry which leverages NN rules to protect its revenue from competition and innovation. To conclude, Layton wishes that policymakers and NN advocates ensure that end users rights are not compromised under the guise of arbitrary bans on practices purporting to protect them.

Lastly, the report ends with Carlos Brito's paper on "Mexican ISP practices contrary to the network neutrality principle under the new telecommunications legislation." Brito briefly describes the unique Mexican regulatory framework, resulting from the 2013 telecommunications and competition constitutional reform. Such constitutional framework obliges the Mexican State to consider definitions and treatments of its regulatory policies within the respect and fulfillment of its obligations in human rights protection, both derived from its local legislations and international agreements. Moreover, it empowers the national regulator that enjoys a broad set of faculties, obligations, capacities, and powers. The paper is based on an empirical approach aimed at evaluating the practices of nine Mexican Internet Service Providers (ISPs) with regard to a) Zero Rating or tiering practices; b) throttling practices; c) deliberated blocking content practices; d) deep packet inspection practices; e) transparent and accessible traffic management policies. Such study interestingly demonstrate a recurrent NN problem *i.e.* the existence of a misalignment between the existing framework and the existing practices. Notably, one of the main finding of the report is that ISPs in Mexico already feature commercial offers that affect the principles of Net Neutrality. Despite the Telecommunications and Broadcasting Federal Law and the Constitutional dispositions, ISPs offer preferential access (free or partially free) to some Internet applications via ZR practices which have been de facto adopted by ISPs, taking advantage of the lack of regulations implementing the existing telecommunications law.



PART I

Zero Rating Policy



2 Zero Rating: From Generative Internet to Mobile Minitel?

by Luca Belli

This paper is based on Belli, L. (2016) *Net Neutrality, Zero Rating and the Minitelisation of the Internet*. *Journal of Cyber Policy*. Vol. 2. Routledge.

2.1 Introduction

Since the creation of the Net Neutrality (NN) term by Wu (2003), NN debates have been proliferating, sparking controversies with regard to what differentiation practices should be considered as reasonable or undue.² Indeed, the stated purpose of the non-discriminatory treatment mandated by NN is to preserve Internet openness, “fostering the enjoyment of Internet users’ human rights; promoting competition and equality of opportunity; safeguarding the generative peer-to-peer nature of the Internet; and spreading the benefits of the Internet to all people.”³ Over the past fifteen years, a wide range of stakeholders has been debating the various flavours of NN, identifying the main issues at stake and putting forward concrete solutions aimed at preserving NN in a legally interoperable fashion. (IGF 2015a; Belli & Foditsch 2016; CoE 2016) Conspicuously, NN discussions have scrutinised the possibility that network operators utilise discriminatory practices to favour affiliated Content and Application Providers (CAPs) and disfavour competitors, using a variety of practices for commercial purposes. Comprehensive and sometimes lengthy consultations have led to the elaboration of NN frameworks in many countries,⁴ prohibiting undue⁵ discriminatory Internet Traffic Management (ITM), such as undue blocking, throttling or paid prioritisation, and more recently framing price-discrimination practices such as Zero Rating (ZR).

2 For an overview of the past fifteen years of NN debates, see Lemley & Lessig (2000), Wu (2003), Wu & Yoo (2006), Marsden (2010), Yoo (2010), van Schewick (2010), Belli & van Bergen (2013), Belli & De Filippi (2014), Bauer & Obar (2014), Belli & De Filippi (2016).

3 See IGF (2015a & 2016).

4 See e.g. the Brazilian Marco Civil da Internet (Law 12.965/2014), further specified by the Decree 8.771/2016; the U.S. FCC Report and Order on Protecting and Promoting the Open Internet; the EU Regulation 2015/2120, further specified by the BEREC Guidelines on the Implementation of Net Neutrality Rules BoR (16) 127. For a map showing existing NN frameworks, see <https://www.thisisnetneutrality.org/?lang=en>

5 It is important to stress that the non-discriminatory treatment mandated by NN is not absolute and stakeholders generally agree with regard to the need of exceptions to NN, commonly referred as due/reasonable ITM, which are necessary and proportionate to the achievement of legitimate aims. See e.g. IGF 2016.

ZR is the latest chapter of the NN saga. ZR practices are mainly implemented within mobile networks and typically consist in the sponsorship — by an operator or a third party — of the data consumption related to a limited set of applications, or class of applications, depending on the type of ZR.⁶ Although the sponsorship of applications may seem beneficial to improve access to specific content and services, (Eisenach 2015; West 2015) I will argue that some ZR models may trigger a phenomenon that I define as “Minitelisation of the Internet.” This phenomenon consists in the Internet’s evolution from a general-purpose network, where users may freely generate and share innovation, into a predefined-purpose network, characterised by a centralised — and easy-to-control — configuration, where passive customers merely access predefined applications, as it happened in the Minitel⁷ network. Minitel was a closed system, particularly popular in France in the 1990s, where only the operator could decide which services were available to users, while the government (in France, the *Direction Générale des Telecommunications*) approved or disapproved any proposed service.

The purpose of this paper is therefore to discuss ZR practices, exploring the potential consequences that ZR models may have on the Internet ecosystem, potentially fostering fragmentation of the Internet into clusters of sponsored applications. As the past twenty years of Internet governance and policy debates have made very clear, the Internet is a general-purpose network grounded on openness, decentralisation and interoperability. (IGF 2015b) The choice to design the Internet according to such principles is not trivial and, on the contrary, has marked the Internet’s evolution, enshrining every end-user’s capability to freely communicate but also to unleash their creativity, inventing new applications and content and easily sharing them at low cost. Having the possibility to access and share any content and applications of their choice, Internet users are not mere consumers but active “prosumers”⁸ that can directly contribute to the evolution

6 Section II will discuss a taxonomy of ZR practices.

7 During the 1990s, the French-born Minitel was exported in various countries, such as Belgium, Brazil, Canada and Ireland, although the greatest diffusion of this system was in France. See <https://en.wikipedia.org/wiki/Minitel> For an overview of the Minitel network, see e.g. Hart 1988; Gonzalez & Jouve 2002.

8 The term prosumer is used to identify an individual who both produces and consumes products and services. In this article, it is used to qualify Internet users that, by default, have the possibility to both produce and consume content and applications.

of a generative⁹ network. Such generativity is facilitated by the end-to-end architecture of the Internet that decentralises innovation closer to users, placing the network's intelligence within the applications at edges of the Internet, rather than in its core. (Saltzer *et al.* 1984; Carpenter 1996; Zittrain 2008; van Schewick 2010)

The past two years have witnessed the emergence of a new breed of NN discussions, focusing on the impact that ZR practices may have on users' rights and on the Internet ecosystem. Such evolution can be explained in the light of three main phenomena. First, the increasing growth and importance of mobile networks, whose data traffic "has grown 4,000-fold over the past decade [while] traffic from wireless and mobile devices will account for two-thirds of total IP traffic by 2020." (Cisco 2016) Second, Internet usage patterns have changed and users themselves are becoming avid consumers of video streaming, driving demand for a specific type of applications and making video traffic the largest category of internet traffic.¹⁰ Third, the introduction of NN frameworks prohibiting undue ITM has led operators and major CAPs to explore new business strategies, sponsoring specific applications in order to attract Internet access subscribers or orientate users' attention towards (affiliated) services or to seduce them with pre-selected sponsored services. The collateral effect of such practices could be the evolution of a generative Internet towards a network where the purpose is predefined, as the French Minitel. This would be in stark contrast with the rationale of the NN principle, which is to avoid the negative impact of undue discrimination, thus preserving the Internet as an open platform, facilitating free communication and innovation.

NN controversies in general and ZR in particular oppose supporters and detractors of the operators' possibility to use discriminatory practices to privilege specific content or applications for commercial purposes. Such arguments are fueled by the observation that a significant portion of value and profit in the Internet economy is generated by the use of content and applications and the collection and processing of

9 The concept of generativity can be defined as "a system's capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences." See Zittrain (2008), p. 70.

10 Video traffic started to intensify considerably in the mid-2000s. In 2010, Cisco reported that "[g]lobal Internet video traffic will surpass global peer-to-peer (P2P) traffic by the end of 2010. For the first time since 2000, P2P traffic will not be the largest Internet traffic type." Six years later, Cisco confirmed that "[m]obile video traffic accounted for 55 percent of total mobile data traffic in 2015. Mobile video traffic now accounts for more than half of all mobile data traffic." (Cisco 2016)

the data related to such use. Therefore, the possibility to orientate the way individuals may use the Internet, through discriminatory practices aimed at (dis)favouring specific apps and content, can produce a wide range of economic but also social and juridical effects.¹¹ Particularly, such observation should be considered in light of the fact that the mere use of applications entails the collection and, ultimately, the monetisation of data generated by users, which represent a fundamentally valuable asset in the current economy. (Acquisti 2010; WEF 2011; OECD 2011) Hence, policymakers should carefully assess what could be the economic, social and political consequences of the Minitelisation of the Internet and whether the public interest will benefit or be jeopardised by such scenario.

In Section 2.2 of this chapter, I describe the raise of ZR, focusing on the emergence of application sponsorship and the dependence of such offering on the existence of (reduced) data-caps. Subsequently, I will provide a taxonomy of ZR models, which is instrumental to stress the existence of various flavours of ZR and to identify which ZR practices conflict with the NN rationale and may lead to Minitelisation. (Section 2.3) Particularly, I will argue that ZR several practices have the potential to restrain Internet openness, fostering a centralised model that characterised less innovative and more controlled networks, such as the Minitel. (Section 2.4) Indeed, several ZR schemes are based on the provision of unlimited access exclusively to the applications approved by the operator, while billing and capping access to the rest of the Internet, in order to orient user experience towards a limited selection of applications. As a conclusion, I will argue that, rather than relying on ZR, public policies should aim at sustainable connectivity, encouraging the adoption of alternative connectivity models.¹²

2.2 From Internet Prosumers to Application Consumers?

Since the early days of the Internet, its open and end-to-end configuration has been grounded on the distinction of applications functions from network functions as well as on a best-effort delivery paradigm. (Saltzer *et al.* 1984) The distinction between network and application functions means that the intelligence is decentralised at the application level rather than being in the networks whose primary aim is to convey data, using a common protocol suite — *i.e.* the TCP/IP suite — for internetworking. (Carpenter 1996; ISOC

11 Such effects are analysed thoroughly by the authors referred to in note 1.

12 See e.g. Belli 2016

2012) On the other hand, a best-effort delivery implies that all online applications are treated in a non-discriminatory fashion by default, regardless of their type or content.¹³ (BEREC 2012) As such, in a best-effort paradigm the operator is agnostic to all user requests, which obtain best-effort delivery regardless of their type or nature. This means “*the router makes its best effort to forward the data packet quickly and safely, but does not guarantee anything (e.g., delay or loss probability).*”¹⁴ It is important to note that the Internet model is in stark contrast with the centralised paradigm, traditionally adopted by the telecommunications industry in the development of the Public Switched Telephone Network (PSTN). Indeed, differently from the Internet’s end-to-end system design, the PSTN design is focused on the delivery of one predefined service — *i.e.* voice communication — and does not allow users to create and share services that are not based on voice communication.¹⁵

Hence, the Internet fundamentally differs from its PSTN predecessors, because virtually any Internet user has the possibility not only to receive a communication service, but also to develop new applications and share them instantaneously with the rest of the (connected) world, with no need for permission from the network operator. For this reason, the Internet is based on “**permissionless innovation**” (Thierer 2014; Daigle 2015; Chesbrough & van Alstyne 2015) which unleashes user creativity and speeds up invention through the Internet ecosystem, allowing individuals to generate and diffuse new ideas, services and applications “over the top” (OTT) of the network. On the contrary, in the pre-Internet telecom environment, voice services

13 NN debates have extensively focused on the possibility that operators utilise traffic differentiation for commercial purposes. Traffic differentiation is based on the classification and application of “potentially different treatment to two or more traffic flows contending for resources on a network (a flow being a group of packets that share a common set of properties).” (BITAG 2015) Unlike best-effort delivery, traffic differentiation is based on the exploitation of multiple traffic classes that may have varying levels of priority and can be implemented using Differentiated Services (DiffServ), Integrated Services (IntServ) and/or Multiprotocol Label Switching. See Grossman (2002); Baker et al. (2010).

14 See Feher *et al.* 2007. Operators may define exceptions to the best-effort paradigm, to manage traffic more efficiently or to provide better quality for specific applications. To this end, operators exploit the “packet header information to classify packets into flows and treating those flows differently, for example rearranging the order or the timing with which packets are sent, or sending them along different network paths [or] to indicate to routers the quality of service desired”. See BITAG 2015.

15 PSTN could be used to deliver services that are not voice-based, such as fax, but the PSTN paradigm is optimised for voice services and “[o]nly telecoms companies can define and deploy new services within their networks” (ISOC 2012), thus making PSTN a system where innovation is permission-based.

and telecom networks were indissociably tied. Therefore, control of the network technology was an essential precondition to provide services, thus centralising the control of the network evolution in the operators' hands. Indeed, the PSTN environment restricted innovation on purpose, allowing only network operators to define the networks' technical requirements in a top-down fashion.

Internet users fundamentally differ from other network users and particularly PSTN users because Internet users are "prosumers", *i.e.* they are both potential consumers and potential producers and providers of applications that can compete with those provided by established CAPs. *Ergo*, differently from PSTN users, Internet users do not merely consume predefined services but can freely choose to become CAPs and share the content and applications they produce with no need for the operator's approval. It seems understandable that vertically integrated operators¹⁶ have an incentive to orientate users' Internet experience towards the mere consumption of affiliated content, applications and services because their revenues increasingly depend on the revenues of the integrated CAPs. Such evolution is not merely due to the increasing convergence of network infrastructure with software infrastructure (Ovum 2015) but also the simultaneous possibility to analyse and monetise data, which have become one of the key driver of the current economy.¹⁷

As such, it seems plausible to argue that the natural behaviour of a vertically integrated operator with market power will be to limit forms of expression and innovation that compete with its own and it cannot monetise. Therefore, vertically integrated operators may try to incentivise users' passive consumption of predefined affiliated content and applications in order to enjoy higher attention, which can be subsequently monetised, *e.g.* by selling advertisements. This latter behaviour can be expected from online platforms, whose business models consist in data collection for profiling purposes, so

16 It is important to note that although NN focuses on network operators' behavior, affecting the network layer, vertical integration concerns may be observed also with regard to online platforms, acting at the application layer, which may "inhibit rivals on its platform or give preference to its own programs or services ... to the detriment of rival sellers (and contrary to consumers' wishes)." See House of Lords (2016, 42). As an instance in this regard, the European Commission has stated that "Google gives systematic favourable treatment to its comparison shopping product (currently called Google Shopping) in its general search results pages." See European Commission 2015a.

17 For a list of readings exploring the various facets of the on data-driven economy, see <https://www.uschamberfoundation.org/reading-list-data-driven-economy>

that content and advertisement can be customised to specific users. However, it is important to reiterate that, although operators may integrate with CAPs, they are supposed to behave as mere conduits of information that do “not select or modify the information contained in the transmission”¹⁸ and cannot monitor communications content for business purposes.¹⁹ This fundamental consideration reflects the separation of network functions from application functions, enshrining the operators’ role as mere conveyers of data rather than entities able to orientate of users’ choice of content and applications or possibility to share innovation.

It can be argued that the purpose of setting low-volume data-caps²⁰ and sponsoring access to specific applications — be it within fixed and mobile networks — is to orient user choice and, eventually, “Minitelise” the Internet. However, such practices may go far beyond mere orientation of consumer choice. Indeed, the combination of low data caps, together with the simultaneous increase of mobile Internet access prices, represent *de facto* a limitation of choice, by posing an economic burden on the access to the forms of expression and innovation that are not sponsored. Consequently, such combination represents a barrier for the circulation of all those forms of expression not having commercial value, such as educational or non-for-profit material. Such combination of limited data caps and increased prices is not a mere hypothesis and has been observed amongst EU operators proposing data-caps combined with zero-rated video-streaming services, selling half as much open Internet access than operators that do not. (Rewheel 2016) As mentioned above, the term ZR generally describes a business practice whereby operators or a third party sponsor the data consumption related to a limited set of applications, which may be accessed by mobile network users, without incurring in charges related to data consumption.²¹

18 See art 12, EU Directive 2000/31, known as “the E-Commerce Directive.” Such provision is directly inspired by section 512 of the 1998 U.S. Digital Millennium Copyright Act. Operators are categorised as mere conduits in many OECD countries as well as in the majority of countries having an intermediary liability framework based on the U.S. or EU model.

19 As an instance, art 3.3 EU regulation 2015/2120 affirms that operators “shall not monitor the specific content” and the measures “shall not be maintained for longer than necessary.” Likewise, art 9.3 Marco Civil explicitly forbids the monitoring of communications’ content by operators.

20 As note, ZR only make sense when paired with reduced data caps, because when Internet access is not limited there is no interest in having free access to specific applications.

21 In some developing countries, applications and services are zero-rated with no need for a data plan.

Before analysing the ZR conundrum, it seems important to note that operators' intention to combine download limits and price-discrimination schemes have already triggered numerous critiques, both in developed (Weinberg 2011; Economist 2011; Ermert 2013) and developing countries. (IDEC 2016) On the one hand, the combination of reduced download limits in fixed networks and the exemption of vertically integrated services — such as sponsored IPTV — from such caps has been criticised for being an anti-competitive behaviour. (Ermert 2013) A telling example in this regard is Deutsche Telekom's 2013 announcement to exempt its video-streaming service from download limits, paired with the throttling of all non-sponsored traffic once the data caps had been reached. (Deutsche Telekom 2013; EDRi 2013) Similarly, in Brazil, the very Auditor of ANATEL, the Telecoms regulator, harshly criticised the regulator's decision to allow operators to modify unilaterally their access-contracts, introducing data-caps within fixed Internet offerings, without providing any technical justifications. (Ouvidoria da Anatel 2016)

On the other hand, the imposition of low data caps has been criticised for being a highly inefficient as an ITM measure aimed at managing network capacity, because rationing data does not prevent network usage at peak periods when congestion occurs. (Economist 2011) On the contrary, although it is comprehensible that prices of Internet access be correlated to costs, the primary effect of data caps is to disincentivise the use of Internet connection, notably, amongst low-income users, rather than optimising it. In this regard, data released by operator T-Mobile suggest that capped users utilise 20 to 30 times less bandwidth than uncapped users. (Weinberg 2011; Feld 2014) Yet, the fact that T-Mobile recently decided to automatically enrol all its subscribers, including the capped ones, into its "Binge On" offering — which provides unlimited access to video streaming — suggests that the purpose of caps is not to cope with limited network capacity, but rather to turn Internet prosumers into video-streaming consumers, thus steering individuals' attention towards the sponsored applications.

In the following section, I will start exploring the ZR debate, stressing the existence of several types of ZR as well as the consequences that ZR may produce on the whole Internet ecosystem. Although several national regulators have already deliberated on the matter,²² policy

²² See e.g. Caf 2015; ACM, 2015; CRTC 2015; TRAI 2016b; BEREC 2016.

discussions are still ongoing and policymakers — notably, those who have already expressed support to NN — should try to understand the various nuances, in order to put forward a clear vision.

2.3 A Zero Rating Taxonomy

ZR debates have been sparking heated discussions between supporters, arguing that ZR expands consumer choice, favours product differentiation (Howell 2016) and increase consumer welfare (Eisenach 2015) and, on the other hand, detractors affirming that ZR contradicts NN, limiting consumer choice, freedom of expression and the circulation of innovation and creating new gatekeepers. (Rossini & Moore 2015; Malcolm *et al.* 2016; van Schewick 2016) Nonetheless, few voices have stressed the existence of several species of the ZR genus exist. Particularly, I propose to categorise ZR practices into:

- **application ZR**, where an operator sponsors access to selected applications;
- **application sponsoring**, where a CAP sponsors access to its own application;
- **ZR platforms**, where a CAP or another entity sponsors access to (a selection of) applications that have to respect specific technical guidelines;
- **application-agnostic data sponsoring**, where a CAP or another entity sponsors a defined data-volume that users may utilise as they wish.

Although not all ZR types are in stark contrast with the NN rationale, the most widespread ZR models present various problematic aspects that may lead to the centralisation of the Internet architecture and increase barriers to innovation at the application layer. This phenomenon, that I define as Minitelisation, may determine the shift of the Internet from a general-purpose network to predefined purpose network. Notably, the rationale of non-counting data consumption of specific applications while capping access the open Internet is to achieve two objectives, which are fundamental from the perspective of operators and major CAPs: the attraction of subscribers from competitors' networks and the creation of new consumers of predefined applications. It seems quite manifest, that the main objective of the ZR types based on such selective strategies is to orientate Internet users choice, based on the gratuity of the application versus the payment of the open Internet, thus aiming at the predefinition of the Internet purpose, in order to

maximise consumers of specific applications. Such rationale seems to conflict with the Internet general-purpose nature as well as with the fundamental futures of Internet-users as prosumers, having the possibility to freely compete with existing CAPs, creating and sharing new applications and innovations.

An important element to consider as regards the ZR debate in developed countries is that, while Internet access penetration has already achieved high levels, the growth of operators' subscriber-number and revenue — particularly in Western Europe — are tending towards flatness. (Ovum 2015) Hence, differentiation of operators' offerings seems to acquire an essential role within business strategies aimed at expanding subscriber-base, in order to restore growth of operators' profits. For this reason, popular applications such as dominant social-networking sites are zero rated by operators to attract new users. The "*application ZR*" model is quite telling in this regard, being based on the operators' initiative to bundle Internet capped Internet access and sponsored access to a selection of applications or a specific class of applications, such as video streaming, as in the aforementioned Binge On example. This ZR type does not entail the payment of sponsoring fees from the zero-rated CAP, because operators utilise zero-rated content or applications to differentiate their offerings and attract customers.

Furthermore, CAPs with sufficient financial capacity²³ may be keen on sponsoring data usage of their applications, in order to extend their consumer-base and acquire a considerable advantage, compared to their less-resourced competitors, due to the gratuity of the sponsored applications. This latter practice may be categorised as "*application sponsoring*" model and consist in CAPs paying operators a sort of right of preferential access to subscribers (or, ideally, new subscribers), whose personal data will be subsequently collected and monetised. Application sponsoring differs from application ZR, due to the fact that data consumption of the sponsored application is charged to the application provider, which undertakes the role of sponsor. Therefore, the main difference between the application-ZR and application-sponsoring model is the entity that bears the cost of ZR, although in both cases the user is not billed for accessing a specific application.

23 For instance, Facebook and Google have launched initiative such as Facebook Zero or Google Free Zone, in partnership with numerous operators in various African and Latin American countries, offering free mobile access to text-only version of Facebook and to a selection of Google services.

It is also important to stress that, besides being bundled to specific data plans, sponsored applications may sometimes be accessed with no need for a data plan. This latter option has been particularly criticised due to its potential to lead ZR-consumers to believe that the sponsored application “is the Internet,” as it emerged from surveys conducted in various developing countries. (Mirani 2015) Hence, the application-ZR and application-sponsoring models may give rise to various problems, when analysed under the lenses of NN policies. As stressed above, the inner purpose of NN is to prevent operators from discriminating against specific content, application or services for commercial reasons, thus avoiding interferences with users’ freedom to use the Internet as they wish, including sharing innovation on a level playing field. Both application ZR and application sponsoring have the inner purpose to orientate users’ attention towards an access service perceived as free and, therefore, orientating user choice due to its perceived gratuity rather than its usefulness or quality. The orientation of consumer choice is not *per se* a problem but it becomes problematic when ZR practices are combined with low data-caps, thus *de facto* reduce consumer choice rather than merely orientating it.

Another important facet of the ZR prism is the use of ZR practices to foster the adoption of “data services”²⁴ in areas where Internet penetration is particularly low and digital divides are sensibly wide. On the one hand, digital divides may be due to lack of infrastructure or geographical barriers — such as mountain chains or deserts — raising the cost of infrastructure deployment and making it scarcely profitable, particularly when the population of such areas is limited. On the other hand, individuals’ capacity to connect to the Internet may be severely limited due to the population’s illiteracy or lack of a level of education allowing individuals to realise the benefits of connectivity. (ITU 2015; A4AI 2016a) Lastly, poverty is a significant obstacle to connectivity, making it very hard for underserved communities to afford Internet access fees, which represent a substantial portion of the average monthly income in the majority of developing countries. In contexts where infrastructure is sparkly deployed, the price of connection is particularly high, and the majority of the population is not online, objections to ZR have generally been limited, considering the provision of (at least) specific applications

24 See e.g. A4AI (2016a).

as better than no Internet access at all. Notably, it has been argued that, in such context, ZR practices may be helpful to provide free – though limited – communication and information services and stimulate infrastructure investments. (Eisenach 2015)

Nonetheless, it seems important to stress that, in such developing contexts, application-ZR and application-sponsoring merely create application consumers, rather than Internet prosumers that may innovate and actively contribute to bridge digital divides. Hence, although they may be beneficial in increasing communication,²⁵ they might simultaneously channel attention towards zero-rated offerings, reducing innovation with regard to new applications, while fostering a centralised network in which few sponsored intermediaries providing sponsoring applications may easily act as points of control.

It is also important to remind that different some types of ZR – notably, some forms of “*ZR platforms*” and “*application-agnostic data sponsoring*” – may be better-suited to be considered as necessary and proportionate exceptions to NN, aimed at providing sponsored communication and information services. The best-known example of ZR platform is the controversial Free Basics programme, part of the Internet.org initiative, launched by Facebook and some partners in 2013.²⁶ According to the initiative’s website, its ultimate purpose is to “bring internet access and the benefits of connectivity to the two-thirds of the world that doesn’t have them.”²⁷

Critics argue that the ZR platform would ascribe to Facebook the same form of gatekeeping role that operators would like to gain via discriminatory traffic management or via application ZR. Indeed, although Internet.org proclaims to aim at “bring[ing] internet access” to the unconnected, the ZR platform has been originally conceived to provide access only to a selection of applications, approved by Facebook. Only after NN advocates expressed harsh critiques²⁸

25 In this regard, Carrillo (2016) notes that developing country’s policies must address strong barriers to connectivity and that ZR practices may be seen as a necessary and proportionate exception to NN in order to foster connectivity. Although ZR practices may enhance communication via sponsored services, only application-agnostic data sponsoring aims at enhancing connectivity to the open Internet.

26 See <https://info.internet.org>

27 See <https://info.internet.org/en/mission/>

28 See the Open Letter to Mark Zuckerberg Regarding Internet.org, Net Neutrality, Privacy, and Security. <https://www.facebook.com/notes/access-now/open-letter-to-mark-zuckerberg-regarding-internetorg-net-neutrality-privacy-and-/935857379791271/>

on the project and several content providers decided to withdraw from Internet.org, Facebook decided to move forward Free Basics, allowing the inclusion of “any low-bandwidth online service that meets its technical guidelines.”²⁹ However, it must be noted that the original configuration persists unchanged — *i.e.* including only a reduced number of applications — in many of the countries where it is available,³⁰ despite Facebook’s stated willingness to create “an open platform [to which] anyone who meets these guidelines will be able to participate.”³¹

In countries where poor public policies impede to promote a free and non-discriminatory Internet access, ZR platforms, such as Free Basics, may be considered as a necessary and proportional exception to NN principle in order to allow individuals to exercise their fundamental right to freedom of expression. However, such platforms do not represent a sustainable solution to foster access to an open and generative Internet. On the one hand, when ZR platforms are open to any kind of proposed application, such platforms do not create Internet users but rather create users of sub-Internet cyberspaces and inevitably foster Internet fragmentation, being only accessible by specific groups of sponsored users varying from platform to platform. On the other hand, when the platform is closed and the platform sponsor retains the power to choose which applications can be included, such effort merely creates consumers of preselected, approved and easily-controllable applications.

Moreover, as stressed by Rossini & Moore (2015) the use of such suboptimal solutions may dissuade governments from working towards optimal solutions aimed at empowering unconnected community through the provision full Internet connectivity. Indeed, in light of the fact that operators do not seem to require that sponsors pay for such platforms,³² governments may well claim that ZR platforms allowing to access a selection of (public) services for free may be a good suboptimal solution, *de facto* Minitelising

29 See Ribeiro 2015.

30 See *e.g.* the Colombian version www.tigo.com.co/internetorg and the Kenyan version of the project africa.airtel.com/wps/wcm/connect/africarevamp/kenya/home/personal/promotions/internet.org

31 See Facebook 2015.

32 In this regard, Facebook has constantly claimed it does not pay operators for its Internet.org/Free Basics initiative. It is interesting to note that no national government has been allowed, so far, to enjoy the same privilege.

the Internet, merely creating users of preapproved applications.³³ On the contrary, Internet connectivity is based on the non-discriminatory empowerment of any end-users with the possibility to create and share innovative applications rather than merely receiving preapproved ones.

Lastly, the application-agnostic data-sponsoring model should be discussed, particularly to stress its full compatibility with the NN rationale. In this ZR type, a sponsor entity subsidises a limited amount of data that the operator will make available to the user, so that s/he can use it as s/he wants. Hence, differently from the application-sponsoring model, this latter model does not imply discriminatory treatment because users are free to utilise the sponsored data allowance to access whatever content or application they wish. The best-known initiative in this regard is Mozilla's Equal rating project, launched in 2015 in various African countries, in partnership with the operator Orange. The initiative aims at selling a low-cost smartphone, running the Firefox operating system and including unlimited texting, voice service and 500 Mb data allowance per-month for six months. (Dixon-Thayer 2015) Similarly, since December 2015, Indian operator Aircel has been offering 500Mb data allowance to all new prepaid activations for the first 90 days, starting from the date of activation.³⁴ A different model of this ZR type has been proposed by the mCent application, which rewards with data allowance users' participation in a variety of activities such as "application downloading and using apps, taking surveys, watching videos, signing up for a service, and/or participating in contests."³⁵ It is important to note that, although application-agnostic data-sponsoring can be categorised as a ZR model, the goal of such practices is not to favour or disfavour specific content or applications but rather to foster Internet connectivity. Hence, this latter model should be deemed as completely compatible with NN, while representing a win-win solution for users, who can trade some of their attention for free data allowance, as well as for operators, who may increase their revenue thanks to the sponsoring fees, while not discriminating against specific content or applications.

33 See Section IV.

34 The offering called "Free Basic Internet" should not be confused with Facebook's Free Basics initiative.

35 See <http://mcent.com/about-us/>

2.4 The Minitelisation of the Internet

ZR schemes may be considered as simple market practices, but such appreciation may fail to consider the impact that ZR may have on the Internet ecosystem as a whole. The key question is indeed to understand whether ZR practices might have the potential to distort the Internet ecosystem, prompting a shift from a general-purpose distributed network to a predefined-purpose centralised one. Such phenomenon, which I define as Minitelisation, can be the result of undue discrimination at the network level as well as of the combination of low data-caps and ZR practices. While NN policies aim at avoiding that third parties act as gatekeepers, predefine how individual should use the Internet, it seems plausible that several ZR types may trigger such phenomenon, thus transforming the Internet, notably, the mobile Internet, into an advanced Minitel. The Minitel network was very popular in the 1990s but, in spite of its relative success, this platform allowed access only to predefined services, predefined by the operator and approved by the telecom regulator, such as messaging systems, train-ticket purchases, access to information service and transmission of mail-orders to retail companies. In such context, the operator had an essential role in providing permission to innovate. Furthermore, rather than being a mere conduit of information, Minitel operators acted as two-sided platforms, charging Minitel users a variable rate per minute, depending on the service, that was added to users' monthly telephone bill. The operator subsequently paid back part of the sum to the companies operating Minitel servers. (Hart 1988; Gonzalez & Jouve 2002)

As I have argued previously, the definition of limited data-caps is an essential component of for the success of ZR and, eventually, Minitelisation. Indeed, it is precisely thanks to the fact that users – notably, less-wealthy ones – would prefer free services rather than paying for or consuming their data allowance, that ZR may be interesting, thus leading users to enter a Minitel-like environment. As explained by Arnold *et al.* (2015), consumers consider ZR offerings as attractive primarily when data-caps are low, whilst, when data-caps are wide or absent, consumers do not manifest particular interest for ZR offerings. As such, a further collateral effect of ZR schemes may be to incentivise operators to maintain data-caps as low as possible while increasing prices of open Internet access, as pointed out by Rewheel (2016), thus creating artificial scarcity in order to extract additional benefit from the possibility to select

what applications may be accessed for free. Notably, vertically integrated operators may have an incentive to keep data caps artificially low and gigabyte prices artificially high, in order to orient users' preference towards the affiliated zero-rated applications. In EU and OECD countries, ZR offerings have started to be introduced in 2014 and, by the end of the same year, they had been deployed in more than 80% of such countries. As pointed out by Rewheel (2014), the introduction of such offerings generated "sharp hikes in the price of mobile internet usage"³⁶ amongst the operators involved in ZR practices and such tendency has been confirmed by data that concerning the first two trimesters of 2016. (Rewheel 2016)

On the contrary, the absence of ZR may stimulate operators to increase the volume of data caps. The Dutch example is particularly telling in this regard, showing that one week after the Authority for Consumers and Markets' decision to ban ZR, the main operator in the Netherlands, KPN, decided to double the caps' volume of its mobile Internet plans, to promote use. (Rewheel, 2015) Such example reveals that when ZR is not an option, operators are incentivised to "increase the size of its data bundles for users, to encourage carefree usage,"³⁷ as directly explained by KPN CEO. The Dutch example is of particular interest due to the fact that, contrary to the price-increase tendency evidenced above, KPN reduced of 80% the price of mobile Internet usage, while doubling monthly data caps between November 2014 and February 2015. (Rewheel 2014) Similarly, data caps doubled and the price of megabyte dropped of 60%, when Brazilian operator Claro decided to abandon its ZR, ending application ZR of Facebook and Twitter and incentivising open Internet access. (Belli 2015)

Furthermore, data analysed by A4AI in eight developing countries seem to corroborate the Minitelisation thesis, showing that ZR has direct impact on users' freedom of choice. Indeed, although the strong majority of users³⁸ affirms that would prefer to have full Internet connection for a limited time or limited data volume, rather than unlimited access to specific applications, ZR practices induce 72% of users to remain within ZR applications. Particularly, "35%

36 See Rewheel 2014, p. 1.

37 See KPN's CEO, Eelco Blok, quoted by Rewheel 2015, p. 1.

38 The research highlights that "when faced with a restriction in exchange for "free" data, a majority (82%) of users prefer access to the full Internet, even if that access is limited in terms of time or by a data cap" while only a minority of respondents "(18%) preferred having unlimited data for accessing a limited number of sites (i.e., the way in which most zero-rated services are currently implemented)." See A4AI 2016b.

of all Zero Rating users continue to use the zero-rated service and a paid plan [while] 37% continue to use [...] zero-rated service in combination with public WiFi.” Although, “28% of all Zero Rating users no longer use a Zero Rating plan and are now paying customers,”³⁹ it should be noted that ZR leads 72% of users to stay within the sponsored applications. Therefore, it seems arguable that the ZR practices considered by the A4AI study are more effective to create new customers for selected applications, rather than new Internet users. It seems also foreseeable that, especially in developing countries, only well-established and popular applications will be considered as sufficiently attractive to be included in ZR plans, as it is effectively illustrated by the Brazilian market, where the only applications to be zero-rated are the already dominant Facebook, Twitter and WhatsApp and the music-streaming application Deezer.

Operator	Data Plan	Period	Data Allowance	Price in Brazilian R\$	Zero Rated Application
Vivo	<i>Internet Redes Sociais</i>	30 days	800MB	R\$20,00	Facebook
Vivo	<i>Internet Redes Sociais</i>	7 days	400MB	R\$10,00	Facebook
TIM	<i>Tim Pré</i>	7 or 30 days	150/250/500MB/1GB	R\$ 7,00 R\$ 8,00 R\$10,00 R\$35,00	Deezer
TIM	<i>Turbo WhatsApp</i>	30 days	50MB/day	R\$12,00	WhatsApp
TIM	<i>Infinity Turbo 7</i>	7 days	50MB/day	R\$ 7,00	WhatsApp
TIM	<i>Infinity Pré</i>	1 day	50MB	R\$ 1,29	Deezer
TIM	<i>Pós and Controle</i>	30 days	Unlimited	-	Deezer
Claro	<i>Redes Sociais Claro Max</i>	30 days	Unlimited	-	Facebook, Twitter, WhatsApp
Claro	<i>Controle and Pré</i>	30 days	Unlimited	-	Facebook, Twitter, WhatsApp
Oi	<i>Facebook e Twitter gratis</i>	Unlimited	Unlimited	-	Facebook and Twitter (only accessible via Opera Mini)

39 *Ibid.*

ZR practices such as application ZR, application sponsoring and some types of ZR platforms may well be considered as a form of permanent discrimination, whose sole purpose is to drive users' choice towards the applications proposed by the operator or a reduced number of dominant or financially capable sponsors. In this regard, it seems palpable that, in the context of various ZR models, the choice of both existing and new mobile-Internet users is inevitably oriented by the perceived gratuity of the application. This concretely means that the financial power of the CAP or its affiliation with an operator may become the primary criteria to orientate user choice, rather than the application's quality. Although such system may be economically efficient in providing selected applications to users at no monetary cost (Eisenach, 2015), it would have the potential to reduce the use of the non-zero-rated applications and limit future innovations, which may not materialise or be successful due to the economic filter preventing their diffusion.

Indeed, it should be noted that ZR may provide an unfair advantage to the zero-rated CAPs, compared to the non-zero-rated ones or any new entrant, because access to the latter would be *de facto* "taxed", requiring a payment — *i.e.* the consumption of an increasingly expensive data cap. (Rewheel 2016) As such, the possibility to freely share and access innovative applications would be restricted, moving from a permissionless-innovation situation to a centralised paradigm, closer to the Minitel model, in which the circulation of innovation and information is greatly influenced by the commercial strategy of the operator. This concentration of users towards a reduced number of applications is of particular importance, with regard to media pluralism, which government have a positive obligation to protect and promote, in order to ensure individuals' possibility to form freely their own opinion. (UNHRC 2004; UNHRC 2011; CoE 2014)

The aforementioned consideration has been adamantly voiced by Swedish public-service media, after the introduction of social-media ZR offerings, noting that such practices would endanger public-interest media and national-content production to the profit of a quite concentrated market, where one single player — *i.e.* Facebook — owns the majority of the social-networking applications. In addition, the use of ZR plans risks to create a double filter to users' capability to seek, impart and receive information can be limited by both the price discrimination in favour of the zero-rated application and by the application's own Term of Service and features.

The effects of such limitations individuals' freedom of expression and opinion may prove to be particularly relevant in developing countries, where ZR plans are presented as a solution to bring unconnected individuals online. Indeed, it seems apparent that the Internet experience of such previously unconnected individuals would be limited to the zero-rated applications, thus allowing them to receive information and communicate only through a limited channel. Although it may be argued that restricted access to online information and communication — even if limited — may be better than no access at all and that ZR may encourage new users join mobile networks (Facebook 2015), it may be easily imagined that private entities in control of information supply may be tempted to take advantage of such position.

This risk was particularly evident in India, where Facebook adopted a rather aggressive posture, intensely lobbying for its own position on ZR, during the national consultation on price discrimination. In this regard, it is interesting to note Facebook's lobbying strategy to orientate the outcomes of the Indian national consultation. Notably, the social network has been criticised by the national regulator for sending to its users — and through its zero-rated platform Free Basics — notifications encouraging to “send a message to TRAI [*i.e.* the telecom regulator] to support [Facebook's position on] digital equality,”⁴⁰ with a link to a standard email with the rather explicit subject “I Support Free Basics in India.”⁴¹ This is one of the reasons that led TRAI to rule against ZR, pointing out that such practices “can prove to be risky in the medium to long term as the knowledge and outlook of those users would be shaped only by the information made available through those select offerings.”⁴²

Moreover, it is important to stress that a zero-rated users may not even realise to be constrained within a subset of the Internet, thus being excluded from the range of opportunities that the Internet may offer. This observation seems to be corroborated by the fact that, in several developing countries, users of zero-rated applications such as Facebook outnumber Internet users, (Mirani, 2015) while a considerable percentage of users assumes that “Facebook is the

40 See TRAI 2016a.

41 *Idem.*

42 See TRAI 2016b.

Internet”⁴³. This is due to the fact that, for such users zero-rated applications, such as Facebook, are the only accessible applications. (Orriss, 2014)

It seems arguable that the combination of low data caps with the majority of the above mentioned ZR schemes⁴⁴ is to create artificial scarcity to direct new or existing users towards a subset of the Internet, so that their attention can be concentrated on zero-rated content and applications and subsequently monetised. As such, users are actively disincentivised from venturing beyond the zero-rated applications, thus being steered into a Minitel-like environment where services are predefined by the operator in a top-down fashion. These are some of the reasons why several regulators,⁴⁵ in both developed and developing countries, have already deliberated that ZR has the potential to disadvantage the CAPs — particularly the small-sized and local ones — who do not have the bargaining power nor the financial capability to participate in ZR schemes.

In fact, it seems likely that CAPs deemed as not sufficiently appealing by the operator would suffer a competitive disadvantage that is not supposed to exist in an open Internet environment. This situation “may thus, create entry barriers and non-level playing field for these players stifling innovation.”⁴⁶ Besides, it is important to stress that ZR applications users may be prevented from utilising encrypted HTTPS connections, thus being faced with a difficult trade-off between a free application and the protection of their communications’ privacy. The T-Mobile’s Binge On offering is telling in this regard, foreseeing that users where videos using HTTPS encryption “require additional T-Mobile assessment of the technical feasibility to qualify for inclusion in the offering.”⁴⁷

For these reasons, regulators should carefully scrutinise such practices, assessing their compatibility with NN and, more specifically, the effects that ZR schemes may have on end-user control, competition, consumer protection, innovation and free expression.

43 See Mirani 2015.

44 Particularly, I refer to application ZR, application sponsoring and closed ZR platforms.

45 *Idem*.

46 See TRAI 2016b, p. 6.

47 See T-Mobile 2015.

2.5 Conclusion: Internet or Minitel that is the Question

The extent to which orienting users' choice towards specific information and applications may be interpreted either as a legitimate business practice or as an interference with competition, individuals' freedom of choice and freedom of information, depend on the circumstances of the ZR type and, more importantly, on the legal framework of reference. In this respect, Open Internet rules adopted by the U.S. Federal Communication Commission as well as the Guidelines adopted by BEREC provide useful criteria aimed at evaluating ZR schemes on a case by case. (FCC 2015; BEREC 2016) However, it remains highly debatable whether a case-by-case approach might be beneficial or simply add a further level of complexity and, ultimately, whether ZR practices might be desirable, at all. Indeed, besides determining the risk of Minitelisation, the diffusion of ZR offerings might dissuade governments and other stakeholders from working towards solutions to affordable open Internet access. (Rossini & Moore 2015) As argued in the previous sections, although ZR may give some benefits, it has also the potential to generate distortions similar to those that can be produced by the discriminatory ITM practices that are prohibited by the majority of NN frameworks.

Access to selected parts of the Internet unilaterally defined by private entities based on purely commercial interests has the potential to foster fragmentation and create digital divides which seem to be antithetical to the Internet as described in its non-discriminatory paradigm. The Internet is a network of networks in which innovation can spring up from anywhere. Such feature is key because concretely means that the growth and evolution of the Internet are not and cannot be predefined by a central authority or by the will of any controlling entities. Indeed, differently from preceding networks whose purpose was delineated by the operator, the Internet empowers every individual user, who has the possibility to choose how to use and contribute to the Internet, being an active participant rather than a simple consumer. When discussing ZR, particularly in the context of NN frameworks, the question that policymakers should keep in mind is therefore whether specific ITM practices — or business models in general — have the potential to hinder such generative and user-empowering environment. Indeed, Internet generativity and permissionless innovation are not mere side effects. On the contrary, such features greatly contribute to the

Internet's success and are key to unleash the creativity of all users, thus promoting the individual freedom to conduct a business. (van Schewick 2010; Daigle 2015; Belli & De Filippi 2016).

The fundamental goal of policymakers should be the promotion of sustainable Internet connectivity rather than setting the base for Minitelisation. As such, regulators should scrutinise whether ZR constitute unreasonable discrimination, while policymakers should promote the adoption of a wide spectrum of approaches that can foster full Internet access, rather than focusing on commercial approaches that may ultimately promote the interests of a very reduced range of stakeholders. A viable alternative to the traditional Internet access models and to ZR may be, for instance, the promotion of community networks, a subset of crowdsourced networks, structured to be open, free, and neutral. (Baig *et al.* 2015; De Filippi & Tréguer 2016; Belli 2016) Such networks represent a possibility for individuals to develop connectivity autonomously, thus gaining control over the infrastructure of communication and acquiring the technical knowledge that can enable free communication. This seems to be kind of empowerment that policymakers should aim at promoting, thus preserving a sustainable Internet environment, where information and innovation flow freely and users have the possibility to be active developers, creators and entrepreneurs, rather than being limited to passive consumers.

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3 Better Regulation of Net Neutrality: A Critical Analysis of Zero Rating Implementation in India, the United States and the European Union

by Christopher T. Marsden

3.1 Introduction

This article critically examines the relatively few examples of regulatory implementation of network neutrality enforcement at national level, focussed on Zero Rating. It studies co-regulation (where legislation permits regulation but the regulator forbears given evidence of effective self-regulation) and self-regulation schemes' implementation and capture,⁴⁸ and interdisciplinary studies into the real-world effect of regulatory threats to traffic management practices (TMP). Most academic and policy literature on Net Neutrality regulation has focussed on legislative proposals and economic or technological principles, rather than specific examples of comparative national implementation, which are of more recent vintage. I examine the relatively few case studies of effective implementation of legislation, and make comparisons with appropriate fieldwork to assess the true scope of institutional policy transfer.

This article examines the ground-breaking example of India, where a successful anti-Facebook campaign by civil society in 2015 resulted in regulation to ban Zero Rating announced on 8 February 2016.⁴⁹ The other countries studied are the United States, and the European Union. This article is based on rigorous in-country fieldwork.⁵⁰ Empirical interviews were conducted in-field with regulators, government officials, IAPs, content providers, academic experts, NGOs and other stakeholders. The article notes the limited political and administrative commitment to effective regulation thus far in the countries examined, and draws on that critical analysis to propose reasons for failure to implement effective regulation. Finally,

48 See definitions in B Leveson, 'An Inquiry Into the Culture and Ethics of the Press, Politicians and Police: Volume IV' (2012) at 1739, Para 2.31 available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/270943/0780_iv.pdf, (accessed 9 Sept 16).

49 "Prohibition of Discriminatory Tariffs for Data Services Regulations" (No.2 of 2016,2016) Gazette of India.

50 With the exception of Chile, where the UN CEPAL in 2013 and Brazilian CGI in 2015 provided a forum for Chilean stakeholders to travel to workshops on comparative implementation.

it compares results of implementations and proposes a framework for a regulatory toolkit for those jurisdictions that intend effective practical implementation of some or all of the Net Neutrality proposals currently debated. The specific issue considered is the tolerance of Zero Rating practices, notably as deployed by mobile IAPs.

3.2 Case Studies in Net Neutrality Regulation

Net Neutrality has advanced from thwarted regulatory proposal to actual regulatory action in several advanced and developing nations since 2012. Prior to that, theorists lined up on either side of the debate, for and against specific regulation, in the United States and Europe.⁵¹ While regulatory and legislative logjams and litigation have resulted in delayed implementation of regulation in the United States, Brazil and European Union in the period since their respective initial intentions to regulate were announced in 2009,⁵² several countries have passed legislation and/or implemented regulation of Net Neutrality. Table 1 below details the nation, legislation or regulation, its date of publication, and the date of enforcement, if any. The case studies detail those incidents of enforcement, for instance the 2014 actions in

51 The two opposing law and economics camps on these issues in the origins of the debate are described in C Marsden et al, "Assessing Indirect Impacts of the EC Proposals for Video Regulation" (2006) available at <http://stakeholders.ofcom.org.uk/binaries/research/tv-research/videoregulation.pdf> (accessed 5 Sept 16). For those against regulation, see e.g. R Hahn and S Wallsten, "The Economics of Net Neutrality" (2006) available at <https://server1.tepper.cmu.edu/ecomerce/Economics%20of%20Net%20Neutrality.pdf> (accessed 5 Sept 16); J Speta, "FCC Authority to Regulate the Internet: Creating It and Limiting It" (2004) 35 *Loyola University Chicago Law Journal* 15-39; C Yoo, "Network Neutrality and the Economics of Congestion" (2006) 94 *Georgetown Law Journal* 1847-1908. For those in favour of regulation, see e.g. M Lemley and L Lessig, *Ex Parte Declaration Of Professor Mark A. Lemley And Professor Lawrence Lessig In The Matter Of: Application For Consent To The Transfer Of Control Of Licenses of MediaOne Group, Inc. To AT&T Corp* (1999) available at <https://cyber.law.harvard.edu/works/lessig/cable/fcc/fcc.html> (accessed 5 Sept 16); T Wu, "Network Neutrality, Broadband Discrimination" (2003) 2 *Journal on Telecommunications and High Technology Law* 141-172; T Wu, "When Code Isn't Law" (2003) 89 *Virginia Law Review* 679-751; T Wu, "Wireless Carterfone" (2007) 1 *International Journal of Communication* 389-426; R Frieden, "What Do Pizza Delivery and Information Services Have in Common? Lessons From Recent Judicial and Regulatory Struggles with Convergence" (2006) 32 *Rutgers Computer and Technology Law Journal* 247-296; B Cherry, "Misusing Network Neutrality to Eliminate Common Carriage Threatens Free Speech and the Postal System" (2006) 33 *Northern Kentucky Law Review* 483-511; N Economides and J Tåg, "Network Neutrality on the Internet: A Two-Sided Market Analysis" (2012) 24 *Information Economics and Policy* 91-104; P Weiser, "The Future of Internet Regulation" (2009) 43 *UC Davis Law Review* 529-590; B Frischmann and B van Schewick, "Yoo's Frame and What It Ignores: Network Neutrality and the Economics of an Information Superhighway" (2007) 47 *Jurimetrics Journal* 383-428. Since that point, the debate has turned from theory to evidence and implementation details, on which this article focuses.

52 Marsden C, "Summary of October Events Regulators" (2009) available at <http://chrismarsden.blogspot.co.uk/2009/10/summary-of-october-events-regulators.html> (accessed 9 Sept 16).

Netherlands and 2015 in Slovenia. Indian regulations will be enforced following the six-month grace period for existing zero rated packages.

United States and European Union regulation and legislation have been a drawn-out and complex series of actions summarised briefly in the case studies. Note that the European legislation was followed by Guidelines issued by the body of regulators in August 2016.⁵³ The United States regulator won a Federal Appeals Court decision on its 2015 regulation,⁵⁴ during a Presidential electoral year.⁵⁵ Neither the EU nor US is expected to prove active until 2017. Both jurisdictions will produce a very substantial volume of regulatory analysis in coming years,⁵⁶ and this comparative treatment considers both only briefly. Other well-known case studies include South Korea (2011-13),⁵⁷ Japan (2009),⁵⁸ Israel (2011)⁵⁹ and Singapore (2011).⁶⁰ Empirical analysis of UK IAP practices show that Net Neutrality violations have been far more frequent in the UK than US.⁶¹

53 BoR (16) 127BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules, issued 30 August (accessed 9 Sept 16).

54 "Joint Mot. Stay or Expedition U.S. Telecom Ass'n, No. 15-1063" (2015) available at: https://www.publicknowledge.org/assets/uploads/blog/15.05.13_Motion_for_Stay.pdf (accessed 9 Sept 16); "Order No. 15-1063 Denying in Part & Granting in Part Joint Mot. Stay or Expedition at 1-2, U.S. Telecom Ass'n, of June 11, 2015" https://www.publicknowledge.org/assets/uploads/blog/15.05.13_Motion_for_Stay.pdf; "DA 15-563 Protecting & Promoting the Open Internet, Order Denying Stay Petitions, of May 8, 2015" https://apps.fcc.gov/edocs_public/attachmatch/DA-15-563A1.pdf

55 K Bode "IAPs Are Trampling Net Neutrality While The FCC Sits Boxed In By Lawsuits" (2016) available at: <https://www.techdirt.com/articles/20160201/06351633480/IAPs-are-trampling-net-neutrality-while-fcc-sits-boxed-lawsuits-upcoming-election.shtml> (accessed 9 Sept 16).

56 R Frieden, "Déjà vu All Over Again: Questions and a Few Suggestions on How the FCC Can Lawfully Regulate Internet Access" (2015) 67 *Federal Communications Law Journal* 325-376.

57 D-H Shin, "A Comparative Analysis of Net Neutrality: Insights Gained by Juxtaposing the U.S. and Korea" (2014) 38 *Telecommunications Policy* 1117-1133, citing Korean Communications Commission, "Criteria on Reasonable Management and Use of Communications Networks and Transparency in Traffic Management" (2013).

58 T Jitsuzumi, "Recent Development of Net Neutrality Conditions in Japan" (2015) available at http://www.slideshare.net/toshiyajitsuzumi/recent-development-of-net-neutrality-conditions-in-japan?qid=aa9e9595-f430-434a-b6f2-1b2444237266&v=default&b=&from_search=1 (accessed 9 Sept 16).

59 A Cahan-Gonen, "Internet (over-the-top) Services and Challenges to Regulation" (2015) available at <http://bereg.europa.eu/files/doc/2.%20Israel%20adi%20presentation%20emerg%2023.6.15%20Israel.pdf> (accessed 9 Sept 16). See also E Greenbaum, "Net Neutrality II" (2014) available at <https://israeltechnologylaw.wordpress.com/2014/02/13/net-neutrality-ii/> (accessed 9 Sept 16).

60 Info-communications Development Authority of Singapore, "IDA's Decision and Explanatory Memorandum for the public consultation on Net Neutrality" (2011) available at <https://www.ida.gov.sg/Policies-and-Regulations/Consultation-Papers-and-Decisions/Store/Consultation-on-Policy-Framework-for-Net-Neutrality> (accessed 5 Sept 16).

61 A Cooper and I Brown, "Net Neutrality: Discrimination, Competition, and Innovation in the UK and US" (2015) 15 *ACM Transactions on Internet Technology* 1-21.

Table 1. Notable Net Neutrality laws or regulation.

Country	Legislation/regulation	Published	Date Enforced
Norway	Guidelines ⁶²	24/2/2009 ⁶³	Zero Rating NKOM 2014
Chile	Law 20.453 ⁶⁴	18/8/2010	Decree 368, 15/12/2010 ⁶⁵
Netherlands	Telecoms Act 2012 ⁶⁶	7/6/2012	Guidelines 15/5/2015 ⁶⁷
Slovenia	Law on Electronic Communications 2012 ⁶⁸	20/12/2012	Zero Rating 2015
Finland	Information Society Code (917/2014) ⁶⁹	17/9/2014	2014
India	Regulations (Nº.2 of 2016)	8/2/2016	8 August 2016
Brazil	Law Nº.12.965 Decree Nº.8771/2016	11/5/2016	No implementation ⁷⁰

In each of the case studies, initial confusion at lack of clarity in Net Neutrality laws⁷¹ gave way to significant cases particularly since 2014 which have given regulators the opportunity to clarify their legislation or regulation. The majority of such cases relate to mobile (or in US parlance “wireless”) Net Neutrality, and in particular so-called “Zero Rating” practices.

62 See guidelines at Nkom, “Net Neutrality” (2014) available at <http://eng.nkom.no/technical/internet/net-neutrality/net-neutrality> (accessed 9 Sept 16).

63 T Olsen, “Net Neutrality Activities at BEREC and Nkom, Norwegian Communications Authority” (2015), slide 5, available at http://berec.europa.eu/files/doc/2015-07-13_09_56_36_3_%20Noruega%20Nkom%20net%20neutrality%20-%20Summit%20BEREC-EaPeReg-REGULATEL-EMERG.pdf (accessed 9 Sept 16).

64 See The Chilean “Law 20.453, which enshrines the principle of Net Neutrality for consumers and Internet users” (2010) available at <http://www.leychile.cl/Navegar?idNorma=1016570&buscar=NEUTRALIDAD+DE+RED> (accessed 9 Sept 16).

65 See http://www.subtel.gob.cl/images/stories/articles/subtel/asocfile/10d_0368.pdf (accessed 9 Sept 16).

66 See <https://www.government.nl/documents/policy-notes/2012/06/07/dutch-telecommunications-act> (accessed 9 Sept 16).

67 Netherlands Department of Economic Affairs, Net Neutrality Guidelines May 15th, for the Authority for Consumers and Markets (ACM) for the enforcement by ACM of Article 7.4a of the Netherlands Telecommunications Act 2012 (2015).

68 “Nº.003-02-10/2012-32” available at <http://www.uradni-list.si/1/content?id=11144> (accessed 5 Sept 16).

69 See <https://www.finlex.fi/fi/laki/kaannokset/2014/en20140917> (accessed 9 Sept 16).

70 For updates, see ‘Ministry of Justice’ (2016) available at <http://pensando.mj.gov.br/marcocivil/> (accessed 9 Sept 16).

71 C Marsden, “Presentation on Net Neutrality” (2013) available at <http://chrismarsden.blogspot.co.uk/2013/10/presentation-on-net-neutrality-at.html> (accessed 9 Sept 16).

3.2.1 Zero Rating

The developed countries⁷² have recently legislated for or regulated for “Net Neutrality”, the principle that Internet Access Providers (IAPs) should not discriminate between different applications, services and content accessed by their users.⁷³ This victory for Net Neutrality proponents came after twenty years of attempted discrimination between content streams within the walled gardens of both fixed and mobile IAPs, such as AOL in the 1990s, and Vodafone Live/360 in 2002-11, which was intended to challenge the Apple AppStore and Android/GooglePlay.⁷⁴ Alongside their walled gardens, these IAPs enforced monthly data caps preventing their customers having unlimited use of the Internet. Fixed line walled gardens failed in view of the easy access to the open Internet at increasingly low cost offered by broadband access. A recent history is provided by Kantrowitz.⁷⁵ Continued attempts to maintain walled gardens throughout the past decade have focussed on both “negative” and “positive” Net Neutrality. I explain both in turn.

Negative neutrality is the blocking and throttling of content that threatens the business model of the IAP. This can be relatively benign when it is spam email and viruses that are blocked. It can also be self-serving and anti-competitive when it is unjustified and unreasonable restrictions on users’ preferred content that is affected — for instance peer-to-peer file sharing or video streaming. It is this “negative” Net Neutrality which is the target of most legislation in the area, based on the generic regulatory principle of “first, do no harm”, in this case eliminating the harms caused by unreasonable negative blocking, or discrimination. Cases in the US such as Madison River and Comcast were about blocking, and it is this that rouses much consumer anger and political action.⁷⁶

72 Commonly taken to encompass members of the Organisation for Economic Cooperation and Development (OECD): www.oecd.org

73 See Wu, “Network Neutrality, Broadband Discrimination” and “Wireless Carterfone”, note 5 above.

74 R Wray, “Vodafone 360: Mobile Provider Launches New Applications Service” (2009) available at <http://www.theguardian.com/business/2009/sep/20/vodafonegroup-telecoms> (accessed 5 Sept 16).

75 A Kantrowitz, “How Facebook Stumbled On Its Quest to Give Internet Away For Free” (2016) available at <http://www.buzzfeed.com/alexkantrowitz/how-facebooks-plan-to-give-the-world-free-mobile-internet-we#.hW4oEnnR> (accessed 9 Sept 16).

76 C Marsden, “Net Neutrality Law: Past Policy, Present Proposals, Future Regulation? Proceedings of the United Nations Internet Governance Forum: Dynamic Coalition on Network Neutrality” (2013) available at <http://ssrn.com/abstract=2335359> (accessed 9 Sept 16).

“Positive” Net Neutrality violations do not involve blocking, but treating some content better than general Internet traffic. As cable TV provides High Definition and standard video and television channels at high fees in a separate logical pathway to the general Internet traffic on its cable, some telecoms companies hope to partition its Internet traffic to replicate this business model. Several IAPs attempted this practice over lengthy periods, notably by excluding television channels from monthly data caps for users, positively discriminating in favour of their affiliated content and against other video providers (such as YouTube). In this way, “walled gardens” reappear with much more “specialised service” walls – restrictions that affect only certain non-affiliated types of Internet traffic, such as social networks or video. This exclusion of preferred content from data caps is described as “Zero Rating” because all that downloading costs precisely zero in terms of counting towards their monthly bill.⁷⁷ Note that many fixed IAPs have virtually unlimited data use as part of their offer, made possible because maximum speeds and user profiles mean that the cumulative download burden does not over-strain the network.

Data caps have been controversial throughout the consumer Internet’s history, especially in the United States where dial-up Internet was virtually free to the end-user (simply the cost of a local telephone call). The US Open Internet Advisory Committee in 2013 noted the move towards capping data especially for mobile users and worried “whether caps or thresholds that are set too low could lead to a world where the average user carefully monitors her bandwidth use” given uncertainty over data caps as a “transitory or permanent concern” which appears to be the case in developing (and many developed) nations’ mobile data access.⁷⁸ While data caps apply in many nations, applied by many IAPs, the user often has little or no idea that they are approaching their monthly limit until informed by the IAP, and

77 C Marsden, *Network Neutrality: Towards a Co-regulatory Solution* (London: Bloomsbury Academic, 2010), at 38-39, 96; A Odlyzko, B St Arnaud, E Stallman and M Weinberg “Know Your Limits Considering the Role of Data Caps and Usage Based Billing in Internet Access Service” (2012) available at <https://www.publicknowledge.org/documents/know-your-limits-considering-the-role-of-data-caps-and-usage-based-billing> (accessed 9 Sept 16); P Maillé and B Tuffin, *Telecommunication Network Economics: From Theory to Applications* (Cambridge: CUP, 2014), at 89-90; J Eisenach, “Economics of Zero Rating” (2015) available at <http://www.nera.com/content/dam/nera/publications/2015/EconomicsofZeroRating.pdf> (accessed 9 Sept 16).

78 Open Internet Advisory Committee, “Policy Issues in Data Caps and Usage-Based Pricing” (2013) at 13 available at <https://transition.fcc.gov/cgb/oiac/Economic-Impacts.pdf> (accessed 9 Sept 16).

such warnings are often inaccurate. It is at best a blunt weapon for handling congestion, though there is little argument that data caps per se do not infringe Net Neutrality, as long as the cap gradually increases over time. The OECD states “Zero Rating can clearly be pro-competitive [...] becomes less of an issue with [...] higher or unlimited data allowances. Regulators need to be vigilant.”⁷⁹

Politicians and telecoms executives who now claim to be in favour of Net Neutrality are in fact conceding that blocking and throttling users is no longer acceptable to politicians and therefore regulators. They largely only concede “negative” Net Neutrality. “Positive” Net Neutrality is a much more contested topic, and where download limits apply or ill-defined “specialised 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 IAPs than developed.

3.3 Case Studies

The description thus far has relied to a large extent on the experiences of developed nations. Below I focus on three case studies, including the most recent regulation in its current form — India — whose Regulation No.1 became effective in 2016. I also discuss the United States regulation and its proposed implementation. The European Economic Area implementation of the Open Internet Regulation (EU/2021/2015) has been clarified with Guidelines issued on 30 August 2016⁸⁰.

*Research into comparative Net Neutrality law has recently been carried out by several Non-Governmental Organisations (NGOs) and is well reported in the specialist media.*⁸¹ Odlyzko et al noted

79 OECD, “OECD Digital Economy Outlook 2015: Main Trends in Communication Policy and Regulation” (2015) available at http://www.keepeek.com/Digital-Asset-Management/oecd/science-and-technology/oecd-digital-economy-outlook-2015/main-trends-in-communication-policy-and-regulation_9789264232440-6-en#page22 (accessed 9 Sept 16).

80 BEREC (2016) BoR (16) 127 BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules, August 2016, *supra* n.6

81 C Rossini and T Moore, “Exploring Zero Rating Challenges: Views from Five Countries” (2015) available at <https://www.publicknowledge.org/documents/exploring-Zero-Rating-challenges-views-from-five-countries> (accessed 9 Sept 16). See also C Marques et al, “Internet: seis meses depois, em que pé que estamos?” (2015) available at <http://artigo19.org/blog/analise-marco-civil-da-internet-seis-meses-depois-em-que-pe-que-estamos/> (accessed 9 Sept 16). Additionally, many regulatory documents are available in Spanish, Portuguese and English on regulator websites. The consultation process for Net Neutrality regulation was very well publicised in Brazil, while Chile’s 2010 law was well noted but little researched in academia outside Latin America.

that the Zero Rating debate exists in one Asian country, but does not explore in depth, while I previously discussed monthly caps before Zero Rating had become commonly identified.⁸² Just as Net Neutrality dates to the late 1990s, and Zero Rating dates to the same decade even if the term of art was coined much later.⁸³ There are ten times more mobile (5.6 billion) than fixed line connections (572m) in developing countries, whereas the developed world ratio is 3:1. There are five times more mobile broadband subscriptions in the developing world with 2.37 billion to only 429 million fixed subscriptions (developed world 1.09 billion mobile to 365m fixed at a ratio of 3:1). Seventy percent of Internet users totalling over 2 billion people are outside the EU/US.

*This article summarises each nation's development of Net Neutrality, and focuses on its implementation of regulation against Zero Rating since 2014.*⁸⁴ The methodology was based on both literature review and empirical interviews.

3.3.1 India

India has a population of 1.25 billion, with a billion mobile users or almost 80% of all citizens, but low data use on smartphones, and only 26 million fixed telephone connections.⁸⁵ Only 57% of Indian (and 43% of Brazilian) smartphone users actually use data plans at all, and the average amongst those Indians who do was 80MB a month in 2015 (3-5% of developed nation average usage).⁸⁶ With a very low fixed Internet subscription rate, most Indian consumers primarily rely on the mobile Internet for data. The regulator is the Telecom Regulatory Authority of India (TRAI), which had consulted on Net Neutrality in 2006 when the issue first arose,

82 B St Arnaud, E Stallman and M Weinberg, see note 35 above; C Marsden, see note 35 above, citing Fierce Wireless, "Do Usage-Based Pricing Models Work?" (2011) available at http://www.fiercewireless.com/offer/pricing_models (accessed 9 Sept 16).

83 M Lemley and L Lessig, see note 5 above; C Marsden, "Pluralism In The Multi-Channel Market: Suggestions For Regulatory Scrutiny Council of Europe Human Rights Commission" (1999) Mass Media Directorate, MM-S-PL [99] 12 Def 2.

84 A longer treatment will be provided in C Marsden, *Network Neutrality* (Manchester: Manchester University Press, 2017, in press).

85 World Bank, "World DataBank, Millennium Development Goals" (2015) available at <http://databank.worldbank.org/data/reports.aspx?source=millennium-development-goals> (accessed 5 Sept 16).

86 P Olsen, "This App Is Cashing in on Giving the World Free Data" (2015) available at <http://www.forbes.com/sites/parmyolson/2015/07/29/jana-mobile-data-facebook-internet-org/> (accessed 9 Sept 16).

with little public debate.⁸⁷ By contrast its spring 2015 consultation produced over a million emails in reply, focussed on Zero Rating.⁸⁸

Zero Rating is only possible when users take an IAP subscription which has a data cap, which is generally a much lower limit imposed by mobile than fixed IAPs. Unlimited data plans mean users can download as much data as needed using the open Internet pipe, whose speed is restricted only by the Internet itself, or the type of Content Delivery Network used to supply media.⁸⁹ When a cap applies to a monthly subscription (such as 1 Gigabyte a month⁹⁰), that limits the amount of content that a user will choose to access. If data is as expensive as it can be in developing countries, any content can prove too expensive to access for the average user. Offering certain content on a “zero rated” basis means that content will not be included in the monthly data capped allowance — which is particularly useful if that content is streamed video, audio or an application used regularly, such as social network Facebook or messaging app WhatsApp. That content may be locally stored, relieving congestion in the network, as a result of partnership with the IAP. This can justify in network engineering costs the decision to reduce the apparent end-user cost, if not to zero, then to a lower cost than other data.

A particular business model for this practice is that of dominant social network Facebook, which from 2009 introduced Facebook Zero with mobile IAP partners, and in 2015 introduced a wider walled garden called “Internet.org.” This, despite its name, is an Intranet for thirty-forty affiliates, a name since changed to Free Basics in late September 2015 as it had misled users into believing it offered

87 Telecom Regulatory Authority of India, “Consultation Paper on Review of Internet Service” (2006) available at <http://www.trai.gov.in/WriteReaddata/ConsultationPaper/Document/consultation27dec06.pdf> (accessed 5 Sept 16).

88 Telecom Regulatory Authority of India, “Consultation Paper on Regulatory Framework for Over-the-top (OTT) services” (2015) available at <http://tra.gov.in/WriteReaddata/ConsultationPaper/Document/OTT-CP-27032015.pdf> (accessed 5 Sept 16).

89 Explaining the use of IAP CDNs such as Sky and British Telecom, together with four commercial CDNs including Akamai, Atos, Level3 and Limelight see: BBC, “Information Policy & Compliance Letter, “Freedom of Information Act 2000 - RF1201-40419, Information Compliance” (2014) available at http://downloads.bbc.co.uk/foi/classes/disclosure_logs/digital_and_technology/RF1201-40419-iplayer-content.pdf (accessed 9 Sept 16).

90 The typical UK limit in 2015 was 2GB/month. See “Mobile Internet: How Many Gigabytes Do You Need? Download Limits Explained” (2015) available at http://kenstechtips.com/index.php/what-does-500mb-or-1gb-internet-actually-mean-explaining-mobile-data-limits#Download_Limits_in_the_UK (accessed 5 Sept 16).

Internet access when it clearly did not.⁹¹ The prize for FreeBasics was to grow subscribers in the Indian market more effectively: Zuckerberg stated:

*[through] Internet.org in India now, there are already more than a million people who now have access to the internet who didn't otherwise [...] in terms of DAU (Daily Accessing User) growth, the three largest countries were India, the US and Brazil.*⁹²

In May 2015, opposition to the highly exclusive and non-transparent Internet.org had led to content owners abandoning their previously negotiated tenancies, and mobile IAPs dropping the service.⁹³ As India has more people in absolute poverty than all of Africa (and thus in need of subsidised Internet access), and a larger middle class who can afford to pay, than all of Europe (the commercial argument for extending Facebook's reach as broadly into India as possible), Zuckerberg personally wooed the Indian Prime Minister for the relaunch, to mixed reviews. Free Basics has less powerful gatekeeper functions than Internet.org and more content is permitted, with officially only technical grounds for refusal, but it is still only governed by a contract with Facebook which it can unilaterally change.

In India, three zero-rated options were offered in 2015, by both Internet.Org, owned by Facebook using the Reliance network, and Airtel (the largest mobile IAP in India with 226 million customers at April 2015). An Indian government committee in summer 2015 suggested that the locally based Airtel's zero-rated option should be permitted but foreign-controlled Facebook's Internet.Org prohibited.⁹⁴ In response to concerns most vociferously raised in India but also in Brazil, the US, and other nations, Facebook made the terms of Internet.org more transparent in May 2015, effectively opening access in principle to any app developer who could meet

91 G Helani, "Zero Rating: Are We in Danger of Killing the Goose Before Knowing If Its Eggs Are Golden?" (2015) available at <http://blogs.cfr.org/cyber/2015/10/05/Zero-Rating-are-we-in-danger-of-killing-the-goose-before-knowing-if-its-eggs-are-golden/> (accessed 9 Sept 16).

92 Facebook, "Q3-2015 Earnings Call" (2015) available at <http://investor.fb.com/results.cfm> (accessed 9 Sept 16).

93 C Marsden, "Zero Rating and Mobile Net Neutrality" in L Belli and P De Filippi (eds), *Net Neutrality Compendium: Human Rights, Free Competition and the Future of the Internet* (Cham, CH: Springer, 2016) 241-260.

94 Department of Telecommunications, "Committee Report Net Neutrality" (2015) available at [http://dot.gov.in/sites/default/files/u10/Net_Neutrality_Committee_report%20\(1\).pdf](http://dot.gov.in/sites/default/files/u10/Net_Neutrality_Committee_report%20(1).pdf) (accessed 9 Sept 16).

its terms.⁹⁵ Nevertheless, Facebook's privacy policies continue to apply and it is not possible to use the renamed Free Basics without also being a Facebook user, and Facebook accesses all your tracking behaviour while logged in to any partner sites and can share that with mobile IAPs.

Internet.org's policies were carefully analysed by the Centre for Internet Studies in India in March 2015.⁹⁶ It was a matter of great priority for Facebook to expand its mobile network monthly average user (MAU)s in its home US market from 2013. The prize for Facebook was to grow subscribers in the Indian market more effectively. Zuckerberg stated:

[through] Internet.org in India now, there are already more than a million people who now have access to the internet who didn't otherwise [...] in terms of DAU (Daily Accessing User) growth, the three largest countries were India, the US and Brazil.⁹⁷

The threat of regulatory action was expressed in July 2015 by the Joint Secretary of the Department of Telecommunications, V. Umashankar:

[I]f the need arises, the government and the regulator may step in to restore balance to ensure that the internet continues to remain an open and neutral platform for expression and innovation with no [IAP], or for that matter any content or application provider, having the potential or exercising the ability to determine user choice, distort consumer markets or significantly controlling preferences based on either market dominance or gatekeeping roles.⁹⁸

He explained that the Telecoms Committee report delivered in July 2015 proposed *ex ante* regulation: "a licensee has to file the tariff plan with TRAI prior to the launch. TRAI would examine each such

95 Facebook, "Response to Free Basics Opponents, Item 6" (2015) available at <https://info.internet.org/en/response-to-free-basics-opponents/> (accessed 9 Sept 16).

96 R Jain, R Ravattu, R Dara and P Prakash, "Response to TRAI Consultation Paper on Regulatory Framework for Over-the-top (OTT) Services 27th March 2015" (2015) available at <http://traigov.in/comments/24-April/Attachments-49/Response%20-%20Regulation%20of%20OTTs.pdf> (accessed 5 Sept 16).

97 Facebook, "Q3-2015 Earnings Call November 4, 2015" (2015) at 13, available at <http://investor.fb.com/results.cfm> (accessed 9 Sept 16).

98 P Doval, "Zero Rating Plans Must be Open to All Users: Do panel member" (2015) available at <http://timesofindia.indiatimes.com/tech/tech-news/Zero-Rating-plans-must-be-open-to-all-users-DoT-panel-member/articleshow/48138850.cms> (accessed 9 Sept 16).

tariff filing carefully to see if it conforms to the principles of Net Neutrality and that it is not anti-competitive by distorting consumer markets.”⁹⁹ Should Zero Rating have already begun, as with Internet.org and Airtel, “penalties will be levied if there is a violation.”¹⁰⁰

Facebook’s partnership with third largest mobile operator Reliance Communications (RCom) to deliver Free Basics was suspended on 24 December 2015 by Reliance, based on a request from the regulator TRAI.¹⁰¹ The sequence of events was apparently that RCom informed the regulator on 23 November that it offered Free Basics, to which the regulator replied on 21 December, and asked the carrier not to deploy before submitting the terms and conditions, which includes tariff plans. This led Facebook CEO Zuckerberg to interrupt his paternity leave to write an extremely aggressive statement in a major Indian newspaper on 28 December, accusing critics of misrepresenting Facebook’s plans.¹⁰² This backfired spectacularly, raising the spectre of economic colonialism which is a very emotive issue for India, even seventy years after independence from the UK. Guha and Aulakh explain that:

On December 9, Facebook started a mass campaign on its platform asking users to support Free Basics and urged them to email Trai declaring their support of ‘digital equality.’ Free Basics was sought to be conflated with digital equality, with Facebook pitching the product as a solution to connect the unconnected billions. [TRAI] had called Facebook’s Save Free Basics campaign a ‘crudely majoritarian and orchestrated opinion poll.’ It also pulled up Facebook for the responses, which the regulator said didn’t address any of the questions posed in the consultation paper. On January 1, Trai asked the company to alert its users to send revised responses to the questions

99 *Ibid.*

100 *Ibid.*

101 Economic Times, “TRAI asks Reliance Communications to Put Facebook’s Free Basics Service on Hold Till It Approves” (2015) available at http://articles.economictimes.indiatimes.com/2015-12-24/news/69282660_1_consultation-paper-telecom-service-providers-telecom-sector-regulator (accessed 9 Sept 16).

102 M Zuckerberg, “Free Basics Protects Net Neutrality: To Connect a Billion People, India must Choose Facts Over Fiction” (2015) available at <http://blogs.timesofindia.indiatimes.com/toi-edit-page/free-basics-protects-net-neutrality/> (accessed 9 Sept 16).

*on the consultation paper as a vote for Free Basics did not hold up as a valid response.*¹⁰³

The Prime Minister, who had been a supporter of Free Basics less than four months earlier, advised Facebook to behave less aggressively: “government must not allow any platform, no matter how popular, to monopolise any information system in the country as it can have far-reaching social, political and economic ramifications.”¹⁰⁴ This was the clearest indication of political pressure on the regulator to find against Facebook, which it did four days later.

The resulting regulations ban Zero Rating by both Free Basics via its Indian partner mobile network RCom, and domestic network Airtel’s own zero rated offer. Those offers that subscribers have already received are permitted to continue for six months (to August-September 2016), but any breach of that or zero rated (“differential pricing” in the Regulations) offer to new subscribers would make the licensed network operator liable to 50,000 Indian Rupee daily fines (about \$700-750 USD). Licensing is permitted and controlled by the Indian Telegraphy Act 1885. Though these fines are low, the context of the regulator’s power over other licence conditions makes it unlikely that a network operator would not comply.

India’s road to a Zero Rating ban has been unusual: the regulator in spring 2015, and Prime Minister in September 2015, appeared minded to support differential pricing, but the strength of public opinion and lobbying directed by civil society coalition SaveTheInternet.in, compounded by Facebook’s culturally insensitive aggressive lobbying, led to a complete reverse within months.¹⁰⁵ Whether that decision leads other (post-colonial or otherwise) regulators into similar bans remains to be seen.

103 R.Guha and G.Aulakh, “TRAI bars Facebook Free Basics, Airtel Zero; releases notification on differential data pricing” (2016) available at <http://telecom.economictimes.indiatimes.com/news/trai-bars-differential-pricing-of-data-services/50899934> (accessed 9 Sept 16).

104 AS Mankotia, “PMO DIA Pleased with Facebook’s Reaction to TRAI’s Consultation Paper” (2016) available at http://articles.economictimes.indiatimes.com/2016-02-04/news/70343830_1_net-neutrality-consultation-paper-digital-india (accessed 9 Sept 16).

105 A Srivas, “What Facebook’s Spat with TRAI Tells Us About the Ethics of Digital Lobbying” (2016) available at <http://thewire.in/2016/01/15/what-facebooks-spat-with-trai-tells-us-about-the-ethics-of-digital-lobbying-19316/> (accessed 9 Sept 16).

Policy Considerations in Developing Nations: Wifi, Privacy and Free Expression

The majority of “mobile” data traffic is actually downloaded to devices via Wi-Fi in home, office or hotspot locations. It is not the cost of mobile data plans that is the dominant price driver, but that of hardware and prevalence of Wi-Fi. Open Wi-Fi can be accessed relatively widely in countries where Internet policy is not dominated by the copyright maximalist lobby and morality (anti-pornography) cybercrime lobby. Hardware for mobile data is much cheaper than at its introduction a decade or more ago in the developed world, whether that be smartphones, laptops or tablets.¹⁰⁶ Combining the huge advances in technology pricing/performance with the prevalence of Wi-Fi hotspots in 2015, it is clear that the environment for rapid adoption of mobile Internet access is far better than for fixed access in 2000. This applies despite the extremely high prices for mobile IAP data, which only forms a small part of the adoptive environment required to access the mobile Internet (arguably, no mobile IAP access is required at all given that schools, cafes, universities and other public areas offer free Wi-Fi). For example, only 43% of Brazilian smartphone users used data plans in 2015¹⁰⁷.

It is perhaps facile to argue that Net Neutrality regulation may be a somewhat blunt telecom regulatory instrument for a multi-faceted problem such as mobile Internet access, which also includes such policy issues as privacy and free expression as well as universal access and many Millenium Development Goals. David Kaye, United Nations’ special rapporteur on freedom of expression, argues that:

*In the longer term, Net Neutrality policies should be guaranteed wherever Internet infrastructure is being built out. The 13 ‘Necessary & Proportionate’ Principles, which apply human rights to communications surveillance, should also be adopted and implemented as a framework for rights-respecting connectivity.*¹⁰⁸

106 N Freischlad, “Soon Everyone will be Able to Afford a Smartphone. But What about Data?” (2015) available at <https://www.techinasia.com/smartphones-are-getting-cheaper-but-what-about-data/> (accessed 9 Sept 16). The article states: “Even in China, which is a more mature market [than Indonesia] by most measures and smartphone penetration is higher, data usage itself remains low. This tells us either Chinese smartphone users are not interested in using their phones on the go, or they are simply being thrifty.”

107 P Olsen “This App Is Cashing In On Giving The World Free Data” (2015) available at <http://www.forbes.com/sites/parmyolson/2015/07/29/jana-mobile-data-facebook-internet-org/> (accessed 9 Sept 16).

108 D Kaye and B Solomon, “Merely Connecting the Developing World to the Internet Isn’t Enough” (2015)

He argued for a human rights-oriented connectivity programme to flow from the UN General Assembly debate on WSIS+10 and the newly updated Millennium Development Goals (“Global Goals for Sustainable Development” [GGSD] as adopted by the UNGA in September 2015) in December 2015. The GGSD emphasise that access to technology underpins every other “Global Goal” toward the eradication of extreme poverty. He particularly urged cautious adoption of the multinational platform pursued by Facebook, explaining that:

Mark Zuckerberg and Bono issued a call to ‘unite the earth’ and, with other global opinion shapers and business leaders, released a Connectivity Declaration to ‘connect the world.’ The U.S. State Department’s Global Connect program makes Internet access a foreign aid priority... But connectivity alone cannot be global policy. Respect for privacy and the freedom of expression must go hand in glove with the drive to connection.¹⁰⁹

He argued strongly that the Facebook-sponsored Free Basics project offers a false equivalence with open Internet access, warning that government may “bless deals creating a two-tiered Internet pushed by so-called zero-rated service providers that limits browsing to pre-selected applications and establishes new gatekeepers”¹¹⁰ such as Facebook. This may be especially pernicious as Free Basics is rolled out in least developed countries with very low fixed Internet access, and thus greater dependence on low bandwidth mobile connections. Examples are Zambia, Myanmar, Kenya, Peru and Guatemala.

Privacy remains a thorny issue, as well as being largely unregulated in developing countries. The wider issue of how Internet users of “free” apps such as Facebook and others are being monetised by advertisers is associated with the Net Neutrality and zero-rated debates, and in particular the correct policy responses. In countries such as India or Indonesia (where monthly Average Revenue Per User (ARPU) is only \$2.20 for calls, texts and data), it is unsurprising that advertising is attractive as a further revenue partnership with zero rated apps.¹¹¹

¹⁰⁹ Kaye and Solomon, note 108 above.

¹¹⁰ *Ibid.*

¹¹¹ Freischlad (2015).

3.3.2 United States

The pre-history of United States regulation prior to the 2015 Open Internet Order¹¹² is well-documented, with the 2010 Order¹¹³ both highly controversial in its exclusion of mobile (“wireless”) resulting in several data caps being imposed, notably by AT&T in 2011,¹¹⁴ Zero Ratings plans being adopted, and the Order itself becoming incapable of effective enforcement following a litigation which ended in 2014¹¹⁵ and resumed in 2015, with a recent DC Court of Appeals decision on 14 June 2016¹¹⁶ likely to be further appealed to the highly partisan politicised Supreme Court in 2017. Only lawyers may take joy that the FCC has spent a decade trying to enforce Net Neutrality since its original regulatory declaration.¹¹⁷

The 26 February 2015 *Open Internet Order* applies from 12 June 2015 and promised to enforce Net Neutrality.¹¹⁸ FCC claimed that the Order offered “Bright Line Rules”:

- No Blocking: broadband providers may not block access to legal content, applications, services, or non-harmful devices.
- No Throttling: broadband providers may not impair or degrade lawful Internet traffic on the basis of content, applications, services, or non-harmful devices.
- No Paid Prioritization: broadband providers may not favor some lawful Internet traffic over other lawful traffic in exchange for consideration of any kind — in other words, no “fast lanes.” This rule also bans IAPs from prioritizing content and services of their affiliates.

¹¹² 2015 Open Internet Order, 30 FCC Rcd. at 5706

¹¹³ FCC (2010) Report and Order Preserving the Open Internet, 25 FCC Rcd 17905.

¹¹⁴ C. Kang and H. Tsukayama, “AT&T to Throttle Data Speeds for Heaviest Wireless Users” (2011) available at http://www.washingtonpost.com/business/technology/atandt-to-throttle-data-speeds-for-heaviest-wireless-users/2011/08/01/gIQAh0HBoI_story.html (accessed 6 Sept 16).

¹¹⁵ *Verizon v. Federal Communications Commission*, 740 F.3d 623 (D.C. Cir. 2014); 11-1355, 14 January 2014.

¹¹⁶ United States DC Court of Appeals No. 15-1063 United States Telecom Association, et al., v. Federal Communications Commission June 14, 2016

¹¹⁷ FCC, “Internet Policy Statement 05-151” (2014) available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf (accessed 9 Sept 16). FCC, Madison River Communications, LLC, Order, DA 05-543, 20 FCC Rcd 4295 (2005).

¹¹⁸ FCC, “Protecting and Promoting the Open Internet”, GN Docket No. 14-28, Report and Order on Remand, Declaratory Ruling, and Order, FCC 15-24 (2015) available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf (accessed 9 Sept 16).

That final provision should eliminate Zero Rating, but it does continue. Zero Rating is a common practice in the US. For instance, T-Mobile offered thirty-three zero-rated music services in its Music Freedom Plan since 2014,¹¹⁹ which has avoided any negative regulatory scrutiny in part due to the facts: its offer is non-exclusive, relates to music rather than heavily congesting and expensive video, and T-Mobile itself is the smallest of the national mobile IAPs. As Goldstein argues:

Music Freedom plan is inclusive and supports numerous streaming music services, and since T-Mobile does not receive compensation from any company for not counting music streaming traffic against customers' data limits, such a plan is likely going to be fine by the FCC, since it benefits consumers. However, if a Zero Rating plan were exclusive to one company that offers a particular type of service, that likely would draw more scrutiny from the FCC.¹²⁰

As previously in the mergers of Bell Atlantic into Verizon and formation of AT&T in 2005/6 and Comcast/NBC Universal in 2011, the US government has found itself most able to enforce Net Neutrality with decisions inserted into merger approvals. The merger of DirecTV into AT&T imposed such conditions on Zero Rating.¹²¹ Comcast's attempted takeover of Time Warner Cable abandoned in 2015 would also have been likely to see such conditions imposed alongside interoperability/neutrality in its dealing with third party device authentication — which concerns the freedom to attach

119 L Northrup, "T-Mobile Now Exempts 33 Streaming Music Services From Data Limits, Adds Apple Music, Consumerist" (2015) available at <http://consumerist.com/2015/07/28/t-mobile-now-exempts-33-streaming-music-services-from-data-limits-adds-apple-music/> (accessed 9 Sept 16).

120 P Goldstein, "Net Neutrality Rules won't Force Carriers to Get FCC Permission for New Plans" (2015) available at <http://www.fiercewireless.com/story/net-neutrality-rules-wont-force-carriers-get-fcc-permission-new-plans-offic/2015-02-26> (accessed 9 Sept 16).

121 Telecom Paper, "FCC Set to Approve AT&T's DirecTV Takeover with Conditions" (2015) available at <http://www.telecompaper.com/news/fcc-set-to-approve-atandts-directv-takeover-with-conditions/> (accessed 9 Sept 16) ("If approved by the commissioners, 12.5 million customer locations will have access to a competitive fibre connection from AT&T. The additional roll-out is around ten times the size of AT&T's current FttP deployment and increases the national residential fibre build by over 40 percent... AT&T will not be permitted to exclude affiliated video services and content from data caps on its fixed broadband connections. It will also be required to submit all competed interconnection agreements with the FCC.")

devices to the network.¹²² In its *AT&T/DirecTV* approval of 27 July 2015, the FCC stated at Paragraph 395: “we require the combined entity to refrain from discriminatory usage-based allowance practices for its fixed broadband Internet access service.”¹²³ Moreover, in response to accusations that AT&T ignored previous commitments in mergers, the FCC at Paragraph 398 “require that AT&T retain both an internal company compliance officer and an independent, external compliance officer.”

The FCC announced in July 2015 how to receive case-by-case advice about future plans, for instance Zero Rating schemes or specialised services, that may risk breaching Net Neutrality: “new process involves requesting and receiving an advisory opinion on specific, prospective business practices.”¹²⁴ At paragraph 30-31 it explains that:

*Although advisory opinions are not binding on any party, a requesting party may rely on an opinion if the request fully and accurately contains all the material facts and representations necessary for the opinion and the situation conforms to the situation described in the request for opinion.*¹²⁵

Even though the FCC “may later rescind an advisory opinion, but any such rescission would apply only to future conduct and would not be retroactive.”¹²⁶

3.3.3 European Union

In Europe, more complete confusion over Zero Rating and specialised services existed amongst governments, European institutions and regulators in 2016. The European Parliament had negotiated a very “Net Neutrality lite” (rules on blocking/throttling) in 2009 to be implemented via regulatory action and reporting from 2011 under

122 Brodtkin, Jon, “Comcast to Stop Blocking HBO Go and Showtime on Roku Streaming Devices” (2014) *Ars Technica, Condé Nast Digital*, available at <http://arstechnica.com/business/2014/12/comcast-to-stop-blocking-hbo-go-and-showtime-on-roku-streaming-devices/> (accessed 9 Sept 16).

123 FCC, *In the Matter of Applications of AT&T Inc. and DIRECTV For Consent to Assign or Transfer Control of Licenses and Authorizations MB Docket No. 14-90* (2015) available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0728/FCC-15-94A1.pdf (accessed 9 Sept 16).

124 FCC, *Open Internet Advisory Opinion Procedures, Protecting and Promoting the Open Internet, GN Docket No. 14-28* (2015) available at <https://www.fcc.gov/document/public-notice-open-internet-advisory-opinions> (accessed 9 Sept 16).

125 *Ibid.*

126 *Ibid.*

the amended Electronic Communications package.¹²⁷ It essentially permitted discrimination (under certain conditions) on speed and price for new network capacity, but insists that existing networks do not discriminate “backwards” — that is, do not reduce the existing levels of service or block content without clear and transparent notice to users, and demonstrable reasonableness of those actions. This had to be adopted by national parliaments in June 2011 — though many delayed.

An Open Internet Regulation was first proposed by the European Commission in May 2013, passed at First Amendment in the European Parliament with amendments that would ban both Zero Rating and tightly defined specialised services as physically and/or logically separate to the Internet in April 2014.¹²⁸ It was then revised in the Council of Ministers to more closely resemble the original proposal, agreed in a highly contentious trialogue with the Commission and Parliamentary Committee Chair (a Spanish conservative) in June 2015.

EC Vice-President Ansip claimed after the trialogue in June 2015:

Internet service providers cannot act as gatekeepers to decide what people can, or cannot, access. Equal treatment and non-discrimination of traffic will be set in law... Paid prioritisation will be banned, which means that a start-up's website cannot be slowed down to make way for a larger company prepared to pay extra to get such an advantage.¹²⁹

However, that fails to clarify either Zero Rating or specialised services, to the anger of Netherlands and Slovenian parliamentarians who continue to fear their laws will be undermined by the weaker European compromise Regulation adopted. It returned to the Parliament for a vote on potential amendments which failed, meaning the compromise Regulation becomes law in all twenty-eight Member States in April 2016. Regulation 2120/2015 which regulates for open Internet access

¹²⁷ EU Directive 2009/136/EC, and the Declaration appended to EU Directive 2009/140/EC.

¹²⁸ CMarsden, “Commissioner Kroes Can Skype her Grandchildren’s Mobiles in Retirement?” (2014) available at <http://blogs.lse.ac.uk/mediapolicyproject/2014/04/04/will-commissioner-kroes-be-able-to-skype-her-grandchildrens-mobiles-in-retirement/> (accessed 9 Sept 16).

¹²⁹ A Ansip, “Making the EU Work for People: Roaming and the Open Internet” (2015) available at https://ec.europa.eu/commission/2014-2019/ansip/blog/making-eu-work-people-roaming-and-open-internet_en (accessed 9 Sept 16).

(as in the US, not using the term “Net Neutrality”) was passed by the European Parliament on 27 October 2015.¹³⁰

Although many Net Neutrality elements have been included in the new Regulation, the lack of any explicit mention of the Net Neutrality principle is notable. Rather than unequivocally affirming the three pillars of Net Neutrality, i.e. no blocking, no throttling and no paid prioritisation, the EU policymakers enshrined only the first two components into the regulation, thus tempering neutrality into a less principled vague “open Internet.” The good news for users is that Europeans have the:

right to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the end - user's or provider's location or the location, origin or destination of the information, content, application or service, via their internet access service [Article 3 of the Regulation].

Associated with this right is the IAPs' obligation to “treat all traffic equally” with reasonable traffic management that should be “transparent, non-discriminatory and proportionate” and, very importantly, “shall not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic.” This is an important step forward for those Europeans that were lacking basic protections.

It is necessary to stitch together the interpretations of the European Commission issued at the time of the Regulation's approval in its MEMO-15-5275,^{131 124} with the clarifications and workplan of the European regulators working as BEREC. BEREC is charged with ensuring it issues guidelines by August 2016 for interpretation of the Regulation by NRAs:

The Telecoms Single Market Regulation includes a duty in Article 5(3) for BEREC to lay down guidelines for the implementation of the obligations of NRAs related to the supervision, enforcement and transparency measures for ensuring open Internet access.

¹³⁰ L. Belli and C. Marsden, “Not Neutrality but ‘Open Internet’ à l’Européenne” (2015) available at <http://blogs.lse.ac.uk/mediapolicyproject/2015/10/29/not-neutrality-but-open-internet-a-la-europeenne/> (accessed 9 Sept 16).

¹³¹ 124 EU MEMO-15-5275, “Fact Sheet: Roaming Charges and Open Internet: Questions and Answers” (2015) available at http://europa.eu/rapid/press-release_MEMO-15-5275_en.htm (accessed 9 Sept 16).

These guidelines should contribute to the consistent application of the Regulation, and be produced after consulting stakeholders and in close cooperation with the European Commission.^{132 125}

The deadlines are as follows:

- Entry into force of the Regulation took place on 30 November 2015; the entire Regulation is applicable 30 April 2016 except for certain provisions (mainly on roaming).
- The deadline for Member States to repeal national measures (including self-regulatory measures) which go against Article 3(2) or 3(3) is 31 December 2016.
- Deadline for publishing BEREC's implementation guidelines under Recital 19 was 30 August 2016.
- European Commission's report to the European Parliament and the Council reviewing Article 3 (safeguarding of open internet access), Article 4 (transparency measures for ensuring open internet access), Article 5 (supervision and enforcement) and Article 6 (penalties), including proposals for amendments, if necessary, must be delivered by 30 April 2019.
- The Commission will issue a report every four years from 30 April 2019.^{133 126}

BEREC explained its outstanding concern on four topics: traffic management practices; specialised services; transparency in Internet access quality; and "commercial practices", such as Zero Rating. In 2016 the co-chairs of the Net Neutrality Working Group (NNWG) were Ofcom for the UK and NKom for Norway – the first state committed in principle to leaving the European Union at some point after 2019 (following the 'Brexit' referendum of 23 June 2016), the latter an EEA but not EU member.

The Commission's Memo-15-5275 stated:

Zero Rating, also called sponsored connectivity, is a commercial practice used by some providers of [Internet] access, especially mobile operators, not to count the data volume of particular applications

¹³² 125 BoR "Statement on BEREC's work to produce guidelines for the implementation of Net Neutrality provisions of the TSM regulation" (2015) available at http://berec.europa.eu/eng/document_register/subject_matter/berec/press_releases/5588-statement-on-berec-work-to-produce-guidelines-for-the-implementation-of-net-neutrality-provisions-of-the-tsm-regulation (accessed 9 Sept 16).

¹³³ 126 MF Pérez, "Net Neutrality: Document Pool II" (2015) available at <https://edri.org/net-neutrality-document-pool-2/> (accessed 9 Sept 16).

or services against the user's limited monthly data volume. Commercial agreements and practices, including Zero Rating, must comply with the other provisions of the Regulation, in particular those on non-discriminatory traffic management. Zero Rating could in some circumstances have harmful effects on competition or access to the market by new innovative services and lead to situations where end-users' choice is materially reduced in practice.^{134 127}

The EC argues that:

The new rules therefore contain the necessary safeguards to ensure that providers of [Internet] access cannot circumvent the right of every European to access internet content of their choice, and the provisions on non-discriminatory traffic management, through commercial practices like Zero Rating.^{135 128}

Genna very strenuously disagrees with that interpretation:

[The] power of national regulators will be materially weakened because of the ambiguous wording of [A]rticle 3 of the European regulation [...] read together with recital 7 (a recital, not a binding provision!) of the same regulation [...] . [It] is absolutely unclear if and to what extent national regulators can intervene in order to prohibit such discriminations. The Dutch (sic) and Slovenian legislations were quite clear [...] such legislations will need to be repealed.^{136 129}

I agree with Genna, and the Dutch and Slovenian governments, that the EC interpretation is misleading, deliberate or not. The lack of clarity in the Regulation means that the publication of the BEREC August 2016 guidelines were eagerly awaited on both zero rated services, notably already regulated in Slovenia, Netherlands and Norway, and specialised services.

The Guidelines provide a 'middle way' on Zero Rating, with advice to member regulators to treat violations more strictly where they were

^{134 127} EU MEMO-15-5275, note 124 above (emphasis added).

^{135 128} *Ibid* (emphasis added).

^{136 129} I Genna, "Zero Rating: The European Parliament Washing Hands like Pontius Pilate" (2015) available at <https://radiobruelleslibera.wordpress.com/2015/10/26/Zero-Rating-the-european-parliament-washing-hands-like-pontius-pilate/> (accessed 6 Sept 16) (emphasis added).

applied to specific services rather than a class of services, and to treat Zero Rating by dominant mobile providers more strictly:

“Price differentiation between individual applications within a category has an impact on competition between providers in that class...and thereby undermine the goals of the Regulation [more] than would price differentiation between classes of application”¹³⁷.

Additionally “the lower the data cap, the stronger such influence is likely to be” [ibid]. It does not ban Zero Rating per se:

- *“It is not the case that every factor affecting end-users’ choices should necessarily be considered to limit the exercise of end-users’ rights” [Para.45].*

The Guidelines also state:

- *“A Zero Rating offer where all applications are blocked (or slowed down) once the data cap is reached except for the zero-rated application(s) would infringe Article 3(3)” of 2015/2120/EU [Para.41].*

It does lay out the type of markets in which Zero Rating may be more problematic:

- *“a practice is more likely to limit the exercise of end-user rights in a situation where, for example, many end-users are concerned and/or there are few alternative offers and/or competing ISPs for the end-users to choose from” [Para.46].*

How they are applied in practice will be the true test of the Guidelines, which in themselves have no legal force at all.

3.4 Toolkit for Neutrality Regulation

The case studies have provided a variety of responses to Net Neutrality violation in practice, with Zero Rating as the main concern in 2015/16. I now draw on those case studies to offer some elements that may be suited to a toolkit for regulators to respond to Net Neutrality concerns. It offers several elements:

- how to engage stakeholders, an especially important issue in the US and Indian case studies;
- how to measure neutrality, essential to implementing BEREC Guidelines for the European Union/Economic Area in 2017;
- how to access technical advice, which will help in defining the forensics of the regulation of Zero Rating and Net Neutrality more broadly; and

¹³⁷ Supra n.33 at Paragraph 48.

- an example of how regulators may respond to Zero Rating offers, short of the total prohibitions seen in Chile, India.

The toolkit is not prescriptive but descriptive, and points out that in regulating Zero Rating, as well as so-called specialised services, there remain serious research gaps in the analysis. These gaps were predictable five years ago¹³⁸ but have only slowly been addressed, reflecting the political uncertainty of Net Neutrality regulation.

3.4.1 Stakeholder Engagement

All of the case studies implemented some type of regulation of Zero Rating, though in the United States The agencies, notably through publication of key metrics, and enforcement by regulators following infringement actions where published. SamKnows is active in measuring end-user TMPs in contracts with regulators in the US, Brazil, UK, Canada, and the European Union as a whole.¹³⁹ This has supplanted self-reporting of violation by the IAPs, and network measurement by downloaded diagnostic tools, as the preferred method of discovering TMPs. Given the lack of clarity in the latter, and obvious incentive paradox in asking IAPs to self-report violation, the approach appears the best fit.

The US regulator is taking action to actively consult on future TMPs that may violate neutrality, via its “advisory opinion” approach. Even critics of Net Neutrality acknowledge that better measurement of end-user experience is a vital contributor to forcing IAPs to offer increased transparency to end users.¹⁴⁰ A report for Ofcom published in August 2015 concluded that an approach based on a quality floor (i.e. minimum service quality, possibly based on a new universal service standard) would help app designers and users understand better how SamKnows-type measurement can help them make better choices.¹⁴¹ The advanced measurement standards emerging may help regulators and consumers understand how best to enforce Net Neutrality standards.

¹³⁸ See Marsden C., *Network Neutrality: Towards a Co-regulatory Solution*, note 35 above, Chapter 8.

¹³⁹ See SamKnows, “Regulators” (2015) available at <https://www.samknows.com/regulators>, <https://www.samknows.com/history> (accessed 9 Sept 16) available Ta Pernet.org PWegulatty ublisher, the Amzon, the retailer).

¹⁴⁰ GEDDES, M., “Ofcom Publishes Scientific Report on Net Neutrality” (2015) available at <https://www.linkedin.com/pulse/ofcom-publishes-scientific-report-net-neutrality-martin-geddes?trk=hp-feed-article-title-share> (accessed 9 Sept 16).

¹⁴¹ Predictable Network Solutions Limited, “A Study of Traffic Management Detection Methods & Tools for Ofcom MC 316” (2015) available at <http://t.co/rkVY62oRuf> (accessed 9 Sept 16).

3.4.2 Technical Advice

Technical elements of Net Neutrality remain complex in both resource and interpretation for regulators, especially those with fewer human resources and technical experience. It would be helpful if greater clarity on such future approaches were to build on the former role of the Advisory Committee of the FCC in 2011-12, and Broadband Internet Technical Advisory Group (BITAG, a US self-regulatory forum established after the 2010 Open Internet Order) in the period since. Between OIAC, BITAG and BERC, many useful technical and policy reports have been produced since 2011. Reports were all either written by a co-regulatory group, as with OIAC and BITAG (though the latter claims to be formally self-regulatory), or consulted with many stakeholders.

3.4.3 How to Regulate Zero Rating

The issue of Zero Rating is highly contentious – a “bad case” on which to make Net Neutrality law. I suggest two regulatory actions to encourage the correct use of Zero Rating:

1. treating Zero Rating as a short term exception to Net Neutrality, and
2. ensuring any such short term exception is not exclusive, by subjecting such contracts to “Fair, Reasonable and Non-Discriminatory” (FRAND) conditions.¹⁴²

These conditions are not dissimilar to the principles by which the Wikimedia Foundation permits Wikipedia Zero to be offered by mobile IAPs, in that it:

*allows other public interest websites to ride onto its own scheme, eschews any exclusive rights or exchange of payment between itself and mobile carriers, and forbids carriers from selling the service as part of a limited bundle.*¹⁴³

I consider exceptions, non-exclusivity and FRAND in turn.

Short term exceptions to Net Neutrality are likely given the post hoc nature of regulation: regulators lay out ground rules then respond to

¹⁴² See the extensive discussion in I Brown and C Marsden, *Regulating Code: Good Governance and Better Regulation in the Information Age* (Cambridge, MA: MIT Press, 2013).

¹⁴³ N De Guzman, “Zero Rating: Enabling or Restricting Internet Access? Asia Pacific Bureau: Internet Society” (2014) available at <http://www.internetsociety.org/blog/asia-pacific-bureau/2014/09/Zero-Rating-enabling-or-restricting-internet-access> (accessed 6 Sept 16).

complaints regarding infringing practices, as seen in the US example of Zero Rating in 2015-16. Difficult marginal cases can require extensive investigation. Such processes can take several months in the case of effective regulators, requiring both technical and economic analysis, a call for evidence, hearings and enforcement notices. In the case of litigious market actors, appeals against decisions can take months, years or longer to reach constitutional courts as final appeal court. There is nothing in Zero Rating to suggest it is anything but a straightforward case of discrimination, which should not be subject to such long appeal processes. As explained earlier, walled gardens are nothing new, represent obvious discrimination and have been outlawed by those countries with effective Net Neutrality regulation. Any attempt to offer a time-limited zero rated offer as an introduction to mobile data use could be flagged as such and limited by regulation to three to six months. This would be subject to FRAND conditions and regulatory enforcement.

FRAND conditions could be applied to:

1. Mobile IAP contracts with Free Basics and other affiliated content providers, including the IAPs' own subsidiaries, and
2. Conditions under which the content providers offer access to their own portals.
3. However, if Zero Rating is not taken up by a significant part of the subscriber base (e.g. 10% of each operator's users), there may be a case for a *de minimis* exception from FRAND/non-exclusivity. It would be difficult to argue in practice that such a small number on a short term basis distorts innovation significantly.

The first condition is relatively straightforward to implement in theory but difficult in practice, as it is basically vertical unbundling of the mobile IAP's business unit arrangements. One could also compare it to the regulatory treatment under EU antitrust law of competitors to Microsoft's applications interoperating with their dominant Windows operating system.¹⁴⁴ However, not all regulators are capable of equal treatment of subsidiaries with competitors, especially in the resource-challenged developing world where independence and regulatory commitment are not as easily maintained.

An alternative form of FRAND may therefore be to regulate *de facto* at a regional or global level, in establishing the ground rules for access

¹⁴⁴ K Coates, *Competition Law and Regulation of Technology Markets* (New York: OUP, 2011) at 245-263.

to the zero-rated platform which mobile IAPs will offer. In this case, the regulated actor is the “host” platform for those applications that will be offered. If applications to join such a platform offer — such as Free Basics or Wikipedia Zero’s offer — are established under FRAND terms that can be examined and monitored independently, then the platform which is established for one developing market may, with few modifications, prove to be that offered in many others.

Mobile operators would like as much content delivered onto their networks as possible, including zero rated and directly peered Content Delivery Networks (CDNs such as Akamai or Level3). The appeal of Free Basics is the low bandwidth demand of its apps (no graphics, flash video). Some suggest directly peered CDNs should also be zero rated. It should be much cheaper (though not cost-free) to deliver content from a locally peered source. That should be passed on to the consumer, and Zero Rating is as good a way as any. Actual costs may be nearer zero than full price in any case. Note that without a data package alongside free content, content providers would be obliged to contract with a directly peered CDN — unless the Zero Rating offer is very short term (e.g. three months maximum) to let new users “taste” the edge of the Internet. I argue that FRAND and non-exclusivity should always be applied to zero rated offers, short term or long.

Jurisdiction will be the greatest challenge to regulating the platform (e.g. FreeBasics) rather than the mobile IAP offering Zero Rating. There are three routes to enforcement:

- via regulator’s enforcement of platform neutrality on the mobile IAP, and therefore into the contractual terms of its agreement with the platform;
- via antitrust mergers condition for platforms that expand via acquisition;
- by a considered coordinated response by a network of Net Neutrality enforcement agencies at regional level, such as in BEREC.

The first has resource constraints except that the better resourced early mover regulators may establish ground rules that can be “copy and pasted” by later acting, less motivated regulators. The second is the type of Net Neutrality regulation that was adopted in the United States from 2005 onwards as an antitrust “default” rule against large IAPs that wished to merge. In the global view of such mergers, a Net Neutrality undertaking for a limited time period was considered by the merger partners to be a small price to pay. The third is also difficult in practice to implement, though larger well-resourced regulators

(e.g. Germany/BEREC) advising their smaller cousins (e.g. Cyprus or Malta) can issue a decision or opinion that will help other regulators to take similar or identical action to enforce neutrality. Given the networks of regulators, consultants, civil society actors, academics and law firms that have exported and shared “best” (*sic*) practice in telecom regulation since the first liberalisations in the 1980s (in Japan, US, Sweden and UK), such networks can be expected to actively engage in spreading such practices internationally.

I considered whether Zero Rating poses a serious challenge to open Internet use, extensively examined in Part 3 the country case studies that demonstrate its regulation, and in Part 4, suggested areas for further independent research into the effectiveness of Net Neutrality regulation. I argued that Zero Rating is a relatively minor if highly controversial short term problem as compared to specialised services, not technologically but price determinist as I now explain. Next to such a pervasive Internet policy problem vs privacy or free speech, is Net Neutrality an over-inflated sideshow, or a necessary precondition? Examination of national case studies helps to shed light on the extent to which Net Neutrality proves an essential precondition to solve other less technical, more politically accessible communications policy problems. More research is needed in this field as implementation of national and regional Net Neutrality legislation increases especially in Europe, but this examination has shown that the roles of regulatory commitment, civil society activism and national political and market conditions are critical to the resolution of hard cases in Net Neutrality, specifically Zero Rating.

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4 Zero Rating and the Holy Grail: Universal Standards for Net Neutrality

by Arturo J. Carrillo

4.1 Introduction

In March of 2016, the Berkman Center for Internet and Society at Harvard University sponsored a workshop on Zero Rating attended by tech company representatives, digital rights activists from a range of countries, and U.S.-based academics. During the initial round of comments, the majority of participants highlighted a central, overarching question on the agenda: do universal standards or core principles exist to govern Net Neutrality, and by extension Zero Rating, that could be agreed upon by all stakeholders? Although much of the ensuing discussion reflected the difficulty of answering that question in the affirmative, there was one response that seemed to fit the bill: international human rights law. The point was simple. Why insist on searching for or creating new standards that could apply to Net Neutrality issues across the board when such a normative framework already exists? Why not view Zero Rating as a limitation on Net Neutrality understood as a norm of human rights, which Net Neutrality demonstrably is? Despite some support from a number of the Latin American activists present, the human rights response to the Zero Rating conundrum fell largely on deaf ears.

It is, of course, not surprising to find that in the United States the human rights framework is not a natural context for the discussion of Net Neutrality issues, though some attention has been drawn to it (Carrillo & Nunziato, 2015, pp. 102-104). Similarly, other frontline battles that have focused on Zero Rating (as in India) have been largely devoid of rigorous reference to technical human rights considerations. But national debates on Net Neutrality and Zero Rating have and will continue to play out differently in other regions of the world that are subject to more robust human rights legal frameworks, such as Europe and Latin America. There, universally-recognized human rights norms codified in regional treaties — the American Convention on Human Rights; the European Convention on Human Rights — provide objective standards for consistently and justly analyzing Net Neutrality issues through region-specific human rights mechanisms. The purpose of this paper is to take one region as a case study in progress — Latin America — to map the human-rights framework that governs freedom of expression online, including Net

Neutrality and Zero Rating, with reference to the challenges that a number of Latin-American countries are facing.

This paper will argue that the implementation of Net Neutrality protections by States in Latin America (and elsewhere), when oriented by a respect for fundamental human rights, can lead to more just and sustainable policies and outcomes than when it is not. The lessons to be learned from the ongoing Latin American experience are relevant to other regions of the world because (1) the applicable United Nations-based/universal norms are global in effect, and (2) the core normative values embodied in both regional and universal human rights treaties are substantively the same, allowing for constructive comparison across regions.¹⁴⁵ Part I begins by outlining the rationale for why international human rights law, which includes regional human rights treaties like the American Convention on Human Rights of the Organization of American States (OAS), provides the most viable option for establishing a universal normative regime to govern Net Neutrality in practice. It then synthesizes in relevant part the universal (United Nations) and regional (OAS) human rights rules that apply to most countries in Latin America. In Part II, I consider this consolidated human rights framework in relation to ongoing Net Neutrality debates in different countries, namely Mexico, Colombia and Chile. Even a brief analysis illustrates how, in the long run, the human rights framework will increasingly shape national policy-making in this area, and not just in Latin America. What emerges is a clearer picture not only of the human rights standards that, in fact, already apply to the Net Neutrality principle everywhere in the world, but also of the manner in which the constructive application of that framework can shape its implementation globally in more equitable terms.

4.2 International Legal Frameworks

Before turning to the nuts and bolts of the above-referenced international legal framework, a threshold question remains. Even if one recognizes that Net Neutrality is today a consolidated norm of international human rights law (see Part I.A), why does it matter?

¹⁴⁵ This is the reason why, for example, the Special Rapporteur on Freedom of Expression of the Organization of American States (OAS) will reference standards relating to freedom of expression from United Nations treaties and experts when interpreting the scope of application of the American Convention. See, e.g. OAS Special Rapporteur, 2014, para. 64 (discussing how the interpretation by the U.N. Rapporteur on Freedom of Expression and Opinion of the “right to response” in the digital realm offers a new and better kind of less restrictive alternative to measures that might unduly limit freedom of expression online under the American Convention).

That is, what is to be gained by re-framing the Zero Rating debate in human rights terms? As it turns out, there are a number of compelling reasons for invoking the human rights legal framework in this respect. First and foremost, it situates Net Neutrality issues squarely within a universally recognized normative framework that imposes legal obligations on most, if not all, States. Safeguarding Net Neutrality is thus a duty incumbent on governments, rather than merely a desirable or contested policy alternative. This approach further ensures that discussions about how to restrict Net Neutrality through Zero Rating or sponsored data, like those taking place in the United States, Europe, India, and a host of other countries, transpire within the same, universally applicable regime established by international law (which includes regional human rights treaties), promoting greater normative and practical consistency across the board (though, of course, not guaranteeing it).

Second, under international human rights law, Net Neutrality is defined in human-centric rather than data-centric terms (see Part I.A). The discussion ceases to be about data packets or differential pricing and becomes more about people. This shift is not merely semantic because it portends important implications for the norm's implementation, especially in terms of connectivity.¹⁴⁶ As explained below, it means that Zero Rating practices as transgressions of Net Neutrality can no longer be discussed in all-or-nothing terms. Instead, these practices have to be viewed as proposed limits on some peoples' freedom of expression (understood as Net Neutrality) intended in substantial part to enhance the freedom of expression rights of others (i.e. through expanded connectivity). This consequentialist analysis emphasizes the value of maximizing the enjoyment of fundamental rights within a given society and thus promotes it, in accordance with the State's international legal obligations.

Third, the human rights framework provides structure and rigor to what often are heated contests of unmoored dogma: Net Neutrality absolutism clashing with the imperative to close the digital divide or the inviolability of the market place. Evaluating Net Neutrality regulation as a function of the State's duties under international law opens practical pathways for constructively debating Zero Rating,

¹⁴⁶ There does not appear to be a universally accepted definition of connectivity in international law or practice. Connectivity for purposes of this paper is defined as access to the Internet and to Internet-based content or services. This is how most commentators refer to it.

not least because it establishes normative parameters that apply equally to all sides engaged in the discussions. People stop talking *past* each other, and start talking responsively *to* each other. At the same time — and this is critical — the human rights approach is the only one that expressly accounts for all the others. Generally speaking, my experience has been that those who view Net Neutrality as an inviolable network principle tend to pay little heed to what the economists and free market advocates say; others who critique Net Neutrality as a mere priority preference tend to prioritize competition, consumer choice or the public interest. In other words, the prevailing perspectives on net-neutrality and Zero Rating (the technical and economic analyses in particular) do not easily accommodate each other, if at all. With few exceptions, none pay anything more than lip service to human rights (Carrillo, 2016, Part II.A & pp. 155-56).

Recourse to human rights law in this context, then, is like finding the Holy Grail right in front of you. It provides the only viable framework for establishing a universal normative regime to govern Net Neutrality in practice, because it is the only option that operates as a unifying “theory of everything.” All other approaches — those rooted in technical, economic, or public interest values — have a place in the human rights framework as quantitative and qualitative *inputs* for the analysis of the State’s obligations to promote and protect the rights of their people (Carrillo, 2016, Part IV). The following sections will explain how this is so by mapping, respectively, the United Nations and Inter-American human rights systems in relevant part.

4.2.1 The United Nations Human Rights System

In Latin America, this system is commonly referred to as the “universal” human rights system, and for good reason. The International Covenant on Civil and Political Rights (“ICCPR”) has 168 State Parties, encompassing over 85% of the world’s population (OHCHR, 2016). Its core principles arguably apply to nearly all countries on the planet.¹⁴⁷ When discussing human rights online, the U.N. framework is the place to start. This is due not just to its (near) universal coverage, but also because United Nations experts and authorities engaged in its development have expressly extended the framework’s application to the digital realm.

¹⁴⁷ The Universal Declaration of Human Rights can be considered a source of customary international law for core norms like freedom of expression, which thus applies to all UN member States regardless of whether they have ratified the ICCPR or not.

Network neutrality is today a consolidated norm of international human rights law due to the seminal role it plays in the protection of freedom of expression and non-discrimination rights in contemporary society. Article 19 of the ICCPR affirms the right “to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of [...] choice.” Freedom of expression enjoys near universal acceptance worldwide, not least because it is an enabler of several other basic human rights. These include not just the corollary rights to hold opinions and religious beliefs without interference, but several others as well, such as the right to education, the rights to freedom of association and assembly, the right to full participation in social, cultural and political life, and the right to social and economic development (U.N. Special Rapporteur, 2011, p. 18).

Traditionally, freedom of expression has been broken down into several constituent elements, including the right to impart and express information on the one hand, and the right to seek and receive information on the other (UNHRC, 2011, paras. 11, 18).¹⁴⁸ With the rise of electronic communications, this framework has evolved to accommodate the expression and receipt of information via the Internet. In international human rights law, it is settled that the constituent rights comprising freedom of expression will apply to all “internet-based modes of communication” (UNHRC, 2011, para. 12). International experts from the United Nations, the OAS, and other human rights systems have further recognized that “[t]here should be no discrimination in the treatment of Internet data and traffic, based on the device, content, author, origin and/or destination of the content, service or application” (Joint Declaration, 2011, para. 5(a)). This, of course, is the technical definition of Net Neutrality. Among other things, it means that “[a]ny restrictions on the operation of websites, blogs or any other internet-based, electronic or other such information dissemination system, including systems to support such communication, such as internet service providers or search engines, are only permissible to the extent that they are compatible with [the exceptions regime set out in] paragraph 3 [of Article 19]” (UNHRC, 2011, para. 43). This regime is discussed in more detail below.

¹⁴⁸ The other elements are media rights, including media diversity and pluralism online, as well as access to information from public bodies.

Rounding out the panoply of freedom of expression elements relating to Net Neutrality is the right to access information *online*, or connectivity. Put simply, “[g]iving effect to the right to freedom of expression imposes an obligation on States to promote universal access to the Internet” (U.N. Special Rapporteur et. al. 2011, para. 6(a)). The U.N. General Assembly (2016) recently reaffirmed the “the importance of applying a comprehensive human rights-based approach in providing and in expanding access to Internet and requests all States to make efforts to bridge the many forms of digital divides[,]” (para. 5). While falling short of creating an independent human right to access, the General Assembly confirms the integral function of connectivity to the full and effective realization by States of fundamental rights like freedom of expression, among others (the right to education is another prominent example).

This positive obligation means that for States to meet their duty to respect and fulfill the right to freedom of expression, they must guarantee that all people within their territory have access to “the means necessary to exercise this right, which [today] includes the Internet” (U.N. Special Rapporteur, 2011, para. 61). Accordingly, the U.N. Human Rights Committee (2011) has called upon States “to take all necessary steps to foster the independence of [...] new media [...] such as internet and mobile based electronic information dissemination systems [...] *and to ensure access of all individuals thereto*” (para. 15) (emphasis added). Connectivity is thus “essential” to realizing freedom of expression (U.N. Special Rapporteur, 2011, para. 61). At the same time, the Human Rights Committee (2011) has affirmed that the duty incumbent on States to implement these norms includes the obligation “to ensure that persons are protected from any acts by private persons or entities that would impair the enjoyment of the freedoms of opinion and expression to the extent that these [...] rights are amenable to application between private persons or entities.” (para. 7).

Net Neutrality is, at heart, a norm of non-discrimination. On this point, the ICCPR establishes in Article 2 that State parties are obligated “to respect and to ensure to all individuals within [their] territory and subject to [their] jurisdiction the [human] rights recognized [...] without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or *other status*.” What counts as “other status” for purposes of determining which additional distinctions might lead to negative (or positive) discrimination is in open question. What is certain is

that international human rights law recognizes distinctions based on *economic* status or criteria, and evaluates whether their purpose or effect is to nullify or impair the exercise or enjoyment of other human rights (*Haraldsson and Sveinsson v. Iceland*, 2007). This is the reason why proposed restrictions on Net Neutrality like Zero Rating, which offer free preferential access to parts of the Internet, must be examined closely to evaluate their impact on the exercise of freedom of expression.

To the extent that network neutrality is understood as a principle of non-discrimination applied to users' rights to request, receive or impart data or information online, it meshes organically with the core non-discrimination norms of international human rights law. But not all discrimination is *per se* illegal: International law differentiates between negative and positive types. The "principle of equality sometimes requires States parties to take affirmative action in order to diminish or eliminate conditions which cause or help to perpetuate discrimination prohibited [by international law]" (UNHRC, 1989, para. 10). For this reason, "[n]ot every differentiation of treatment will constitute [unlawful] discrimination, if the criteria for such differentiation are reasonable and objective and if the aim is to achieve a purpose which is legitimate under [international law]" (UNHRC, 1989, para. 13). In other words, positive or affirmative discrimination can be an exceptional measure which enhances or increases the *overall* exercise and enjoyment of human rights.

Zero Rating acts as a discriminatory restriction on network neutrality, which, as we have seen, is part and parcel of the rights to freedom of expression and non-discrimination. Under international human rights law, there are some circumstances in which such a restriction may be permitted (Carrillo, 2016, Part III.B.6). This is because human rights norms in general, and freedom of expression in particular, are not absolute. Defamation laws are a classic example of the hard limits imposed on freedom of expression in order to protect the rights of others (UNHRC, 2011, para. 47).¹⁴⁹ And, just as "legitimate differentiation" in favor of historically disadvantaged groups can effectively advance the goals of non-discrimination, (UNHRC, 1989, para. 10), so too can the freedom of expression rights of *some* (to

149 Another good example is ICCPR Art. 20, which explicitly enumerates a series of offensive forms of expression that *must* be curtailed by States in order to meet their obligations under the treaty. ("1. Any propaganda for war shall be prohibited by law. 2) Any advocacy of national, racial or religious hatred that constitutes incitement to discrimination, hostility or violence shall be prohibited by law.")

impart or receive information freely) be curtailed through positive discrimination (Zero Rating) aimed at promoting the freedom of expression rights of *others* (to connectivity) (UNHRC, 2011, para. 28; Carrillo, 2016, Part IV.A). The issue then becomes whether such “legitimate” discrimination is necessary and proportional in relation to the compelling aim it seeks to advance.

Similarly, Article 19.3 of the ICCPR expressly permits certain restrictions on the right to freedom of expression when necessary to “respect of the rights or reputations of others,” or to advance “the protection of national security, or of public order [...], or of public health or morals.” These are, generally speaking, the legitimate aims that may be invoked by States seeking to impose limits on fundamental human rights, including expression (U.N. Special Rapporteur, 2013, para. 28). In addition to pursuing a legitimate goal, a State seeking to curtail freedom of expression (or any human right for that matter) must ensure that the measures doing so are “provided by law,” “necessary” to meet the stated aim, and “proportional” (UNHRC, 2011, paras. 24-26, 33-34; ICCPR, 1966, art. 19.3). Generally speaking, such restrictions should be enacted into formal law through a transparent and participatory political process (U.N. Special Rapporteur, 2013, paras. 81-83). In any case, such laws “must be formulated with sufficient precision to enable an individual to regulate his or her conduct accordingly;” they must also be accessible to the public (UNHRC, 2011, para. 35, note 275).

Assuming that a State’s goal is to advance a legitimate aim recognized by international human rights law, a proposed restriction on freedom of expression involving Zero Rating, to be permissible, must not only be provided by law, it must also be necessary and proportional in relation to that goal. This is meant to set a high bar for recognizing a small set of narrowly tailored measures (UNHRC, 2011, note 275 para. 35). To be “necessary,” legally enacted limits must be “directly related to [meeting] the specific need on which they are predicated,” i.e. they must be effective at doing what they are intended to do (UNHRC, 2011, para. 22). A restriction is not indispensable, and thus “violates the test of necessity [,] if the protection could be achieved in other ways that do not restrict freedom of expression” (UNHRC, 2011, para. 33). Finally, any steps taken by States to limit expression, even if legitimate and necessary, cannot be “overbroad” (UNHRC, 2011, para. 34). Proportionate measures are those that are “appropriate to achieve their protective function” and “the least intrusive ... amongst those [available]” (UNHRC, 2011, para. 34).

In other words, whether or not a Zero Rating practice can be a permissible restriction on Net Neutrality, and thus freedom of expression, is a fact-specific and context driven question. For example, permitting a zero-rated platform like Internet.org to operate in a country with a deep digital divide and poor infrastructure like Zambia would most likely advance rather than violate its human rights commitments, so long as the national context and platform's characteristics did not render its deployment unnecessary (because there are better alternatives) or overbroad (because it discriminates inappropriately or unfairly) in relation to the access goals pursued (Carrillo, 2016, Part IV.C-D).

4.2.2 The Inter-American (OAS) Human Rights System

In her 2014 report, the OAS Special Rapporteur on Freedom of Expression (“OAS Special Rapporteur”) affirmed that American Convention on Human Rights Article 13 governing freedom of expression “applies fully to communications, ideas and information distributed through the Internet” (para. 2). Further interpreting the American Convention, the OAS Special Rapporteur (2014) observed that respecting Net Neutrality “is a necessary condition for exercising freedom of expression on the Internet pursuant to the terms Article 13” (para. 25). This is because “[n]et neutrality is part of the original design of the Internet [and] is fundamental for guaranteeing the plurality and diversity of the flow of information” (paras. 27-28). As these statements indicate, the Inter-American human rights system goes even further than its U.N. counterpart to address and protect Net Neutrality principles in several important respects.

Article 13 of the American Convention tracks article 19 of the ICCPR in most key respects, but differs positively in others that are worth highlighting. Like its U.N. counterpart, Article 13 safeguards freedom of expression in all its dimensions (para. 1) and establishes an exceptions regime that functions almost identically to the Article 19 version described above (para. 2).¹⁵⁰ But, it also adopts an express ban on “prior censorship” (para. 2), as well as on restrictions “by indirect methods or means, such as the abuse of government or private controls over newsprint, radio broadcasting frequencies, or equipment used in the dissemination of information, or by any other means tending to impede the communication and circulation of ideas and opinions” (Art. 13.3)

¹⁵⁰ For a detailed description of how the provisions in Article 13 are applied, please see the Report of the OAS Special Rapporteur on Freedom of Expression, paras 52-72.

(emphasis added). In this same vein, the American Convention articles which bar discrimination in the implementation and safeguarding of the treaty's rights expressly recognize unlawful distinctions made on the basis of "economic status" (Arts. 1.1 and 24). This, too, distinguishes the Convention in contrast with its counterpart, the ICCPR.

It is difficult to overstate the significance of these normative protections for Net Neutrality and freedom of expression in the Americas. Among the primary legal consequences catalogued by the OAS Special Rapporteur (2014) are that States party to the American Convention must:

- Guarantee the effective implementation of the Net Neutrality principle through "adequate legislation" (para. 26), which should be "based on dialogue among all actors [...] to maintain the basic characteristics of the original environment, strengthening the Internet's democratizing capacity and fostering universal and nondiscriminatory access" (para.11).¹⁵¹
- Ensure that "free access and [...] choice [by users] to use, send, receive or offer any lawful content, application or service through the Internet [that] is not subject to conditions, or directed or restricted, such as blocking, filtering or interference" (para. 25);
- Guarantee that any restrictions to Net Neutrality and freedom of expression "be established by law, formerly and in practice, and that the laws in question be clear" (para. 58).; such restrictions must also advance a legitimate State objective of the type listed in Article 13 paragraph 2, which includes respecting the rights of others, and conform to basic principles of necessity, proportionality and due process. (para. 55).
- Regulations or other implementing norms "that create uncertainty with regard to the scope of the right protected and whose interpretation could lead to arbitrary rulings that could arbitrarily compromise the right to freedom of expression would [also] be incompatible with the American Convention" (para. 58).
- Protect pluralism online by "ensuring that changes are not made to the Internet that result in a reduction in the number of voices and amount of content available [to] allow for the search for and circulation of information and ideas of all kinds [...] pursuant to the terms of Article 13 of the American Convention" (para. 19);

¹⁵¹ See the Special Rapporteur's discussion of the principles that should guide Internet governance at the national level, which contemplate multi-sectorial participation through democratic processes in the devising of Internet policies and regulations (OAS Special Rapporteur, 2014, paras. 177-180).

- Adopt measures necessary “to prevent or remove the illegitimate restrictions to Internet access put in place by private parties and corporations, such as policies that threaten Net Neutrality or foster anticompetitive practices” (para. 51).
- Respect and guarantee not just the individuals’ freedom of expression rights, but also those of society as well. This “dual dimension” inherent in the right to freedom of expression means that it is “both the right to communicate to others one’s point of view and any information or opinion desired, as well as the right of everyone to receive and hear those points of view, information, opinions, stories and news, freely and without interference that would distort or block it” (para. 19).

4.3 Net Neutrality in Latin America

Having canvassed the applicable legal norms of the United Nations and OAS systems in Part I, it is now possible to consider how the unified human rights framework comprised of both sets of norms applies in Latin American countries struggling to address Net Neutrality and Zero Rating issues. This Part has two objectives. The first is to identify the main challenges to safeguarding Net Neutrality in the region, using Zero Rating as an example; the second is to suggest a new perspective on how best to respond to those challenges in light of the applicable human rights law framework.

It helps that digital rights activists in Latin America have been active in this area. An excellent report published by the Colombian NGO Karisma Foundation (“Karisma Report”) in conjunction with other digital rights advocates from around the region, in particular *Red para la Defensa de los Derechos Digitales* (R3D) in Mexico, captures and analyzes ongoing Zero Rating practices in five countries: Colombia, Mexico, Ecuador, Paraguay and Panama (Karisma Foundation, 2016). From this report I will discuss the first two — Mexico, Colombia — to briefly illustrate how the legal and policy debates in those countries around Net Neutrality have and will continue to be shaped by the human rights frameworks outlined in Part I. To that short list, I will add Chile, based on the work of *Derechos Digitales*, another respected NGO operating in the region and primary author of a seminal report on digital rights in Latin America (APC Report, 2016). All three countries — Colombia, Mexico and Chile — are parties to the American Convention and the ICCPR. The following case studies, though brief, allow for a diagnosis of the primary issues arising from the interplay of Net

Neutrality and human rights in practice. Not surprisingly, they revolve around the codification, implementation and enforcement of domestic legal norms.

Mexico is an example of the way in which international human rights standards can influence the adoption of domestic norms protecting freedom of expression and Net Neutrality. In 2013, Mexico approved a bill to amend its Political Constitution in the area of telecommunications (OAS Special Rapporteur, 2014, para. 5). In a prescriptive move that tracks the special protections of American Convention Article 13.3, the Mexican legislature amended Article 7 of the Constitution, which safeguards freedom of expression, to prohibit restrictions of that right “by indirect methods or means, such as the abuse of government or private controls over newsprint, radio broadcasting frequencies, or equipment used in the dissemination of information, or by any other means” (Mexican Constitution, Art. 7).¹⁵² This near verbatim incorporation of American Convention Article 13.3’s protections into Mexican constitutional law has substantial implications for the ongoing policy debates in that country around how best to define and regulate Net Neutrality, which was codified but not defined by the Federal Telecommunications and Broadcasting Law practices (Karisma Foundation, 2016, pp. 48-49). This is especially true with respect to the widespread Zero Rating practices currently on display in Mexico that, on their face, would seem to contradict the aforementioned constitutional protections (Karisma Foundation, 2016, pp. 48-51; APC Report, p. 5) as well as the country’s human rights obligations.

Colombia, on the other hand, has enacted legislation that defines Net Neutrality and claims to safeguard it. At the same time, however, the law raises serious questions, first, about whether the definition is adequate, and second, regarding whether the law’s implementation will conform to international standards. In 2011, Colombia enacted Law 1450 that seems to codify a strong concept of Net Neutrality, one which expressly prohibits blocking, interfering, discriminating or restricting Internet users’ rights to access, send, receive or publish any content, application or service online. At the same time, however, it goes on to stipulate that service providers can “make offers depending on the needs of market sectors or of the providers’ subscribers according to their consumption and user profiles, *which shall not be construed as*

¹⁵² Translation by the author.

discrimination” (Karisma Foundation, 2016, p. 37).¹⁵³ The implementing regulation makes clear that the Law’s proviso authorizes plans that provide Internet access limited to certain “generic” types of services, content or applications, so long as the service providers offer plans with unlimited Internet access alongside those which would restrict it (Karisma Foundation, 2016, p. 37). Karisma (2016) has correctly expressed concern that the conflicting language in the Law and implementing regulation threatens to undermine the Net Neutrality provision and turn it into a “joke” (p.37). Accordingly, because Colombia is a monist State, where international human rights law once ratified forms part of a “constitutional bloc” of norms that can be directly invoked in Colombian courts (Colombian Constitution, Art. 93), it is not hard to see how this panorama could easily give rise to legal claims denouncing Law 1450 on human rights grounds.

Finally, Chile offers an illuminating example of the challenges to ensuring that otherwise strong Net Neutrality protections in law are adequately enforced. Chile is famous as the first country in the world to adopt a Net Neutrality law, in 2010. At a normative level, the Law’s provisions create a “blanket” bar to practices that violate Net Neutrality, including Zero Rating. It states that ISPs will not be able to arbitrarily block, interfere, discriminate, hinder or restrict content, applications or legal services that users seek to transmit or access through their networks. (Chilean Net Neutrality Law, 2010, Art. 24 H(a)). The Law’s prohibition on discrimination was applied to commonly zero-rated social media applications like Twitter, WhatsApp and Facebook. In 2014, the *Subsecretaría de Telecomunicaciones de Chile* (Subtel), the telecommunications regulator, announced that such services were no longer allowed, subjecting any company that utilized them to fines (Meyer, 2014). Facebook’s Free Basics, part of Internet.org, was similarly shut down. (Rossini & Moore, 2015, pp. 17-18).

Digital rights advocates in Chile welcomed this regulation on the grounds that permitting zero-rated social media platforms was harmful to Net Neutrality “from a technical, economic and legal perspective.”¹⁵⁴ (Vera Hott, 2014). In practice, however, Chile’s Net Neutrality law today only bans Zero Rating by mobile operators of social media apps and services offered as promotional or

153 Translation by the author. Emphasis added.

154 Translation by author.

commercial schemes (Rossini & Moore, 2015, pp. 19-20). Some forms of Zero Rating continue to exist or be permitted by Subtel, including zero-rated social media platforms.¹⁵⁵ Notably, in 2014 Subtel issued an opinion stating that Wikipedia Zero did not violate the terms of the law, or Subtel's interpretations of its Net Neutrality protections (Rossini & Moore, 2015, pp. 19-20). The result is normative dissonance, a situation where strong legal protections are not consistently implemented or enforced by the competent authorities, giving rise to potential human rights concerns.

In sum, the main challenges highlighted by the foregoing country case studies are (1) the need to enact strong constitutional, legislative and regulatory norms *domestically* to protect Net Neutrality in conformity with *international* (regional and universal) human rights standards; and (2) once an adequate legal framework has been established, ensuring that the national authorities charged with *implementing* and *enforcing* those Net Neutrality norms do so effectively and in line with the applicable international standards. As noted by *Derechos Digitales*, the Latin American experience has shown that, even where Net Neutrality “has been introduced as a relevant topic for regulation, this has happened in such a way as to leave the principle without effective practical application.” (APC Report, 2016, p. 5).¹⁵⁶ Where this is the case, the question then becomes: how best to respond to the challenges identified?

Once again, the Latin American experience is telling. As the Karisma and APC Reports demonstrate, digital rights activists in Latin America are hard at work analyzing issues involving Net Neutrality and Zero Rating (among others) to advocate for more coherent public policies and equitable legal frameworks domestically. In doing so, these activists are actively exploring ways in which human rights standards, which often are part of domestic law, can be more effectively invoked in their pro-Net Neutrality advocacy (Karisma Foundation, 2016; APC Report, 2016). This work is important not just because of the normative and practical impact it has in their respective countries. It is important because the Latin American digital rights activists are at the same time forging a new social movement, one that increasingly emphasizes the role of human rights law in promoting

155 See, e.g., ClaroChile, <http://www.clarochile.cl/portal/cl/pc/personas/movil/redes-sociales/#04-redes-sociales-en-tu-plan>.

156 Translation by the author.

and safeguarding Net Neutrality, rather than the other way around. To understand the significance of this distinction, it is necessary to take a quick look at how others have approached the issue.

By and large, the predominant approach to Net Neutrality advocacy has been to affirm that preserving an open Internet based on the end-to-end principle is necessary to ensuring freedom of expression and other human rights online (Belli & Van Bergen, 2013; NGO Coalition letter, 2015; Van Schewick, 2016). Advocates continue to stress that the original architecture of the Internet — decentralized, open and interconnected — together with the extraordinary benefits these characteristics have generated, are the primary and sufficient justification for enshrining the Net Neutrality principle in law and policy (Belli, 2015; Van Schewick, 2016). Clearly this approach has its strengths. But one weakness may be its reliance on what Lawrence Lessig (2006) calls the “is-ism” fallacy, the notion that conflates “how something is with how it must be” (p.32). Lessig (2006) cautions that “[t]here is no single way that the Net has to be; no single architecture that defines the nature of the Net” (p. 32). In this view, advocates for positive regulation of technology such as the Internet “should expect — and demand — that it can be made to reflect any set of values that we think important” (p. 32). In the case of Net Neutrality regulation, as we have seen, those values are best embodied in, and provided for by, the human rights law framework.

Respect for their human rights obligations under international law is today a primary reason for why States must effectively safeguard Net Neutrality (Carrillo, 2016, Part III.B). To view human rights protection as merely a beneficial *consequence* of preserving Net Neutrality on architectural grounds, as noted above, is to beg the questions of why strong Net Neutrality advances the values we want to preserve in the first place and what those values are. It works better to invert the proposition: *advancing human rights norms will better protect Net Neutrality*. Affirming that respect for Net Neutrality is a duty incumbent on States in line with their human rights obligations fortifies pro-Net Neutrality advocacy with a matrix of technical legal arguments that policy prescriptions alone, no matter how compelling, lack. Digital rights activists thus can — and should — insist that their government comply with its human rights obligations by adopting, implementing, and enforcing adequate Net Neutrality safeguards domestically, because that approach will in most cases enhance the impact and traction of their advocacy on the ground.

This is precisely the process underway in much of Latin America, where it has become apparent that advocacy strategies grounded on preferred policy prescriptions such as preserving the open Internet may be insufficient to adequately anchor strong Net Neutrality in domestic legislation and regulation in many countries. That is one of the lessons to be derived from the concise case studies of the Latin American experience examined above. In response, Latin American activists are increasingly drawing on human rights norms to ensure greater normative coherence and influence in their pro-Net Neutrality advocacy, a strategic shift that is reflected in the latest reports from the Karisma Foundation (2016) and *Derechos Digitales* (APC Report, 2016). As these strategies spread, deepen and mature throughout the region, we are sure to see further developments on Net Neutrality front in the Latin American context from which to learn.

4.4 Conclusion

As goes Latin America, so goes the world, at least with respect to Net Neutrality. That is to say that the experiences and lessons drawn from the region in relation to Net Neutrality and Zero Rating are relevant to what is happening — and will happen — in other parts of the world as well. As noted in the Introduction, the human rights standards that apply in Latin America are substantially the same that apply everywhere; the variations are in the systems and mechanisms in place regionally to enforce them. And the challenges faced by digital rights activists in Africa, Asia, Europe and elsewhere who care about Net Neutrality are also essentially the same: hold governments to their legal obligations to guarantee adequate codification, implementation and enforcement of strong domestic norms in line with international standards. This approach by definition promotes fuller enjoyment of freedom of expression and related human rights by more people than any other. It also provides a more coherent and consistent approach to Net Neutrality issues across countries and regions of the world, thanks to the universal standards that underlie it. As the convergence of human and digital rights deepens in this way, advocacy and policy outcomes around Net Neutrality issues will likely become more equitable, and consequently, more sustainable in the long run.

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PART II

Zero Rating Pros and Cons



5 Zero Rating: a Global Threat to the Open Internet

by Gustaf Björkstén, Raman Jit Singh Chima and Estelle Massé

Zero Rating — the practice of offering internet users free access to some, but not all, of the internet, resulting in unequal access — is at the heart of the current debate over the future of the free and open internet. Around the world — from Delhi to Washington, Brasilia to Brussels — advocates, tech companies, and users are debating this crucial issue.¹⁵⁷ But what exactly *is* Zero Rating? What is its technical impact on our use of the internet? What decisions have lawmakers and telecoms regulators already made regarding its use? And what happens next?

5.1 What is Zero Rating?

Zero Rating is the opposite of Net Neutrality, the notion that all data on the internet should be treated equally.¹⁵⁸ Net Neutrality is central to maintaining the internet's potential for economic and social development, and for the exercise of internationally recognised human rights such as the right to free expression. Its principles help ensure that anyone, anywhere in the world, can receive and impart information freely over the internet, no matter where they are, what services they use, or what device they operate. Seen in this light, Zero Rating is a form of “network discrimination” — it deliberately sets up a system where “the internet” you get is different for different people.¹⁵⁹

Zero Rating programmes manifest in different forms, the most frequent being “sub-internet” offers, where only a part of the internet is offered for “free”, and what we’re calling the “telco” model, where a telco prioritises either its own content or data sponsored by third parties.¹⁶⁰ All forms of Zero Rating amount to price discrimination, and have in common their negative impact on users’ rights.

157 Access Now. (2016), p.3. *RightsCon Silicon Valley 2016 Outcomes Report*. Retrieved from <https://www.rightscon.org/cms/assets/uploads/2016/07/RC2016-Outcomes-Report.pdf>

158 Wu, T. (2003). *Network Neutrality, Broadband Discrimination*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=388863

159 Berners-Lee, T. (2015). *Net Neutrality is Critical for Europe's Future*. Retrieved from http://ec.europa.eu/commission/2014-2019/ansip/blog/guest-blog-sir-tim-berners-lee-founding-director-world-wide-web-foundation_en

160 Marsden, C.T. (2016). Zero Rating and Mobile Net Neutrality. In L. Belli & P. De Filippi (Eds.), *Net Neutrality Compendium - Human Rights, Free Competition and the Future of the Internet* (pp. 241-260). Switzerland: Springer.

5.2 How does Zero Rating work technically? And how do zero rated programmes impact internet users?

Zero Rating is all about control. Specifically, control over the user experience by the telecom carrier — and potentially its business partners. We can see evidence of this/how this works when we look at how Zero Rating is implemented technically.¹⁶¹ From a technical standpoint, it is about manipulation of the network, where you guide or force the user to change the way they would otherwise use it.

Right now, there are two prominent models of Zero Rating implementation. There is the telco model, implemented by companies like Verizon and AT&T, where the company gives preferential treatment to its own content, over whatever content might be independently created using its network.¹⁶² The second, and much more restrictive, model is the one used for sub-internet offers such as Facebook’s Free Basics programme and others, which orchestrate a tightly controlled “walled garden” network.¹⁶³ In such an instance, tech companies insert themselves in the middle of all communications in partnership with a telecom carrier, and dictate terms for everything that users can and cannot do on the network.

5.3 The telco model: Quality of Service for me, not for thee

The telco model utilises some form of QoS (Quality of Service) protocol to ensure that its content is given preferential treatment, and therefore always appears “smoother” and more reliable than competing content.¹⁶⁴ Telcos can also offer differential treatment to specific applications or services by, for instance, exempting them from monthly data caps allowance, and thus providing them with

161 Bhatia, R. Taglienti, C. Sofronas, A. Saxena, N. Irizarry, M. (2007). *Zero Rating in wireless prepaid communications network*. Retrieved from <https://www.google.com/patents/US7701870>

162 Brodtkin, J. (2016). *Sprint now Zero Rating some video, joining AT&T, Verizon, and T-Mobile*. Retrieved from <http://arstechnica.com/business/2016/05/sprint-now-Zero-Rating-some-video-joining-att-verizon-and-t-mobile/>

163 Access Now. (2015). *Open Letter to Mark Zuckerberg Regarding Internet.org, Net Neutrality, Privacy, and Security*. Retrieved from <https://www.facebook.com/notes/access-now/open-letter-to-mark-zuckerberg-regarding-internetorg-net-neutrality-privacy-and-/935857379791271/>

164 International Telecommunication Union (ITU). (2012). *World Conference on International Telecommunications (WCIT) Background brief - Quality of Service and “Net Neutrality”*. Retrieved from <http://www.itu.int/en/wcit-12/documents/wcit-background-brief11.pdf>

an advantage over their competitors.¹⁶⁵ Such content can be video, music services, or other applications.

Originally, QoS protocols were intended for internet users to dictate to the carriers what their preferences are for their own experience. Users could configure a router to pass information upstream to the carrier, designating which services mattered to them.¹⁶⁶ The expectation was that carriers would comply with a “best effort” to fulfill the user’s preferences. The reality was that while some enterprise “users” configured QoS on their internet-connected routers, few individuals made use of the QoS features that existed (and still exist) in domestic networking equipment. Carriers have argued that because QoS features exist in the internet networking protocols, it implies that protocol designers intended to implement Zero Rating. But this assumption is simply not true. These features were never intended to empower carriers to force their preferences on users through Zero Rating programmes.

5.4 The sub-internet offers model: A middleman for the internet

The sub-internet offers model puts technology companies who partner with telecom carriers to provide such programmes in the middle of every network transaction. With current implementations of this model, users cannot do anything with any website or service without the company seeing their traffic and knowing what they are doing. By putting itself in the middle of every request and response over the network, the company can gain total access to the user’s behavior to build a detailed individual profile and have access to their communications history.¹⁶⁷

Not only does this model dictate that all of the user’s traffic go through the company, but the company needs the user’s traffic to be unencrypted at that interception point. Otherwise it cannot

165 Ars Technica. (2016). *Verizon’s mobile video won’t count against data caps—but Netflix does*. Retrieved from <http://arstechnica.com/business/2016/02/verizons-mobile-video-wont-count-against-data-caps-but-netflix-will/>

166 Body of European Regulators of Electronic Communications (BEREC). (2012). *Guidelines for quality of service in the scope of Net Neutrality*. Retrieved from http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/1101-berec-guidelines-for-quality-of-service-in-the-scope-of-net-neutrality

167 Access Now. (2015). *Access Now submission on Zero Rating and the Marco Civil da Internet*. Retrieved from https://s3.amazonaws.com/access.3cdn.net/7f755440a612008202_evm6b93it.pdf

use the user's data to build a profile. This model therefore does not allow end-to-end encryption. Such encryption would let the user break out of the Zero Rating "jail." With end-to-end encryption, the carrier or provider offering a Zero Rating programme would not see what the user is doing, and this renders profile-building impossible – which is a key commercial consideration behind the deployment of such programmes.

We still don't know what the long-term impact would be if more carriers adopt Zero Rating programmes. But given the restrictions and control such programmes impose, it seems likely there would be less innovation and less opportunity for internet users to participate in it. This is confirmed by the recent landmark empirical research report published by the Alliance for Affordable Internet (A4AI), which found that "Zero Rating did not bring most mobile internet users online for the first time."¹⁶⁸ Moreover, the report found that the vast majority of users (82%) prefer access to the full internet with time or data limitations, if restrictions had to be imposed. This builds on other earlier initial research findings which had indicated that limiting access to the range of the internet impacted its perceived ability to materially impact the lives of the next generation of adopters, with low income users preferring even limited access to an open, unrestricted internet, versus the restricted experience that Zero Rating provides.¹⁶⁹

5.5 How are regulators dealing with Zero Rating?

There are several regulatory discussions taking place at the same time, all around the world. The Telecom Regulatory Authority of India – TRAI – was one of the first regulators to substantially look into the issue of Zero Rating.¹⁷⁰ After extensive consultations, it passed what many have described as some of the strongest rules on Zero Rating – a comprehensive regulation restricting discriminatory

168 Alliance for Affordable Internet. (2016). *The impacts of emerging mobile data services in developing countries*. Retrieved from http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2016/05/MeasuringImpactsofMobileDataServices_ResearchBrief2.pdf

169 Kak, A. (2015). *The Internet un-bundled - Locating the user's voice in the debate on Zero Rating*. Retrieved from <http://www.cprsouth.org/wp-content/uploads/2015/08/Amba-thesis-complete.pdf>

170 Telecoms Regulatory Authority of India (TRAI). (2016) *Prohibition of discriminatory tariffs for data services regulations*. Retrieved from http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Regulation_Data_Service.pdf

differential pricing.¹⁷¹ Specifically, the TRAI regulations prohibit telecom service providers from offering discriminatory data tariffs or from entering into arrangements with others services to provide such programmes. Content-based differential data pricing has also been prohibited.¹⁷²

However, after industry efforts calling for exemptions over this summer, TRAI announced a new consultation on free data pricing.¹⁷³ While the initial period of this consultation has concluded with no further recommendations published so far by TRAI, the earlier differential data-pricing rules continue to stand in effect, remaining unchanged. The rules may nonetheless be subject to a review in 2018 as foreseen by the TRAI order.¹⁷⁴

The US Federal Communications Commission (FCC) was next in line. Last year, the FCC adopted strong rules to safeguard Net Neutrality, but did not advance rules to set a general conduct standard at that time for Zero Rating, leaving it to future enforcement or rule-making.¹⁷⁵ Since then, US operators have launched a number of Zero Rating plans, which affect millions of people in the US. That's why more than 50 civil liberties organisations, including Access Now, urged the FCC to take action against these Zero Rating schemes in March 2016.¹⁷⁶ Shortly after, 100,000 individual complaints calling for enforcement actions against Zero Rating schemes violating Net Neutrality were sent to the FCC.¹⁷⁷ The FCC eventually launched an evaluation on how to apply the Open Internet Order to Zero Rating plans but the

171 Access Now. (2016). *Indian regulator stands up for Net Neutrality, rules against zero-rated services*. Retrieved from <https://www.accessnow.org/indian-regulator-stands-up-for-net-neutrality-rules-against-zero-rated-services/>

172 Telecoms Regulatory Authority of India (TRAI). (2016) *Prohibition of discriminatory tariffs for data services regulations*. Retrieved from http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Regulation_Data_Service.pdf

173 Telecoms Regulatory Authority of India (TRAI). (2016) *Pre-Consultation Paper on Net Neutrality*. Retrieved from http://traigov.in/WriteReadData/ConsultationPaper/Document/Net_Neutrality_Preconsultation_30_may_2016.pdf

174 Telecoms Regulatory Authority of India (TRAI). (2016) *Prohibition of discriminatory tariffs for data services regulations (Chapter III, point 6)*. Retrieved from http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Regulation_Data_Service.pdf

175 United States Federal Communications Commission (FCC). (2015). *Open Internet Order*. Retrieved from https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf

176 Open Technology Institute. (2016). *Zero Rating Plans are a Serious Threat to the Open Internet*. Retrieved from <https://www.newamerica.org/oti/blog/Zero-Rating-plans-are-a-serious-threat-to-the-open-internet/>

177 Fight for the Future. (2016). *Over 100,000 Complaints on Zero Rating Schemes Delivered to FCC Ahead of June Meeting*. Retrieved from <https://www.fightforthefuture.org/news/2016-06-24-photos-over-100000-complaints-on-Zero-Rating/>

process is being conducted behind closed-doors. In response, 70 companies and civil society groups, including Access Now, asked the FCC to be transparent about Zero Rating, creating a public process to inform evaluation of the existing Zero Rating plans.¹⁷⁸

Finally, the European Union has recently concluded the last stage of establishing harmonised Net Neutrality rules.¹⁷⁹ On August 30, the Body of European Telecoms Regulators (BEREC) issued the final version of its guidelines for implementing these rules.¹⁸⁰ To develop the guidelines on Zero Rating, BEREC looked over the approach chosen by the Netherlands, a country with a history of upholding strong Net Neutrality rules. There, the parliament approved a government proposal to prohibit Zero Rating earlier this year.¹⁸¹ Such a ban is well within the scope of the adopted EU Net Neutrality rules but BEREC ultimately chose to follow a different model.¹⁸²

Draft guidelines, presented by BEREC on June 6 brought the EU one step closer to comprehensive Net Neutrality rules but more work needed to be done on Zero Rating, traffic management and specialised.¹⁸³ During a six-week comment period, anyone in Europe was invited to suggest improvements to the proposed guidelines. Access Now, together with the SavetheInternet.eu coalition, helped guide internet users through that process, providing platforms for sending comments to BEREC.¹⁸⁴ Through these platforms, BEREC has

178 NGO coalition. (2016). *Stay Open FCC*. Retrieved from <http://www.stayopenfcc.org/#letter>

179 Massé, E. (2015). *Yes, there's still a chance for Net Neutrality in Europe*. Retrieved from <https://medium.com/@EstelleMasse/yes-there-s-still-a-chance-for-net-neutrality-in-europe-25ef15e4f0b3>

180 Body of European Regulators of Electronic Communications (BEREC). (2016). *BEREC Guidelines on implementation by National Regulators of European Net Neutrality rules*. Retrieved from http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

181 Bits of Freedom. (2016). *Dutch government prohibits price discrimination for internet access*. Retrieved from <https://www.bof.nl/2016/05/17/press-release-dutch-government-prohibits-price-discrimination-for-internet-access/>

182 European Union. (2015). *Regulation (EU) 2015/2120 laying down measures concerning open internet access*. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2120&from=en>

183 Body of European Regulators of Electronic Communications (BEREC). (2016). *Draft BEREC Guidelines on implementation by National Regulators of European Net Neutrality rules*. Retrieved from http://berec.europa.eu/eng/document_register/subject_matter/berec/public_consultations/6075-draft-berec-guidelines-on-implementation-by-national-regulators-european-net-neutrality-rules

184 Access Now. (2016). *BEREC is closing its consultation on Net Neutrality. Did we save the internet?* Retrieved from <https://www.accessnow.org/berec-closing-consultation-net-neutrality-save-internet/>

received more than half a million responses from individuals calling for clear Net Neutrality rules.¹⁸⁵ During the review process, BEREC addressed several important issues on specialised services and traffic management and brought a comprehensive set Net Neutrality rules.¹⁸⁶

On Zero Rating, the guidelines are close to achieving the highest level of protection possible.¹⁸⁷ They include an outright ban of “sub-internet” Zero Rating offers like Facebook’s Free Basics.¹⁸⁸ They also ban telcos from offering single services for free outside of data caps such as Spotify or YouTube sponsored deal. That’s a huge win. But they take a different, more ambiguous approach to other Zero Rating programmes implemented by telcos. Telcos could still enter into commercial agreements to favor either their own content or that of third parties. For such offers, BEREC has developed a set of criteria for a ‘case by case’ assessment that every offer will have to comply with.¹⁸⁹ While the criteria are quite robust, some regulators would enforce the rules properly, but others might not have the resources — or the desire — to do so. Strong enforcement and monitoring of the implementation will therefore be crucial to ensure that some internet users in Europe are not at risk of Net Neutrality violations.

The publication and beginning of enforcement of the Telecoms Single Market Regulation concludes the first Net Neutrality debate — and victory — in the EU, but it is not the end of the debate. BEREC will proceed to regular review of the guidelines to assess their efficiency, perhaps providing with an opportunity to move away from a ‘case by case’ assessment for Zero Rating and develop a full ban of these programmes.

185 EDRI. (2016). *EU Telecom Regulators meet to analyse over 500,000 consultation responses*. Retrieved from <https://edri.org/telecom-regulators-meet-analyse-consultation-responses/>

186 Body of European Regulators of Electronic Communications (BEREC). (2016). *Presentation of the BEREC chair at the Net Neutrality Guidelines press conference*. Retrieved from http://berec.europa.eu/eng/document_register/subject_matter/berec/others/6166-presentation-at-the-net-neutrality-guidelines-press-conference

187 Access Now. (2016). *Internet wins! Net Neutrality solidified across the EU*. Retrieved from <https://www.accessnow.org/internet-wins-net-neutrality-solidified-across-eu/>

188 Body of European Regulators of Electronic Communications (BEREC). (2016), paragraph 17. *BEREC Guidelines on implementation by National Regulators of European Net Neutrality rules*. Retrieved from http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

189 Body of European Regulators of Electronic Communications (BEREC). (2016), paragraphs 42-48. *BEREC Guidelines on implementation by National Regulators of European Net Neutrality rules*. Retrieved from http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

5.6 Going forward

While regulators in the US, India and the EU are attempting to address the issue of Zero Rating, telcos and tech companies irrespectively continue to roll out a variety of Zero Rating deals in other parts of the world. Facebook itself has already launched its Free Basics programme in 23 of the 54 African countries, after having launched other instances of this project in Latin America and Southeast Asia.¹⁹⁰ The delivery of these programmes is done through partnership with telcos like Safaricom, Vodacom, MTN or Barths Airtel.¹⁹¹ Barths Airtel has also launched its own programmes “Airtel Zero” was launched in April 2015.¹⁹² While such programmes elicit a substantial amount of interest across various groups, they should not be seen as a replacement — even temporary — for full internet access. It has been a long standing concern that such patchwork fixes to connectivity lower incentives for, or at least to a great extent postpone, large scale investment in network infrastructure at last. Countries which allow Zero Rating programmes should therefore remain vigilant and rather focus on expanding their infrastructure and its availability to everyone.

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6 The Economics of Zero Rating^{193*}

by Jeffrey Eisenach

6.1 Introduction

Zero Rating plans enable mobile wireless customers to download and upload online content without incurring data usage charges or having their usage counted against data usage limits. Zero Rating has become increasingly popular in both developed and developing countries, but plays a particularly important role in developing countries, where the costs of mobile data services are higher relative to per capita incomes.

The obvious benefits of Zero Rating include lower prices for consumers, especially those who might have difficulty affording mobile data plans, and expanding Internet adoption, which has been demonstrated to generate substantial economic and social benefits. Some have expressed concerns, however, about whether such plans violate Net Neutrality principles by discriminating in favor of some content over other content. Critics of Zero Rating worry that it could harm competition in markets related to Internet access and/or online content, or interfere with consumers' unfettered access to online information (i.e., diversity of expression).

In this context, this study presents an assessment of the benefits and costs of Zero Rating, concluding that Zero Rating programs in general represent an economically efficient mechanism for increasing consumer welfare given the unique characteristics of information technology markets. Such market characteristics make it beneficial to offer lower prices and other incentives to expand the size of the market, especially in developing countries where incomes and market penetration are low. Further, the most common types of Zero Rating programs are the ones most likely to benefit rather than harm consumers and expand rather than limit consumer choice. With respect to diversity of expression and related concerns, it is difficult to construct a scenario under which increasing access to online information and adoption of digital communications services would be harmful to online speech. While regulatory authorities should remain vigilant in monitoring business practices, broad-based bans or restrictions on Zero Rating plans are far more likely to harm consumer welfare than improve it.

193 * This paper was originally prepared for Facebook, Inc. as part of a client engagement.

Section II of the paper describes the state of play with respect to both the types of Zero Rating plans currently in the marketplace and efforts by regulators in some countries to limit or prohibit their availability. Section III presents a brief explanation of the economic characteristics (i.e., dynamism, modularity, and demand-side effects) that distinguish information technology markets from markets for other types of goods and that affect both market performance and the nature of the competitive process. Based on this framework, the paper outlines the primary issues involved in assessing the impact of Zero Rating plans on economic efficiency, competition, and overall economic welfare. Section IV presents an assessment of the two primary criticisms of Zero Rating, namely the asserted potential for anticompetitive market foreclosure and concerns about diversity of expression. It explains that the Zero Rating plans currently being offered almost certainly generate benefits well in excess of any costs. Section V provides a brief summary of conclusions.

6.2 Zero Rating Plans: The State of Play

All Zero Rating plans share one characteristic: they allow mobile subscribers to access certain online content “for free”—that is, without having the associated data usage counted against their usage allowances under wireless service plans. The plans differ in two main respects: the types of content included and the underlying business arrangements.

The type of content included in Zero Rating services varies widely and includes access to online government and community service sites as well as access to popular services like Facebook, Google, Twitter, and Wikipedia. In the United States, T-Mobile offers its data plan subscribers zero-rated access to more than 25 online music services, including iHeartRadio, Pandora, and Spotify. In some cases, carriers offer customized content designed specifically to be offered in conjunction with Zero Rating. For example, Facebook Zero and Internet.org provide customized content designed specifically for use on devices with limited capabilities or over networks with limited capacity.

Zero Rating business arrangements vary mainly according to the nature of the relationship between the access provider and the content provider. The most common form of Zero Rating plans are “carrier initiated”—that is, the mobile carrier simply chooses to zero-rate certain content as a means of attracting customers.

“Sponsored data” plans represent a different model, under which content providers pay carriers to have their content Zero Rated. In some cases, carriers may choose to zero-rate their own content or content produced by affiliated companies, as was the case until recently with mobile TV plans offered by Canadian carriers, Bell Mobility and Videotron.

Content-oriented applications like Facebook, Twitter, and Wikipedia have been especially active in working with mobile operators to develop and promote Zero Rating plans in developing countries. Facebook Zero allows customers of participating mobile carriers to access Facebook’s standard mobile site content, send messages, update their status, and engage in other typical activities on a zero-rated basis. (Facebook Zero users can also access additional Facebook content, such as photographs, but when they do so, the resulting data usage counts as paid usage.) First launched in 2010, Facebook Zero has been implemented by more than 50 mobile operators in over 40 countries (Hicks, 2010). Facebook Zero is carrier initiated: Facebook does not pay carriers for participating in Facebook Zero.

Internet.org is a global partnership involving Facebook and other technology companies, local governments, and NGOs, which focuses on decreasing the cost of delivering data and expanding Internet access in underserved communities outside of the United States and Europe (Internet.org/about, n.d.). The Internet.org app, which is offered in partnership with local mobile carriers, allows subscribers zero-rated access to customized content from multiple providers, including Facebook, Wikipedia, and a variety of local content providers. First launched in Zambia in 2014, the Internet.org app has expanded to Tanzania, Kenya, Colombia, Ghana, and India, as shown in Table 1. As with Facebook Zero, Internet.org does not pay Internet Service Providers (ISPs) to zero-rate its content.

Despite its prima facie benefits, regulators in a handful of countries have taken steps to limit or ban Zero Rating programs.¹⁹⁴ For example, the government of Chile has found that Zero Rating plans violate the country’s Net Neutrality law (Meyer, 2014a); regulators in the Netherlands have fined mobile carrier Vodafone for Zero Rating HBO (Authority for Consumers & Markets, 2015); and regulators in Slovenia

¹⁹⁴ For an interesting discussion of issues associated with Zero Rating programs, see The Internet Governance Forum (2014).

have fined the country's two largest mobile operators for Zero Rating music and cloud storage services (Mobile operators in Slovenia, 2015). The Canadian Radio-television and Telecommunications Commission (CRTC) recently banned offerings by mobile providers Bell Mobility and Videotron, which offered differential pricing for the companies' mobile TV services (Canadian Radio-television and Telecommunications Commission, 2015). Regulators in other countries have either suggested that such programs are likely to violate neutrality rules (e.g., Norway) (Meyer, 2014b), or have initiated investigations (e.g., India) (Mankotia, 2014; Net Neutrality Also an Issue, 2015). In the United States, officials at the Federal Communications Commission have indicated that Zero Rating plans will be evaluated on a case-by-case basis under the Commission's new Open Internet Order.¹⁹⁵

The analysis below explains why broad-based bans or restrictions on Zero Rating plans are likely to be counterproductive and harm consumer welfare.

6.3 The Competitive Dynamics of Information Technology Markets

In general, the welfare effects of pricing schemes and other business practices depend on the characteristics of the markets in which they are deployed. Zero Rating programs are deployed in information technology (IT) markets, which are distinguished from more traditional "textbook" markets by three primary characteristics: *dynamism*, *modularity*, and *demand-side effects*.¹⁹⁶

Dynamism refers to the significance of innovation as a measure of market performance: in dynamic markets, the ability of a firm to offer new and improved products plays at least as significant a role in its success (i.e., its profitability) as the ability to produce and sell existing products at lower prices (Baumol, 2002).¹⁹⁷ Because innovation is typically the result of fixed cost investments,

195 The Federal Communications Commission (FCC) voted to approve a new Open Internet Order on February 26, 2015 (Federal Communications Commission, 2015). FCC officials have indicated they will evaluate Zero Rating plans on a case-by-case basis (Walker, 2015).

196 For a more extensive discussion of these phenomena and their implications for competition analysis, see Eisenach & Gotts (2014), Eisenach (2012) and Shy (2001).

197 According to Baumol (2002), "Innovation has replaced price as the name of the game in a number of important industries. The computer industry is only the most obvious example, whose new and improved models appear constantly, each manufacturer battling to stay ahead of its rivals" (p. 4; see also Schumpeter, 1942).

production functions in dynamic industries benefit from economies of scale — meaning that average costs exceed marginal costs, and firms can only survive by differentiating their products sufficiently to set prices (for at least some consumers) above marginal costs.

The margins made possible by product differentiation not only allows firms to recoup sunk cost investments but also provides the incentive to take the risks inherent in innovation, which can be thought of as simply product differentiation over time.¹⁹⁸

A second characteristic that distinguishes IT markets is *modularity*, or what is sometimes referred to as “platform competition,” i.e., the presence of strong complementarities in production or consumption. Modularity creates demand for compatibility or “interconnection:” Firms that produce complementary products (e.g., Microsoft and Nokia, or Facebook and Bharti Airtel) may team up to create platforms (sets of compatible complements); in other cases (e.g., Apple, Blackberry), firms choose to achieve compatibility through vertical integration.

Finally — and importantly for assessing Zero Rating — IT markets are also characterized by significant *demand-side effects*, including economies of both scale and scope. Demand-side economies of scale, also known as network effects, imply that a product is more valuable to consumers as the number of users increases. Demand-side economies of scope, by contrast, imply that a product’s value increases with the diversity (as opposed to simply the number) of users, e.g., the value of a credit card network to both consumers and merchants depends on the presence of the other *type* of participant. Markets characterized by demand-side economies of scope are referred to as “two-sided” or “multi-sided.” The key implication of demand-side economies is that market expansion increases the value of the platform to all participants.

6.4 The Economic Foundations of Zero Rating

The discussion above provides a conceptual framework for assessing the effects of Zero Rating. This section applies this framework to assess the economic implications of Zero Rating for online content and applications, mobile access, and the overall Internet ecosystem.

¹⁹⁸ Especially in dynamic markets with high rates of innovation, high margins as measured by accounting data do not necessarily equate to high profits from the perspective of economics or competition analysis. The seminal reference is Fisher & McGowan (1983).

Specifically, it discusses: (a) the role of Zero Rating in capturing network externalities (demand side economies of scale); (b) Zero Rating as a form of efficient differential pricing; (c) Zero Rating as an efficient pricing mechanism in the two-sided market for mobile wireless services; and (d) Zero Rating as a mechanism for competitive product differentiation on mobile wireless markets. In each of these respects, Zero Rating is a market-driven mechanism for achieving economically efficient (and socially desirable) outcomes.

6.4.1 Zero Rating and Network Effects

Online content providers and mobile networks operate in markets that can have network effects, in that the value of the network to customers grows with the addition of other customers. As described below, the extent and type of network effect can vary significantly in particular cases. In some cases, expansion increases the value for all customers on the network. In others, the effects are limited to additions within smaller groups. And in others, benefits arise when different kinds of participants join a network.¹⁹⁹ Thus, it is often in the interests of current participants in a network to promote its growth in some form, and sometimes in the interests of society generally to promote universal participation. Governments often subsidize participation in industries with network effects through direct or indirect government subsidies (e.g., universal service for telephone and, more recently, broadband adoption).

One obvious and likely significant benefit of Zero Rating is to expand participation in zero-rated online content and applications, while also increasing mobile wireless penetration, especially in developing economies.²⁰⁰ There is a substantial literature in support of the proposition that expanded Internet access, principally through higher mobile wireless adoption, has a variety of economic and societal benefits (e.g., Deloitte, 2014; GSMA, 2014).

It is also important to understand that the power of network effects is greatest within “communities of use.” That is, the value

199 The impact of network effects can depend on a variety of factors; for example, some of the network effects of increasing wireless penetration are shared among carriers thanks to the fact that carriers interconnect with one another (so subscribers to each network can call subscribers on other networks). Carriers may seek to capture some of these effects through programs (“friends and family” plans) that encourage in-network calling.

200 The empirical evidence on the impact of Zero Rating on wireless penetration and mobile content usage, though limited, suggests the effects may be substantial; for example, a 2010 program by Turk Cell involving Twitter resulted in a 340 percent increase in Twitter traffic (Net Neutrality, Zero Rating, 2014).

of adding an additional member is greater for members who are more closely connected with (i.e., who value interactions with) existing members than those who are (in the same sense) further away. In this context, Zero Rating is appropriately understood as a mechanism for achieving increased participation within relatively small communities, including within lower-income populations in developing economies.²⁰¹ By promoting the positive network effects of increased adoption, Zero Rating thus generates positive social as well as economic externalities.²⁰²

6.4.2 Zero Rating and Differential Pricing

Both online content providers and mobile broadband services are characterized by dynamic competition—that is, both industries make large, non-recoupable investments in R&D and physical infrastructure that are largely invariant to the number of users. As discussed above, in such industries, the average cost curve is declining over the relevant range of output. Simply put, producing an incremental unit of output always costs less than it costs, on average, to make the previous units.

In such industries, consumer welfare can be increased if firms are able to identify and offer discounts to “marginal” customers, that is, those with lower willingness (or ability) to pay. This would expand the size of the market and generate additional revenues that can be used to defray the fixed costs of investment and innovation. It is widely agreed that such differential pricing—referred to by economists as “competitive price discrimination”—is not only widespread but generally improves economic efficiency and increases consumer welfare (Baumol & Swanson, 2003, p. 665; Varian, 1996, p. 2).²⁰³

201 Social networks like Facebook and Twitter have been shown to play a significant role in driving Internet adoption in developing countries, where the proportion of Internet users who use such applications is higher than in the United States (e.g., Rainie & Poushter, 2014).

202 For a recent study providing empirical evidence of the consumer welfare benefits of Zero Rating, see de Miera Berglind (2016).

203 Varian (1996) points out, “[M]any important industries involve technologies that exhibit increasing returns to scale, large fixed and sunk costs, and significant economies of scope. Two important examples of such industries are telecommunications services and information services. In each of these cases the relevant technologies involve high fixed costs, significant joint costs and low, or even zero, marginal costs. Setting prices equal to marginal cost will generally not recoup sufficient revenue to cover the fixed costs and the standard economic recommendation of ‘price at marginal cost’ is not economically viable. Some other mechanism for achieving efficient allocation of resources must be found” (p. 2).

In this context, Zero Rating of offerings like Wikipedia Zero, Facebook Zero, and the Internet.org app can be understood economically as a mechanism by which mobile carriers engage in efficient price discrimination through the bundling of two goods (mobile wireless service and content), thereby creating the ability for marginal consumers to pay a reduced price by choosing a differentiated product in the form of a “basic” form of online access.²⁰⁴ In so doing, Zero Rating improves economic efficiency by supporting continuing investment and innovation in both networks and content while expanding Internet access to consumers who would otherwise be unserved.

6.4.3 Zero Rating and Two-Sided Markets

The central economic challenge for an operator of a multi-sided platform is to set prices and other product characteristics in such a way as to attract the optimal mix of customers and thus maximize the value of the platform. Newspapers, for example, must run enough advertisements to defray costs but not so many as to drive away customers.

The economics of multi-sided markets help to explain Zero Rating programs in at least two respects. First, thinking of mobile operators as the platform provider, Zero Rating is a means by which carriers create opportunities for distribution by content providers (by increasing the number of subscribers) while enhancing the value of the platform for subscribers (by increasing the amount of available content). To the extent content providers contribute financially to Zero Rating through sponsored data programs, they do so in reflection of the increased value (at least over the long run) of enhanced distribution. Carriers may (and do), however, choose to offer Zero Rating even without a financial payment from content providers simply because it increases the value of their platforms.

A second aspect of multi-sidedness relevant to Zero Rating relates to the dual nature of consumers in relation to platforms like Facebook, Twitter, and Wikipedia, in which “consumers” are also content creators. Thus, by attracting additional participants onto the platforms of such services, Zero Rating increases *both* the number of content consumers and the amount of content available. This

²⁰⁴ Facebook and its partners in Internet.org have made extensive investments to understand the realities of Internet access in the developing world and to use this knowledge to develop ways to expand Internet access in such countries.

“double whammy” effect helps to explain why firms like Facebook are taking the lead in encouraging Zero Rating programs.²⁰⁵

6.4.4 Zero Rating and Competition in Mobile Wireless Markets

Firms in dynamic industries are better able to defray their fixed costs to the extent they can differentiate their products and attract more consumers. Zero Rating programs are an instrument by which mobile wireless firms can differentiate themselves from competitors by offering access to customized content with their mobile wireless services. Product differentiation can also serve to intensify competition in such markets. In this context, the most prominent examples of Zero Rating in the United States have involved MetroPCS, Sprint, and T-Mobile, all of which have used zero-rate offerings in order to differentiate their products from larger competitors. Similarly, Zero Rating plays a significant role in product differentiation for Globe (Philippines), which has offered zero-rated access to Facebook and other applications as part of its marketing (Globe Telecom Expands, 2015). Thus, Zero Rating (like other types of innovative pricing plans) generally contributes to the competitiveness of mobile wireless markets.

6.5 Addressing Concerns About Zero Rating

As noted above, some Net Neutrality advocates have challenged Zero Rating by asserting that it violates the principle of non-discrimination and hence, (a) risks anticompetitive effects and (b) limits freedom of expression (Crawford, 2015; van Schewick, 2016). For the reasons explained below, however, Zero Rating programs typically do not raise serious concerns with respect to anticompetitive effects. Further, as explained in the second subsection below, concerns about diversity of expression appear to be based more on speculation than empirical evidence, and they ignore the positive effects of Zero Rating in increasing access to online communications and information.

6.5.1 Zero Rating and Competition

The types of Zero Rating programs currently observed in the marketplace do not appear to raise significant competition concerns.

²⁰⁵ Relatedly, to the extent Zero Rating ultimately increases the audience for mobile content services, it also implicates yet another “side” of the multi-sided mobile wireless ecosystem: advertisers. While Facebook Zero does not depend on advertising, the same is not true for other firms participating in Zero Rating programs, such as Google and Pandora.

First, as noted above, most Zero Rating programs are carrier initiated and do not involve payments to carriers by the providers of the zero-rated content. Particularly in the absence of payments, Zero Rating cannot plausibly be characterized as anticompetitive foreclosure by content providers. Rather, to the extent that carriers elect to include certain content providers in a Zero Rating plan, the decision reflects the carrier's unilateral determination that doing so improves the value of its platform.

Second, even in sponsored data programs where content providers are providing payments to carriers, there appears to be no evidence that such arrangements involve exclusivity. Rather, it appears that opportunities to participate are being held out to content providers of all kinds (AT&T Introduces Sponsored Data, 2014). Without exclusivity—the inclusion of some participants and the exclusion of others—there is no foreclosure and hence, no anticompetitive concern.²⁰⁶

Third, there is no *prima facie* basis for concluding that Zero Rating programs involving exclusivity would be anti-competitive. Exclusivity arrangements are commonplace and typically are justified by efficiency motivations, such as the desire to avoid “free riding” on brand-specific investments. Exclusivity raises competition concerns, on the other hand, only under limited conditions, including that the exclusive arrangement must be sufficiently widespread so as to foreclose entry (and expansion) by an otherwise equally efficient competitor (i.e., by preventing such a competitor from achieving minimum efficient scale). The characteristics of the mobile wireless and online content markets suggest that exclusivity in Zero Rating programs, to the extent it occurs, is of the efficiency-enhancing variety.²⁰⁷

The case advanced by critics of Zero Rating amounts to a claim that any form of differentiated carriage necessarily advantages some firms over others, and thus has potential competitive effects, and that the “victims” of such discrimination are likely to be small, innovative firms that lack the financial wherewithal to engage in Zero Rating programs of their own (e.g., Crawford, 2015). There

206 The fact that some content providers *choose* not to participate in Zero Rating does not mean they are “foreclosed” in any sense of the word, since they had the opportunity to do so.

207 For example, each mobile network is not a distinct market; all mobile networks in a given geographic area compete in the same relevant product market. Hence, an exclusive arrangement with a single carrier does not foreclose competition in the entire market.

are powerful arguments against this view, including: (a) mobile broadband providers have incentives to maintain a diversity of actual and potential complementors (e.g., content providers) and thus are not likely to willingly participate in activities that might foreclose competition; (b) the most common Zero Rating programs are carrier initiated and do not require financial contributions from the content provider; (c) many small content providers engage in Zero Rating (e.g., Aquato, hipcricket, Syntonic) (AT&T, n.d.) and (as discussed above) Zero Rating is easily explained on efficiency grounds; and (d) Zero Rating critics have not demonstrated any harm to competition or consumers from Zero Rating, or even shown that any individual competitors have been disadvantaged.²⁰⁸

Indeed, the most extreme criticisms of Zero Rating seem to eschew the concept of consumer welfare altogether, replacing it (albeit *sotto voce*) with a sort of corporate welfare standard. This standard places the ability of edge providers to earn returns on their investments ahead of consumer welfare, even to the point where they condemn Zero Rating programs in situations in which the incentives of ISPs and the incentives of consumers are aligned (e.g., van Schewick, 2016).

6.5.2 Zero Rating and Freedom of Expression

While freedom of expression concerns arguably invoke values that go beyond economic efficiency per se, economic analysis can nevertheless inform the debate around the key issues. First, as noted above, Zero Rating programs do not generally involve exclusivity. Thus, no one's views are being foreclosed or muzzled. Second, the firms engaging in Zero Rating (e.g., Facebook, Twitter, and Wikipedia) are, to a significant extent, vehicles for the open expression of views by all participants, subject only to *de minimis* limitations. Increasing the number of Facebook (or Twitter or Wikipedia) users thus arguably enhances freedom of expression and the diversity of opinion in the public sphere — especially in developing countries, where such outlets have demonstrably enhanced freedom of political expression. Third, as an empirical matter, the diversity of content suppliers is growing rapidly;

²⁰⁸ The antitrust laws properly focus on protecting competition, not individual competitors. It is also noteworthy that the firms identified by Zero Rating's critics as potential "victims" tend to be established firms like Netflix and Skype (Microsoft), not startups and new entrants (New American Foundation, Center for Media Justice, 2011).

concerns about “a few media outlets controlling the news” seem increasingly anachronistic. Fourth, and finally, in order to argue that Zero Rating programs deprive subscribers of access to information (“the full and open Internet”), one needs to argue that nothing is better than something — that those who gain access to online content as a result of Zero Rating would be better off with no access than some access, an argument which seems difficult to sustain.

6.5.3 Conclusion

Concerns about Zero Rating are misplaced. The Zero Rating programs that are observed in the marketplace are readily explained as market-driven mechanisms for capturing economic efficiencies associated with the characteristics of information technology markets. By expanding the reach of online content and distribution services, they generate economic social benefits. Concerns that Zero Rating could serve as a means of foreclosing competition, or limit freedom of expression, appear misplaced and lacking both theoretical and empirical support.

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Tables

Table 1 *Internet.org Deployments, 2014-2015*

COUNTRY	CARRIER	LAUNCH DATE	FREE SERVICES*
Zambia	Airtel	July 31, 2014	16
Tanzania	Tigo	October 29, 2014	19
Kenya	Airtel	November 14, 2014	18
Colombia	Tigo	January 14, 2015	16
Ghana	Airtel	January 22, 2015	17
India	Reliance	February 10, 2015	38

Note. Data retrieved from *Internet.org*.

*Services listed are as of February 27, 2015.

7 Mobile Zero Rating: The Economics and Innovation Behind Free Data

by Doug Brake

7.1 Introduction

Mobile carriers across the world have been rolling out zero-rated or free data products, which allow consumers to access to certain Internet traffic without it counting against their monthly data plan. The motivations for these services vary in different markets, but, at least in the United States, mobile carriers are trying to differentiate their services in a competitive fight over who can best meet consumers' ever-increasing demand for streaming video.

Zero Rating has run into opposition from some of Net Neutrality's more puritanical advocates. One of the more eye-opening harangues, penned by Susan Crawford, claimed that this practice is a "malignant ... surrendering of the Internet" that should be outlawed immediately.²⁰⁹ Unfortunately, at least a few regulators around the world have heeded this advice, with a number of countries either outright banning Zero Rating, or severely limiting it.

Thankfully, the Federal Communications Commission (FCC) is not quite as hostile to pragmatic solutions to expand access and use of the Internet. In the Open Internet Order, the FCC laid out a case-by-case approach for overseeing Zero Rating programs. Later, in a speech touching on Zero Rating, Chairman Tom Wheeler explained that "the Open Internet Order did not discourage this type of two-sided market" and that Zero Rating "enables increased competition and increased efficiency—both things that benefit consumers."²¹⁰ Wheeler has also called zero-rated offerings "highly innovative and highly competitive."²¹¹

209 Susan Crawford, "Zero for Conduct" *Backchannel*, January 7, 2015, <https://backchannel.com/less-than-zero-199bcb05a868#.dbs7t699u>.

210 Tom Wheeler, "Prepared Remarks of Tom Wheeler, Chairman, Federal Communications Commission" (speech, Computer History Museum, Mountain View, California, January 9, 2014), FCC, https://apps.fcc.gov/edocs_public/attachmatch/DOC-325054A1.pdf.

211 John Eggerton, "Wheeler: Binge On Is Pro-Competitive, Pro-Innovation," *Broadcasting & Cable*, November 19, 2015, <http://www.broadcastingcable.com/news/washington/wheeler-binge-pro-competitive-pro-innovation/145940>.

Unfortunately, the FCC has since wavered from this initial vote of confidence, sending letters last December to various companies experimenting with Zero Rating models.²¹² Given the state of competition in the mobile market and the benefits consumers get from the practice, there should be a strong presumption that these practices are in the public interest. All of these companies are trying to differentiate their services to better gain market share — this is a high-functioning market working to best meet soaring consumer demand for mobile video despite constrained and costly radio spectrum resources.

7.2 The Rise of Usage-Based Pricing in Mobile Broadband

In a world where spectrum is constrained and providing wireless coverage is expensive, it makes sense to charge users based on their data consumption. It is in this environment that companies, both edge providers and carriers, find Zero Rating to be a valuable business model.

The most straightforward conception of Zero Rating is where the mobile data of a particular application or service does not count against a consumer's monthly cap, either paid for by the edge provider or not. Other programs opt for a more flexible platform format, allowing sponsors to pay for end-user data. Regardless of the particular form Zero Rating takes, an understanding of the reasons for usage-based pricing is key to grounding a discussion of Zero Rating.

The switch to usage-based pricing in the United States, and its predominance around the world, is an effect of competitive markets economizing scarce mobile network capacity. Demand for mobile capacity is virtually insatiable, but building the networks to meet that capacity is costly. Usage-based pricing allows carriers to price that capacity to better match supply to those who have a greater demand for mobile data. This pricing also allows carriers to better predict and plan usage growth on the network.

Mobile data traffic is only expected to grow, with Cisco's Visual Networking Index expecting an eightfold growth in global traffic

²¹² Cecilia Kang, "F.C.C. Asks Comcast, AT&T and T-Mobile About 'Zero Rating' Services," *New York Times*, December 17, 2015, <http://bits.blogs.nytimes.com/2015/12/17/f-c-c-asks-comcast-att-and-t-mobile-about-zero-rating-services/>.

between 2015 and 2020.²¹³ Mobile video is an important component of this growing demand. As a number of technology trends — such as faster mobile processors, larger screens, better batteries, advanced mobile application ecosystems, and the rising popularity of video on social networks — have converged to see allow mobile video traffic explode.²¹⁴

Unfortunately, much of the low-hanging fruit in increasing wireless capacity has been picked, and operators are facing a significant challenge in meeting the projected data demand. When it comes to achieving additional throughput and increasing the mobile broadband speeds consumers experience, wireless operators have only a handful of levers they can pull:

- **More spectrum:** Mobile operators are always looking for more spectrum, as this resource is the key pinch-point limiting mobile networks' capacity. Unfortunately, allocating more spectrum for broadband is a long and difficult process, and can't scale fast enough to meet demand. Moreover, given that spectrum is now auctioned off, often for billions of dollars, any additional spectrum requires additional revenues, either from customers directly or from edge providers paying carriers to offer their content without charging against the customer's data cap.
- **Spectral efficiency:** Encoding more bits of information into a given slice of spectrum would increase efficiency. Unfortunately, there are hard limits to how far engineers can push spectral efficiency, and engineers are already close to those limits. As hard as getting Congress to pass a new law can be, bending the laws of physics is even harder.

213 The United States, where mobile data traffic is expected to grow 7-fold from 2014 to 2019 (a compound annual growth rate of 47 percent), represents a significant portion of this overall demand. Cisco, "Cisco Visual Networking Index (VNI): Global Mobile Data Traffic Forecast Update, 2015-2020" (white paper, San Jose, California, updated February 1, 2016), www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html. While these predictions are not without controversy (see, e.g., Aalok Mehta and J. Armand Musey, "Overestimating Wireless Demand: Policy and Investment Implications of Upward Bias in Mobile Data Forecasts," 23 *CommLaw Spectus*, (2015): 300, available at <http://scholarship.law.edu/cgi/viewcontent.cgi?article=1557&context=commlaw>), ITIF believes mobile broadband to be a key driver of productivity gains and economic growth, and therefore, as a general matter, additional spectrum should be allocated to mobile regardless of the precise trend of data use.

214 Streaming entertainment on mobile networks now accounts for more than 40 percent of downstream traffic during peak hours. Social media, which increasingly includes auto-playing video, accounts for another 22 percent. Sandvine, "Global Internet Phenomena: Africa, Middle East & North America" (Waterloo, Canada: Sandvine, December, 2015), <https://www.sandvine.com/downloads/general/global-internet-phenomena/2015/global-internet-phenomena-africa-middle-east-and-north-america.pdf>.

- **Spectrum reuse:** Historically this is where the most gains have been realized in increasing the overall use of wireless systems. Making smaller cell sizes or splitting cells into different sectors allow for greatly increased capacity, but this solution is limited as well. As cells get smaller, costs skyrocket. The expenses of additional equipment, backhaul connections, rights-of-way negotiations, and the engineering to avoid self-interference quickly swamp the benefits and cannot easily be borne by additions to consumers' monthly bills alone.
- **Economizing resources:** Monthly data plans allow limited capacity to go to those who value it most. Zero Rating recognizes the necessity of data caps as a tool to economize network usage and seeks to improve that efficiency by reducing the number of bits in a stream or finding additional revenue streams from edge providers to help pay for costly network upgrades.

Overall, the move toward pricing data in tiers instead of offering unlimited plans has helped to allocate the costs of providing service more efficiently. Under this pricing model, those who use less data generally get a better deal than they otherwise would, while heavier users either pay more or must scale back their data consumption.

Of course, usage-based pricing comes in different shapes and sizes, with different tiers or buckets priced accordingly, or a simple pay-as-you-go model. There may also be various consequences for exceeding a cap, such as paying overage fees for additional data or being shunted to legacy 3G networks — the cost of which has already been recouped. But the important point is that these pricing models introduce economic choices for users about how much data they will use in any given month. This sort of differential pricing increases economic welfare generally, especially for consumers with less ability or willingness to pay.

Some criticize usage-based pricing for artificially introducing scarcity that forces users to curtail Internet use.²¹⁵ These criticisms are not grounded in reality, as there is nothing artificial about the scarcity of mobile capacity — data caps simply give operators an additional tool for planning and pricing around this scarcity. Such tools are especially important when operators are competing on

²¹⁵ For example, see Phillip Dampier, "Issue Tag: Artificial Limits," *Stop the Cap!* May 22, 2012, <http://stopthecap.com/tag/arbitrary-limits/>; Danielle Kehl and Patrick Lucey, "Artificial Scarcity: How Data Caps Harm Consumers and Innovation" (New America Foundation, June, 2015), https://static.newamerica.org/attachments/3556-129/DataCaps_Layout_Final.b37f2b8fae30416fac951dbadb20d85d.pdf.

their networks' performance. Within the context of usage-based pricing, Zero Rating opens room for two-sided markets and product differentiation, which can offer significant improvements to the mobile marketplace.

7.3 Current Zero Rating Practices

There are a wide variety of approaches to Zero Rating mobile traffic around the world. Different markets have unique characteristics and challenges that firms are seeking to solve. Practices vary primarily by the type of content included in the program, the entity doing the Zero Rating, and who is paying for the data. The carrier may voluntarily zero rate content in an attempt to win new adopters or differentiate its service. Or carriers may enter into business relationships with content "sponsors" who pay to see the data for their applications or websites zero rated, in a practice that is no different economically than providing the consumer with some kind of rebate directly.

7.3.1 Zero Rating Around the World

Mobile Internet access is a unique opportunity for previously unconnected populations to access information. The scale of mobile phone adoption around the world is unmatched, making it the best technology ecosystem for expanding Internet adoption around the world.²¹⁶ But in many countries, access, including data plans, is extremely expensive relative to income. Large numbers forego mobile broadband for other reasons, such as perceived irrelevance or lack of digital literacy skills. Zero Rating is well suited to address these challenges, making it quite common internationally, with a number of different solutions successfully offered in overseas markets.

One of the most famous Zero Rating projects is run by the Wikimedia Foundation, which works with operators in over 60 countries to offer free access to Wikipedia under the project Wikipedia Zero.²¹⁷ Wikipedia Zero is a noncommercial arrangement that abides by a handful of operating principles: There is no exchange of payment;

²¹⁶ Famously, in 2013, the United Nations announced that more people had access to mobile phones than to toilets, by a margin of 1.5 billion people. "Deputy UN Chief Calls for Urgent Action to Tackle Global Sanitation Crisis," *UN News Center*, March 21, 2013, <http://www.un.org/apps/news/story.asp?NewsID=44452#.VyoqYPkrKUK>.

²¹⁷ For a list of partnerships, see "Mobile Partnerships," Wikimedia Foundation, https://wikimediafoundation.org/wiki/Mobile_partnerships.

it is not sold as part of a bundle with other services; and it is nonexclusive with any carrier in a region.²¹⁸ Wikipedia negotiates with carriers to help support the foundation's mission of bringing knowledge to the world, as well as introducing new users to the mobile Internet and attracting new customers.²¹⁹

These types of Zero Rating programs often slim down their applications, to reduce the load on networks from the additional use, allowing carriers to deploy them as effective loss leaders without swamping their networks.²²⁰ This allows consumers to access more of the content that matters, even if pictures are of a lower resolution.

Facebook initially experimented with Zero Rating a free, text-only version of its service for feature phones in developing countries under the banner "Facebook Zero."²²¹ Facebook did not pay carriers for this content, but instead adapted its application to fit existing, limited infrastructure, helping carriers to use it as a sort of "freemium" model, hoping additional subscribers would pay for full access. Facebook and its partners saw impressive increases in data plan sales for partnering operators, causing it to expand the program.²²²

After introduction in 2010, Facebook Zero grew to more than 50 mobile operators in over 40 countries, leading to the broader Free Basics platform under the internet.org initiative.²²³ Free Basics is

218 Principles include no collection of personal information, no compromise of experience, no shift of editorial control, no exchange of payment, no exclusive rights, no commercial bundling, and a commitment to collaboration with other public interest sites. Erik Moeller, "Wikipedia Zero and Net Neutrality: Protecting the Internet as a Public Space," *Wikimedia Blog*, August 1, 2014, <http://blog.wikimedia.org/2014/08/01/wikipedia-zero-and-net-neutrality-protecting-the-internet/>; Adele Vrana and Smriti Gupta, "Wikimedia and Zero Rating: Clear Principles for Free Knowledge," *Wikimedia Blog*, January 24, 2016, <http://blog.wikimedia.org/2016/01/24/wikipedia-zero-free-knowledge/>.

219 Amit Kapoor, "The Next Billion Users: Wikipedia on Mobile" (presentation, Wikimedia Foundation, 2012), https://upload.wikimedia.org/wikipedia/commons/6/64/Reaching_next_billion_users_Wikimania_Mobile_2012.pdf.

220 See e.g., "Free Basics: Participation Guidelines," Facebook, <https://developers.facebook.com/docs/internet-org/participation-guidelines>.

221 See Christopher Mims, "Facebook's Plan to Find Its Next Billion Users: Convince Them the Internet and Facebook Are the Same," *Quartz*, September 24, 2012, <http://qz.com/5180/facebook-s-plan-to-find-its-next-billion-users-convince-them-the-internet-and-facebook-are-the-same/>.

222 Mark Zuckerberg described their experience with Facebook Zero, and hinted at expanding internet.org in a white paper describing Facebook's broader work in expanding connectivity. Mark Zuckerberg, "Is Connectivity a Human Right?" 2013, available at <https://www.facebook.com/isconnectivityahumanright>.

223 Matt Hicks, "Fast and Free Facebook Mobile Access with 0.facebook.com," May 18, 2010, available at <https://www.facebook.com/notes/facebook/fast-and-free-facebook-mobile-access-with-0facebookcom/391295167130>.

an open platform for governments, nonprofits, and commercial websites to offer a slimmed-down version of their content for free. Some critics gloss over the fact that Free Basics is an open platform — they claim Facebook is creating a “walled garden” where consumers only see the portion of the Internet Facebook allows them to see. In fact, the platform is remarkably open to participation, only requiring that applications be designed to use data efficiently and be compatible with both feature and smartphones.²²⁴ If Free Basics is a “walled garden” of free content as some claim, the wall is low and the gate is open.²²⁵

Facebook’s role is one of convener and catalyst — it is the carriers who drive the model, and no money changes hands. Carriers use the free content as a loss leader in an attempt to win subscribers, many of whom sign up for additional mobile services after experiencing a portion of what the Internet has to offer. In an op-ed, Mark Zuckerberg explained that “half the people who use Free Basics to go online for the first time pay to access the full [I]nternet within 30 days.”²²⁶ The Free Basics program rose to prominence when it came under fire as a Net Neutrality violation in India, and was ultimately banned by the Telecom Regulatory Authority of India (TRAI).²²⁷

Zero Rating abroad is certainly not limited to developing countries. The Digital Fuel Monitor by Rewheel counts 92 zero-rated mobile services in OECD countries alone.²²⁸ For example, in technologically advanced Sweden, Telia recently announced that six popular social

224 “Free Basics: Participation Guidelines,” Facebook, <https://developers.facebook.com/docs/internet-org/participation-guidelines>.

225 The partner applications differ from country to country, but Facebook lists some “success stories” on their website, including “SmartBusiness, a South African website that helps people launch and run businesses, [which] receives 5x more daily searches since joining the Free Basics Platform, and Maya, a women’s health support website, [which now] sees 71 percent of their traffic from Free Basics.” “Free Basics Platform: Success Stories,” Facebook, <https://info.internet.org/story/platform>.

226 Mark Zuckerberg, “Free Basics Protects Net Neutrality,” *The Times of India*, December 28, 2015, <http://blogs.timesofindia.indiatimes.com/toi-edit-page/free-basics-protects-net-neutrality/>.

227 Telecom Regulatory Authority of India (TRAI), “Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016” (New Delhi: TRAI, February 8, 2016), http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Regulation_Data_Service.pdf.

228 This list appears over-inclusive, counting providers’ own specialized services such as IP video products alongside other applications. Rewheel, “Regulating a Borderless Internet: EU vs US Perspectives on Net Neutrality” (presentation at Open Forum Academy round table, Brussels, March 4, 2015, http://www.openforumacademy.org/events/04-03-2015-ofa-round-table-regulating-a-borderless-internet-eu-vs-us-perspectives-on-net-neutrality/Slides_Drossos_040315.pdf).

media platforms, such as WhatsApp and Twitter, would be zero rated on its network.²²⁹ Zero Rating is an increasingly common practice around the world.

7.3.2 Zero Rating in the United States

All U.S. mobile operators have introduced Zero Rating programs of one kind or another. The programs vary considerably as carriers attempt to differentiate their services in a competitive market.

T-Mobile has introduced two Zero Rating programs, one for streaming music and another for video, under the brands “Music Freedom” and “Binge On” respectively. The Music Freedom program offers unlimited music streaming from a selection of services that does not count against the user’s data allowance. Services do not pay to be included, but users may suggest other music-streaming platforms they want in the program.²³⁰ “Binge On” is a similar arrangement for streaming video providers.²³¹ Again, video providers do not compensate T-Mobile for inclusion in the program, but they must meet minimum technical requirements, which lowers the capacity impact on the network by offering a lower-resolution version of streamed video than in their wired applications. The reduced load on the network means T-Mobile can cost-effectively offer unlimited streaming to its customers.

AT&T has two separate Zero Rating programs. One, “Sponsored Data,” is Zero Rating in its most classic form, where data charges to eligible uses will be billed directly to the sponsoring company instead of the consumers.²³² AT&T also offers a data “rewards” type program, called “AT&T Data Perks.” This platform allows sponsors to offer consumers data toward their monthly cap in exchange for actions such as viewing advertisements, trying out an app, or visiting a particular website. It is an open platform, so it could be put to a wide variety of uses, like employers Zero Rating particular data employees use on their own devices.

229 Services include Facebook, Instagram, Messenger, WhatsApp, Twitter and Kik. See “Now You Surf Free on Social Media,” Telia, accessed May 16, 2016, <https://translate.google.com/translate?hl=en&sl=sv&u=https://www.telia.se/privat/telefoni/frisurfsocial&prev=search>.

230 T-Mobile, “T-Mobile Is Setting Music Free,” accessed May 16, 2016, T-Mobile, <http://www.t-mobile.com/offer/free-music-streaming.html>.

231 “Introducing Binge-On,” T-Mobile, accessed May 16, 2016, <http://www.t-mobile.com/offer/binge-on-streamingvideo.html>.

232 AT&T, “AT&T Introduces Sponsored Data for Mobile Data Subscribers and Businesses,” news release, January 6, 2014, <http://www.att.com/gen/press-room?pid=25183&cdvn=news&newsarticleid=37366&mapcode=>.

Verizon has also introduced a Zero Rating service, called “FreeBee Data.” It is a platform for sponsoring data use, similar to AT&T, and allows businesses to sponsor up to 30 seconds of video or 30 minutes of audio streaming, as well as app downloads and use, and browsing particular mobile websites.²³³

7.4 Advantages of Zero Rating Practices

The advantages of Zero Rating are as varied as the forms it takes. Many international programs, especially those aimed at the world’s poor, offer tremendous opportunities to make basic information available where it otherwise would not be, as well as helping to bring individuals online. But Zero Rating is also advantageous to advanced economies, for a wide variety of reasons

7.4.1 Zero Rating Is Good Economics to Advance Innovation

In his paper, “The Economics of Zero Rating,” Jeff Eisenach explains that “the welfare effects of pricing schemes and other business practices depend on the characteristics of the markets in which they are deployed.”²³⁴ The information technology markets that Zero Rating programs exist within are distinguished by dynamism, modularity, and demand-side effects.²³⁵

These markets are dynamic in that firms compete on technological innovation and the ability to offer new and improved products, not simply on price. They are modular in that firms create platforms that exist within a broader system. These platforms complement each other: wireless connectivity, smartphone devices, and applications combine increase the value of each other. Competition can take place both between and among these different platforms, and can also shift in unpredictable ways. Demand-side effects include demand-side economies of both scale and scope. Demand-side economies of scale — better known as network effects — mean the product increases in value with each additional user. Demand-side economies of scope, on the other hand, see additional value with the diversity of users. For example, the value of a mobile operating system to application

233 “Introducing FreeBee Data,” Verizon, accessed May 16, 2016, <http://freebee.verizonwireless.com/business/freebeedata>.

234 Jeffrey A. Eisenach, “The Economics of Zero Rating” (NERA Economic Consulting, March 2015), <http://www.nera.com/content/dam/nera/publications/2015/EconomicsofZeroRating.pdf>.

235 *Ibid.*

developers, handsets manufacturers, and end-users each depend on the presence of the other participating groups.

As Eisenach explains, because of the characteristics of IT markets — where both content or “edge” firms as well as network operators make large investments in establishing platforms that have relatively low marginal costs, and gain value with each additional user — the ability to identify customers with lower ability or willingness to pay through, and offer them a discount through Zero Rating will expand a firm’s customer base, enhance the value of the product, and provide additional revenues to defray the costs of up-front investment and additional innovation.²³⁶

Eisenach rightly concludes that Zero Rating generally represents an “economically efficient mechanism for increasing consumer welfare given the unique characteristics of information technology markets, which make it beneficial to offer lower prices and other incentives to expand the size of the market, especially in developing countries where incomes, and market penetration, are low.”²³⁷

7.4.2 Zero Rating Expands Access to Information in Developing Countries

Numerous studies confirm the intuition that broadband can be a powerful tool to help lift communities out of poverty.²³⁸ A recent background paper prepared to support the World Bank’s “World Development Report 2016: Digital Dividends” concluded that a 10 percent increase in broadband penetration correlates with a 1.38 percent increase in GDP in developing countries.²³⁹ Unfortunately, large segments of the world remain unconnected. This fact led the U.S. State Department to launch the Global Connect Initiative, an effort to bring an additional 1.5 billion people online by 2020 — the equivalent of adding 50 percent more Internet users than exist today.

Zero Rating can help bridge the digital divide in developing countries in a number of ways. First, Zero Rating can lower the cost of access to

²³⁶ *Ibid.*

²³⁷ *Ibid.*

²³⁸ For a survey of this work, see Raul Katz, “The Impact of Broadband on the Economy: Research to Date and Policy Issues” (Geneva, Switzerland: International Telecommunication Union (ITU), April 2012), https://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf.

²³⁹ Michael Minges, “Exploring the Relationship Between Broadband and Economic Growth” (Washington, DC: World Bank, January 2015), <http://www19.iadb.org/intal/intalcdi/PE/2016/15991.pdf>.

basic communication services and information for individuals, as with Wikipedia Zero or Facebook's Free Basics program. As explained by analyst Jan Dawson, "Solving the Internet access problem in a broad-based way is hugely expensive and time consuming... Zero Rating is a shortcut to some of the same objectives that's much cheaper, quicker and more focused."²⁴⁰

Cost is often a significant challenge in bringing people online in developing countries. But it is not the only impediment to adoption. It is usually the cost of a mobile subscription, combined with a lack of interest, awareness, or appreciation for the benefits of broadband causes many to forego access. If access represents a significant investment, many never try mobile broadband, even if that investment is worth it. This is the adoption problem that introductory Zero Rating programs, such as Facebook's Free Basics, attempt to solve.

As of 2015, mobile broadband networks covered about 78 percent of the world's population, but only 43 percent were actually using the Internet.²⁴¹ That 35 percent — some 2.5 billion people — who have access to mobile networks, but choose not to subscribe, could be given the opportunity to connect at a relatively low cost.

Technology adoption is a complex social challenge, and no one approach will work in every country. But if one supports the broader objective of expanding broadband access to help empower individuals and communities to improve their economic wellbeing, then the evidence strongly points to Zero Rating as an effective, practical tool to introduce new users to the Internet.²⁴²

Some worry that Zero Rating tools will see poor users locked into a small fraction of the Internet; this is unlikely. Facebook's initial data

240 Rob Pegoraro, "Zero Rating: The Pros and Cons of Free Online Access," *The Rules of Tech*, August 26, 2014, <https://www.yahoo.com/tech/Zero-Rating-the-pros-and-cons-of-free-online-access-95775730069.html>.

241 Pat Wu et al., "State of Connectivity 2015: A Report on Global Internet Access," internet.org, February 2016, <https://fbinternetorg.files.wordpress.com/2016/02/state-of-connectivity-2015-2016-02-21-final.pdf>.

242 Broader critiques of international development (see e.g., Evgeny Morozov, "Facebook's Gateway Drug," *The New York Times*, August 2, 2014, <http://www.nytimes.com/2014/08/03/opinion/sunday/evgeny-morozov-facebooks-gateway-drug.html>) or international efforts to expand broadband adoption as a twenty-first century colonialism (see e.g., Adrienne LaFrance, "Facebook and the New Colonialism," *The Atlantic*, February 11, 2016, <http://www.theatlantic.com/technology/archive/2016/02/facebook-and-the-new-colonialism/462393/>) are beyond the scope of this paper, but ITIF believes these criticisms are deeply misplaced.

suggests this is not the case — more than 50 percent of users who tried Free Basics paid for the full Internet within the first month.²⁴³ But even if some users stay with the zero-rated package, surely some access to information is better than none at all. Furthermore, to the extent Zero Rating works to spur adoption, a bigger customer base and more revenue help operators improve their networks or lower prices.

7.4.3 Zero Rating Is Generally Pro-Competitive

In their influential 2003 paper on the internalization of complementary efficiencies, Joe Farrell and Phil Weiser explored how Internet platform providers “would prefer that applications — the complements to its product — be cheaply, innovatively, and efficiently supplied.”²⁴⁴ Put simply, economic theory teaches us that even a monopoly network would want a flourishing application layer because it makes the network more attractive. Even if the U.S. mobile market were far less competitive, we should expect Zero Rating to be in the public interest.

Of course, there are additional complications at play in the Zero Rating context, most notably that mobile carriers are increasingly active in the application space — and additional regulations at the network level incent further migration into other areas of competition with less onerous regulations. Horizontal competition at the application layer potentially increases incentives for anticompetitive leveraging of Zero Rating programs, but it is unlikely this will raise to the level to give antitrust regulators concern as long as these platforms are non-exclusive. Beyond traditional antitrust concerns, some that worry about more abstract dynamic concerns, that Zero Rating will tip consumers toward one application or another not in a way that harms competition, but that harms the fullest potential of the Internet as a place with minimal barriers to entry for any application or website to succeed. As described below, it is more likely that Zero Rating will assist rather than harm in achieving a foothold for small new entrants. Nevertheless, regulators should retain oversight of this area, but rely on competition to do the heavy lifting in ensuring these programs work to consumers’ benefit.

²⁴³ Zuckerberg, “Is Connectivity a Human Right?”

²⁴⁴ Joseph Farrell and Philip J. Weiser, “Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age,” *Harvard Journal of Law & Technology* 17, no. 1 (2003): 85, <http://jolt.law.harvard.edu/articles/pdf/v17/17HarvJLTech085.pdf>.

From an economics perspective, sponsored data is not much different from companies establishing toll-free 800 numbers or sender-pays shipping, where the provider of the service pays, not the consumer. Indeed, 800 numbers were a business-model innovation established in the 1960s in response to advances in networking technology, which prior to that required telephone users to place a collect call through an operator. Such toll-free calling meant that the consumer could use network services with the “content provider” (in this case the company providing the service or selling the good) paying. The FCC has long supported 800 numbers as pro-consumer, writing that “toll free service provides potential customers and others with a ‘free’ and convenient way to contact businesses.”²⁴⁵ Instead of providing the payment directly to the customer, the company provides it to the intermediary ISP, who in turn, does not charge the customer for using their network.

Researchers at Aalborg University and the London School of Economics studied the impact of Zero Rating programs in several countries, concluding that they “cannot find evidence that shows that Zero Rating creates harm” to competition, leading the researchers to question why Zero Rating was so maligned by Net Neutrality supporters.²⁴⁶ Ellen Goodman, professor at Rutgers Law School, explains, “The data seem to show that price differentials do not substantially change consumption patterns or advantage incumbent applications.”²⁴⁷ Indeed, it is much more likely that Zero Rating programs are a pro-competitive tool for mobile operators to differentiate their services, and for applications to expand their user base.

7.4.4 Allows for Differentiation of Services

With Zero Rating offers, mobile operators are looking beyond price, network performance, and devices to differentiate themselves from competitors. Zero Rating offers, especially in vibrant, competitive markets, should be seen as attempts to create a service that best delivers for consumers.

245 “What Is a Toll Free Number and How does it Work?” Federal Communications Commission, Consumer and Government Affairs Bureau, <https://www.fcc.gov/consumers/guides/what-toll-free-number-and-how-does-it-work>.

246 Roslyn Layton and Silvia Monica Elaluf-Calderwood, “Zero Rating: Do Hard Rules Protect or Harm Consumers and Competition? Evidence from Chile, Netherlands and Slovenia,” August 15, 2015, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2587542.

247 Ellen P. Goodman, “India’s Ban on Facebook’s Free Service Is an Overreaction,” *The Guardian*, February 2016 <https://www.theguardian.com/technology/2016/feb/08/indias-ban-on-facebooks-free-service-is-an-overreaction>.

Often, the biggest benefits of expanded ability to differentiate in competitive markets flow to so-called “mavericks,” who look to disrupt the existing terms of competition. In the United States, an obvious example is T-Mobile. The company brands itself as an “Uncarrier,” and its colorful CEO does his best to distance the company from other operators. T-Mobile’s Binge On, offering unlimited streaming video for consumers, is a significant departure from the terms on which firms have competed to date, and in a way that is clearly in consumers’ interest.

In general, we should not expect to know in advance the terms on which companies will innovate. Firms — especially maverick firms — should be free to differentiate their services to change the terms on which market participants compete. These kind of disruptive competitors are important to discipline more established Internet service providers.

7.4.5 Gives Consumers More of What They Want

The guiding light for Zero Rating policy should be consumer welfare, and there is good reason to think that all of the Zero Rating programs introduced to date are strongly welfare-enhancing.

T-Mobile’s experience with Zero Rating so far shows that this is the sort of innovation we should be encouraging. For example, T-Mobile has announced that customers are watching twice as much video per day than before launch of their zero-rated program, “Binge On,” and that video providers are seeing numbers of viewers spike as much as 90 percent.²⁴⁸ Along similar lines, surveys performed on behalf of CTIA indicate that consumers appreciate and enjoy Zero Rating.²⁴⁹

Put simply, consumers appreciate the ability to use zero-rated apps without having to worry about their data limits. We should celebrate when competitive markets work to provide consumers more of what they want.

7.4.6 Provides New Services a Foothold

Network effects are a predominant characteristic of information economies. Getting the ball rolling with the first set of customers

248 T-Mobile, “T-Mobile Amps Binge On... Again,” news release, March 17, 2016, <https://newsroom.t-mobile.com/news-and-blogs/binge-on-amped-again.htm>.

249 Robert Roche, “Americans Love #FreeData,” CTIA, April 7, 2016, <http://www.ctialatest.org/2016/04/07/americans-love-freedata/>.

is an important hurdle for any new application or service. Network effects also mean it is important to continue finding tools to attract the next “marginal” customer, to continue to build value.

Beyond getting the flywheel of first initial customers spinning, Zero Rating also helps with discovery, providing a way for new applications to differentiate themselves and help increase recognition. Zero Rating of application downloads can also aid discovery by overcoming consumers’ reluctance to try out multiple mobile applications when away from Wi-Fi.

On the flip side, Zero Rating also has the potential to enhance discovery of applications or websites not included in zero-rated offerings. If most data-intensive or popular applications are zero rated, consumers will have more data than they otherwise would to explore other services.

The logic behind many criticisms of Zero Rating entails we have to prohibit anything that large companies can pay for that small companies cannot. This would obviously be bad policy. Not only is it highly unlikely that Zero Rating will impact the ability for small companies to grow on mobile platforms, there are very narrow tools to ensure it does not, such as disallowing exclusive Zero Rating deals.

7.4.7 Facilitates More Efficient Advertising

Without Zero Rating, the advertising built into applications and the Web counts against users’ monthly data tiers. Users are dis-incented from engaging with advertising, either by installing adblocking software, or closing or clicking past ads. Open Zero Rating platforms that allow advertisers to zero rate their content, or otherwise encourage interaction with advertisements, will help provide a value-added revenue stream to help build expensive next-generation networks. But more importantly, more efficient advertising can facilitate more transactions online, ultimately boosting economic growth. Furthermore, advertising is a primary fuel for the Web and mobile applications — more effective advertising through a variety of Zero Rating arrangements can help revenue continue to flow into growing this sector.

Mobile broadband is a relatively new service, and the appropriate economic model to support it is not yet clear. Just because the industry developed out of mobile voice service, which was supported by monthly user bills alone, does not mean that a blend

of advertising services and subscription fees would not more quickly advance next-generation networks.

7.5 Critiques of Zero Rating are Overblown

Zero Rating is in tension with a strict sense of network neutrality in that zero-rated data is treated differently than other data in a way that may influence consumer behavior. Advocates who subscribe to this purist conception would rather see Internet access providers be a simple conduit, even if vertical arrangements of one kind or another would spur additional Internet use and growth of new services. Some simply assert that Zero Rating is inherently “discriminatory,” with little regard for the actual economics behind these services.

Unfortunately, this point of view has been adopted by some regulators around the world, with both Chile and India blocking Zero Rating programs from operating in their jurisdictions outright.²⁵⁰

These kinds of bans on Zero Rating show the increasingly global dominance of a “neutrality” ideology over sound economics. They are policymaking by worst-case scenario. They assume that these programs will be a race to the bottom and a closing off of the open Internet, instead of a supplementary tool to expand Internet use. These bans favor the precautionary principle over experimentation and innovation.

Dystopian theories of Zero Rating descending into walled gardens — where users chose to only partake in a narrow set of zero-rated offerings — are simply unrealistic. Consumers desire and demand access to full Internet. Facebook’s experience with Free Basics shows most customers who are introduced to a stripped-down version of applications will soon migrate to the full Internet.

Furthermore, Zero Rating does not diminish quality or availability of other services. While paid prioritization would allow for some applications to perform better than others, Zero Rating leaves other applications fully functional. Sponsored data programs would only make it easier to discover new services, and would not impede users’ ability to discover or use non-sponsored applications. If anything, additional data would be available to explore other services.

²⁵⁰ Public Knowledge provides a survey of Zero Rating and regulatory responses around the world. Carolina Rossini and Taylor Moore, “Exploring Zero Rating Challenges: Views From Five Countries” (working paper, Public Knowledge, July 2015), https://www.publicknowledge.org/assets/uploads/blog/Final_Paper-Jul_28-TM.pdf.

Consider the fact that many, if not most, Internet services are free. Usage-based pricing introduces a necessary opportunity cost to using any application — in turn, Zero Rating provides the ability to restore the cost-free use of applications that has generated tremendous growth in the wired context. Without these tools, providers cannot discount their price absent mailing checks to their subscribers. In this situation, providing a small payment to the ISP to pay for the customer's data charge is the most effective way for an edge provider to offer a discount.

7.5.1 Zero Rating Is a Pragmatic Tool to Advance Internet Use

Zero Rating is a pragmatic tool that can advance Internet adoption and help spur additional investment in advanced networks. Decisions like those of India's telecom regulator, denying some of the world's poorest the choice to access information for free, should alert us to how misguided the position is. The pursuit of absolute neutrality has blinded activists to simple realities and the need of poor people around the world to access information.

In a recent report, the Multicultural Media, Telecom and Internet Council (MMTC) explores the importance of Zero Rating as a tool to help bridge the digital divide. The report lays out the benefits of Zero Rating, "many of which accrue most immediately to people of color and low-income households — communities that are benefiting from mobile broadband access in much more profound ways than other user groups because it is more likely that they cannot afford other means of home broadband access."²⁵¹

Policymakers are faced with a choice: an academic conception of homogenized Internet access or progressive pricing and pragmatic solutions to grow the use of mobile broadband. It is remarkable that even the Wikimedia Foundation was forced to take a defensive posture, distinguishing its charitable work from other, potential Net Neutrality violations.²⁵² Working to provide free access to the knowledge compiled in Wikipedia for the world's poor should not require a defense; this project, and others like it, does unequivocal

²⁵¹ Multicultural Media, Telecom and Internet Council (MMTC), "Understanding and Appreciating Zero Rating: The Use and Impact of Free Data in the Mobile Broadband Sector" (white paper, MMTC, May 9, 2016), http://mmtconline.org/WhitePapers/MMTC_Zero_Rating_Impact_on_Consumers_May2016.pdf.

²⁵² Moeller, "Wikipedia Zero and Net Neutrality."

good for the world. To put the maximum weight on enabling new encyclopedia competitors ahead of free access to information for those without is a bizarre balance of priorities.

Critics seem to think Zero Rating popular applications will homogenize application use and are willing to make everyone worse off if it means idiosyncratic preferences have “equal” footing with dominant applications of the day. No doubt, the dizzying fount of creativity on the Web and the support of long tails of niche content are some of the best virtues of the Internet. But the discriminatory effects of Zero Rating are tiny in comparison to the low marginal cost of storage and transmission that enables this diversity, and would be far outweighed by the benefits of a new platform to support expanded use of mobile services.

7.6 Conclusion

While defining the exact scope of how these programs operate will be a dynamic process, this should generally be left to consumers and the market, not the elitist ideology of Net Neutrality purists. This doesn't mean there should be a free-for-all with Zero Rating services. For example, exclusive Zero Rating, where businesses are locked out of participating in Zero Rating programs, would artificially limit the growth of new applications, inappropriately reinforce existing network effects, and hinder new application discovery. Also, transparency is important for oversight and accurate channeling of consumer preference.

Zero Rating programs are a win for “edge” video providers, who see more use of their products and services. They are also a win for network operators, who are working to gain market share and explore new business models to meet demand. And most importantly, they are a big win for consumers, who end up getting more for less. The only people who lose are the Net Neutrality purists. The success to date of Zero Rating innovations make those who would hold back progress in the name of abstract neutrality principles look rather silly.

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8 The Politics of Algorithms and Net Neutrality in the Zero Rating Debate

by Tomiwa Illori

8.1 Introduction

Debates with arguments on open access, Zero Rating practices and paid prioritization have become more animated as commercial interests are fast taking center stage in these deliberations. Complicity of government policies also show that its objective engagement in these debates is almost impossible due to the opportunity cost of taxes to be raked in and when Internet control means are utilised to bypass the Net Neutrality principle. Internet traffic management together with “algorithmic filtering” are the most powerful weapons of Internet puppeteers- those large players that have shaped, albeit uncomfortable to admit, the Internet. Surreptitiously, the politics of Internet traffic management together with search algorithms are the backbone of anything Internet. Even with resolutions by sides to the unending debates, the ways in which Internet can be accessed as well as the way in which the resources can be searched still wields what content a particular user sees or does not see. It can be said that arguments against tech giants becomes naught when the overwhelming power of algorithms are considered. Whether or not there are debates on open access on the Internet, operators as well as online platforms still hold the carrot and the stick.

- Do governments realize the power of algorithms used within online platforms?
- Is it why most governments, typically paranoid of the Internet, seem to finally cave in to Net Neutrality principle with algorithmic filtering as a fall back plan?
- Is algorithmic filtering a strategy for online platforms to alter open access?
- What are the politics involved in traffic management, algorithmic filtering and Zero Rating practices?

According to Tim Wu, the argument for Net Neutrality must be perceived as a solid expression of a belief about innovation, one that has gained significant popularity over last decade.²⁵³

253 Wu T. (2003). Network Neutrality, Broadband Discrimination *Wu Final Article Network Neutrality, Volume 2*, p. 145, 2005

Wu's attempt at classifying arguments for the Net Neutrality principle is reflected in the reason why Marsden referred to Net Neutrality as a *deceptively simple phrase hiding a multitude of meanings*²⁵⁴ - a one-size fits all codification of terms aimed at exploring the strengths of debates on the Net Neutrality principle. It is an ideal that sees farther than the common sense of innovations to accommodate enduring and preserving values of fairness and equity through Rights on the use of the Internet. Since there are no universally accepted definitions, "network neutrality," is a term generally used to refer to the equal treatment of Internet traffic by Internet service or network providers ("ISPs") over wired or wireless networks, and the right of consumers to access and share content and applications on the Internet on a non-discriminatory basis.²⁵⁵ Bearing this working definition in mind, it is important to understand that discriminatory treatment is not limited to Internet traffic management and may also be caused by algorithms. If the Net Neutrality principle is centered on right of consumers to access and share content and services on the Internet, it is only logical to trace the core essence of algorithm that determines what content or how these services on the Internet are can be found. This definition should work the mind of debaters of Net Neutrality on whether algorithms, being placed in the hands of online platforms are a lesser evil than Zero Rating practices and paid prioritization. Since algorithms are always used to "psychoanalyze" the Internet user's behavior, the question of what or who can be equal on the Internet when the object of equality is being shaped by a side to the debate is raised. What is the essence of freedom to choose in access, when a simple tool of filtering can be used to determine user choice?

8.2 The Net Neutrality Principle

As far back as 1962, the Internet did not yet exist and its predecessor was then known as the Advanced Research Projects Agency Network (ARPANET), the first operational packet-switching network, launched by the United States Department of Defense. As of 2016, the number of Internet users in the world stands at approximately 3.4 billion with a 7.5% annual change from 2015.²⁵⁶

254 Marsden C.T. *Network Neutrality: A Research Guide 7th Conference on Internet, Law & Politics (IDP 2011): Net Neutrality and other challenges for the future of the Internet*, p. 3, 2012

255 Maier-Rigaud F. *Network Neutrality: A Competition Angle CPI Antitrust Chronicle August 2011 (2)* p. 2, 2011

256 <http://www.Internetlivestats.com/Internet-users/>

Network neutrality is an argument over who can control the Internet. As pointed out by Marsden, Net Neutrality may be seen to comprise two separate commitments, one of universal service and another of common carriage.²⁵⁷ Notably Marsden (2010) argues that 'Net Neutrality lite' claims that Internet users should not be disadvantaged due to opaque and discriminatory practices by their current Internet Service Provider — the company providing the Internet connection into their home. The argument here is that a basic level of service should be provided which offers open Internet access without blocking or degrading of specific applications or protocols, what has been described as an updated form of universal service, generally proposed at 2Mbps. That provides a basic level of service which all subscribers should eventually receive.²⁵⁸ This argument forms a basis to help connect the next billion to the Internet. It resonates firmly with the disadvantaged in the society to have access, at least to the rudiments of the Internet to help commence the conversations on upgrade to better services.

Furthermore, Marsden (2010) argues that 'positive Net Neutrality' describes a practice whereby higher Quality of Service (QoS) for higher prices should be offered on fair reasonable and non-discriminatory (FRAND) terms to all-comers, a modern equivalent of common carriage.²⁵⁹

The Net Neutrality debate is long and arduous. A critical evaluation of its polemics shows a divide within a sameness that aims for just one single goal — an equitable Internet space. This debate is inextricably related not only to "classic" discriminatory practices, taking place through Internet traffic management, but also to the politics of algorithms and price discrimination practices such as Zero Rating. However, commercialization is the fate of the Internet. Most proponents, especially activists for an "Open Internet" may ignore or misinterpret the market reality in the Internet and seek to push what ought to be (equality) over what is (commercialization of the Internet).

It is in such context that the Net Neutrality debates must address the issue of equality on the Internet, in order to strike a balance between justice for the consumer and the producer.

257 Marsden, C. (2010) *Net Neutrality: Towards a Co-regulatory Solution*. London: Bloomsbury Academic.

258 Mueller, M. (2007) 'Net Neutrality as Global Principle for Internet Governance'. Internet Governance Project Paper IGPO7-003. Available from: <http://Internetgovernance.org/pdf/NetNeutralityGlobalPrinciple.pdf> [Accessed on 15/05/2016].

259 Noam, E. M. (1994) 'Beyond Liberalization II: The Impending Doom of Common Carriage', *Telecommunications Policy*, 18 (6), pp. 435–452

8.3 The Business of Algorithms in the time of Net Neutrality

Most governments promote healthy markets in order to ensure competitiveness to help drive down prices and offer for better services. Even though algorithms occur at the application level, it is easy to determine how imagine how application providers like Facebook use their platforms to give priority specific content. On the other hand, Zero Rating is most about using price discrimination to determine what services are available to a particular user on the Internet. However, what most regulators do not envisage is the consideration of fundamental rights in a competitive market. Why should we care since the world is mostly for market-driven economies?

Modern day systems, including computers have productively engaged the use of algorithms over the years. It may be safe to say the original purpose of algorithms is to reach defined results through a set of instructions. Stone explained them as precise instructions (in language understood by “the computer”) for a fast, efficient, “good” process that specifies the “moves” of “the computer” (machine or human, equipped with the necessary internally contained information and capabilities) to find, decode, and then process inputs at a specified pace and in a specified format²⁶⁰ Moving fast from the definition, it places the writer of algorithms as who dishes what for who at every point in time a click of a particular computer is made. We must consider the Net Neutrality principles, Zero Rating practices and specialized pricings in the midst of algorithms. There is need to consider machine learning and artificial intelligence and to what extent these concepts may be altered for commercial gains and also where these intercept with user rights. Having output of services defined for the final consumer on the long run by algorithms challenges the essence of debates. There is a fundamental error of seeking to nip a grown tree at its top when the disease is form its root. If the writer of the algorithms determines what every click of the computer gets, then the debate on Net Neutrality, acquires a new level of complexity. If we must debate Net Neutrality should the focus still remain on the output of pre-defined instructions or that we ensure that all-inclusive algorithm are written to accommodate the core principles of Internet openness? This is a revisionist perspective to shifting the paradigm of the Net Neutrality debate.

²⁶⁰ Stone, Harold S. (1972). Introduction to Computer Organization and Data Structures (1972 ed.). McGraw-Hill, New York. ISBN 0-07-061726-0.

8.4 Net Neutrality, Zero Rating and the Algorithms

The most dominant arguments of Net Neutrality are pitched directly against Zero Rating practices. As argued above, the Net Neutrality debate is complex and presents various facets, while zero-rating practices come crashing on them, head-long. Zero Rating has become the bleeding edge of the Net Neutrality debate²⁶¹. Zero Rating is the practice of offering free access to certain online services or data for customers of particular mobile networks. Further tracing the practice of Zero Rating, it is implemented by excluding from a user's data cap the data consumption related to the access of a specific application. What is also regarded as the main forte of Zero Rating practices is the offering of use of preselected services for free. This is the greatest weapon wielded by proponents of Zero Rating on the global scale as it is usually dubbed as bringing the world to the Internet to help ensure more access to the Internet which when carefully assessed, entails masquerading economic divide between users on the Internet.

A global assessment of Zero Rating practices will be necessary from various regions of the world to offer for a holistic approach. This assessment can mainly be achieved by weighing the Net Neutrality debate against these practices. Owing to the fact that the policy climate of most jurisdiction varies, there is a common front where all antagonists of Zero Rating practices meet: Human Rights. Considering the issues of access to the Internet which is a strong fiber when Net Neutrality and Zero Rating are concerned, broadband challenges will definitely not be same for the US as it will be for Africa. There is a layer of need when it comes to open access to the Internet from each region of the world. This has in a way shaped the narrative on Net Neutrality and Zero Rating practices from these regions. It is going to be exceedingly difficult to pitch Net Neutrality against Zero Rating practice in Seychelles which has the lowest Internet penetration rate in Africa in 2015²⁶² compared to the success of doing same in Colorado in the US which has the highest Internet penetration the US the same year²⁶³. The degree of advancement and penetration of Information Technology in specific regions plays an important role in advancing debates on Zero Rating practices and the Net Neutrality principle.

261 <https://www.eff.org/deeplinks/2016/02/Zero-Rating-what-it-is-why-you-should-care>

262 <http://www.Internetworldstats.com/stats1.htm>

263 <http://www.governing.com/gov-data/Internet-usage-by-state.html>

There are 62 countries already having one form of Zero Rating practice or the other²⁶⁴. Countries like Nigeria, Ghana, India, Kenya and a host of other just joined the long list. Most of these countries are developing countries with high propensities of jumping at offers of Zero Rating practices that seeks to “connect the next billion” while being disconnected from some part of the Internet. The intricacies involved in these debates have been challenging to the growth of connectivity in the last decade. Human rights perspective against Zero Rating practices that took form in Net Neutrality debate have since taken a more dynamic form with international organizations like the United Nations seeking more open access on one side while on the other side, corporations with the money bags are frantically lobbying for Zero Rating practices²⁶⁵.

For most corporations in the Internet business, the real parade for the Internet is heading the other way, hence they need to politicize commercial interests through lobbying, propaganda and then, algorithms. As of the second quarter of 2016, Facebook users totaled 1.7 billion which has now been subjected to the whim of the platform’s overriding interests of what each user gets on their news feed.²⁶⁶

With more than twenty-two percent of the world’s population on Facebook, the platform defines in an overarching dimension what this percentage gets. If that is not power, we need to redefine what power is. While there is absolutely nothing wrong with having such power, the concerns regarding how this power is managed are well founded. The intersection between the Internet and human development is too pronounced to be concentrated in the hands of few. There is need to carefully understand the use of the Internet by ensuring a more protracted and transparent means of diversification of its resources. Sir Tim Berners-Lee, father of the World Wide Web recognized this when he expressed fear over the growing display of excessive need for control of the Internet which he described as a temptation that is “huge.”²⁶⁷

264 http://en.wikipedia.org/wiki/Internet.org#cite_note-13

265 <https://www.theguardian.com/technology/2016/may/12/facebook-free-basics-india-zuckerberg>

266 <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>

267 <http://www.theinquirer.net/inquirer/news/2460894/sir-tim-berners-lee-Internet-has-become-world-s-largest-surveillance-network>

Also this brings into focus the extent to which user rights are protected on major Internet platforms. There is a real threat to online press censorship by the clandestine activities of big corporations. There have been several reports on removal of content on most of these platforms with little or no explanation given for such removal.²⁶⁸ On the June 9, 2016, there were several reports that Facebook left out the “Black Lives Matter” movement by deliberately altering its algorithms²⁶⁹. This came some weeks after allegations against the tech giant of how it censors posts regarding conservative views²⁷⁰.

These are serious concerns that are directly below that of open access. Even if we give equal access to the Internet to all of the people, how is the problem of control of algorithm solved generally as a current grand puppeteer?

8.5 Algorithms as the Puppeteer

Picturing the Internet as a puppet stage and a grand puppeteer behind control how the puppets move, there is a question of what has more power: the puppet, the audience or the puppeteer? Taking this further, exchange of data has strengthened how algorithms are tailored for more powerful interests. Net Neutrality principle will need to be more ambitious in its ideals to call for some policy framework to help establish the regulation of all these information that accrue to tech companies and government corporations in charge of Internet management. This also is where the proponents of the Net Neutrality debate ought to pick their debates from, with particular regard to Zero Rating practices. The Net Neutrality debate must consider the importance of the objectives of equal access to the Internet as much as the algorithms that control it. At the end, there will be no need for equal access when it is already the agreed fate of the Internet to be controlled by algorithms.

268 <https://theintercept.com/2016/08/08/facebook-removes-potential-evidence-of-police-brutality-too-readily-activists-say/>

269 <http://fortune.com/2016/06/09/facebook-black-lives-matter-tag/>

270 <https://www.theguardian.com/technology/2016/may/09/facebook-newsfeed-censor-conservative-news>

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Noam, E. M. (1994) 'Beyond Liberalization II: The Impending Doom of Common Carriage.'

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Stone, Harold S. 1972 'Introduction to Computer Organization and Data Structures' McGraw-Hill, New York.

The inside story of Facebook's biggest setback (2016, May 12) Retrieved from.

Wu T. 2000 'Network Neutrality, Broadband Discrimination' Wu Final Article Network Neutrality, Volume 2.

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PART III

Net Neutrality Exceptions and Violations



9 European Net Neutrality at the beginning of a new era

by Frode Sørensen

9.1 Introduction

European Net Neutrality is at the beginning of a new era. Through the Net Neutrality Regulation adopted in 2015²⁷¹, and corresponding Net Neutrality Guidelines issued in 2016²⁷², a new foundation for protection of the open Internet in Europe is established. The regulatory monitoring of Net Neutrality at the national level, as prescribed by the Regulation, should be the guarantee for a neutral Internet for European citizens and businesses.

The goal of Net Neutrality is to protect the value of the Internet for end-users, for the industry, and for the overall democratic society. In concrete terms, Net Neutrality boils down to equal treatment of traffic on the Internet, whereby end-users themselves can decide how to use their own Internet access, and whereby entry barriers for content and application providers (CAPs) are low. As a result of non-discriminatory treatment, the Internet should remain an open platform for communication useable for any purpose, stimulating the flourishing of social, democratic, cultural, and economic development.²⁷³

The fundamental characteristic of such an open platform is that it becomes application-agnostic, where applications running on end-user equipment receive equal treatment of traffic transmitted over the Internet. This architecture is also referred to as the end-to-end principle²⁷⁴, where application can run in endpoints connected to the Internet, without specific adaption inside the network. The application layer is decoupled from the underlying network layer, facilitating “innovation without permission”, whereby a large number of innovators face low barriers when developing and deploying their applications.

This paper explores the background and emergence of the European Net Neutrality Regulation (section 9.2), as well as the rules of the

271 Regulation 2015/2120

272 BEREC (2016a)

273 See e.g. van Schewick (2010)

274 IETF (1996)

Regulation. Regarding the latter, the focus will be on three core issues that have attracted policymakers' and regulators' attention over the past year: Zero Rating and other commercial practices (section 9.3); the distinction of different levels of traffic management (section 9.4); and the so-called specialised services (section 9.5). Finally, some concluding remarks are given (section 9.6).

The goal of the paper is to illustrate how the European Net Neutrality Regulation facilitates flexible network technology innovation, at the same time as it safeguards innovation at the edge of the network. The Regulation therefore constitutes a futureproof framework for regulatory supervision and enforcement of Net Neutrality which maintains continued evolution of the Internet architecture and ecosystem.

9.2 Evolution of European Net Neutrality

Looking back at the timeline of Net Neutrality in Europe, it has been a journey over several years. Using the 2009 Regulatory Framework²⁷⁵ as a reference, it consists of a seven years' history with ups and downs. This framework had its good intentions, but was over time judged by the political institutions as insufficient to protect Net Neutrality.

It has been argued that access regulation in Europe should be sufficient to ensure Net Neutrality, since end-users could switch to alternative Internet service providers (ISPs) to achieve neutral Internet access.²⁷⁶ However, an essential characteristic of Internet communication is ignored in this argument; as an Internet user you are also depending on the users in the other end which you communicate with. Many of those will not switch to a neutral access due to the pricing policy of their ISPs. Thereby the Internet becomes fragmented, and the network effect is significantly reduced.

In this period, BEREC on request from the European Commission conducted a traffic management investigation²⁷⁷ among European operators. The results from this investigation showed that on average, every fifth European subscriber to fixed Internet access, and as much as every third subscriber to mobile Internet access experienced restrictions to the use of their own Internet access service, such as blocking of VoIP.

275 Regulatory framework (2009)

276 van Schewick (2014)

277 BEREC (2012)

Over the last years, different national approaches to Net Neutrality evolved. Norway has the longest running Net Neutrality regime in Europe. Based on a co-regulatory approach, not to be confused with a self-regulatory approach, national Net Neutrality guidelines were established in Norway in 2009²⁷⁸. These guidelines contained rules against blocking and throttling of applications, essential to achieve Net Neutrality.

The Netherlands and Slovenia adopted Net Neutrality laws in 2011²⁷⁹ and 2012²⁸⁰, and then several additional European countries started to consider similar regulatory measures. On the other hand, other countries used self-regulatory approaches and/or based their approach on transparency while effectively allowing throttling and blocking of applications over the Internet access.²⁸¹

On this background, with a significant level of restrictions on Internet access for European citizens, and an increasing variation in regulation of Net Neutrality among member states, the European Commission proposed a new Net Neutrality regulation in 2013. Following the law-making process of the European Union, Net Neutrality rules were finally adopted by the end of 2015.²⁸²

9.2.1 Regulation vs. Guidelines

The European Net Neutrality rules entered into force 30 April 2016. This Regulation has a solid legal basis, established through the European democratic law-making process.

The Regulation is seeking to safeguard equal and non-discriminatory treatment of Internet traffic and related end-users' rights, such as the right to access and distribute information.²⁸³ This describes in other words "Net Neutrality" as the goal. Interestingly, in the corresponding recital of the Regulation, preservation of the Internet ecosystem as an engine of innovation is explicitly included among the goals.²⁸⁴

278 Norwegian Communications Authority (2009)

279 Dutch Telecommunications Act (2011)

280 Slovenian Electronic Communications Act (2012)

281 European Commission (2014)

282 Regulation 2015/2120

283 Regulation 2015/2120, Article 1

284 Regulation 2015/2120, Recital 1

The operational parts of the Regulation cover commercial conditions, such as speed and volume, but also other commercial practices, where many will consider Zero Rating²⁸⁵ to be the typical example. Furthermore, different technical practices are covered; reasonable traffic management, exceptional traffic management and specialised services.

According to the Regulation, BEREC is given the mandate to develop Guidelines for regulators' implementation of the Regulation.²⁸⁶ In this regard, it is important to note that BEREC's Guidelines do not create any new rules; they only provide guidance on the regulatory implementation of existing rules. Furthermore, national regulators shall conduct supervision and enforcement of the Regulation, and also publish reports on an annual basis on their monitoring and findings.²⁸⁷

Below some of the aspects covered by the Regulation and BEREC's Guidelines are discussed, with particular regard to Article 3 which is titled "Safeguarding of open internet access".

9.3 Zero Rating and Net Neutrality

Zero Rating is an increasingly important aspect of the Net Neutrality debate. Zero Rating has similar effects as technical traffic management, constituting an application-specific measure, influencing end-users' control over their own access to the Internet, as well as raising entry barriers for CAPs. This is of particular concern for European CAPs competing with larger US-based CAPs.

An often heard argument is that Zero Rating ensures cheaper access to the Internet for low-income consumers. But the basis of comparison should not be absence of cheaper offers. In fact, ISPs concerned about price-sensitive consumers can provide neutral low-cost/low-speed service offers, possibly with an additional data allowance corresponding to the zero-rated data volume, which the consumer can use flexibly.

It is advantageous to not pay for some amount of traffic, and this is clear when asking consumers about the immediate perception

²⁸⁵ Zero Rating means that the ISP charges a price of zero for the traffic associated with a particular application or applications, and that the data does not count towards any data cap in place on the Internet access service.

²⁸⁶ Regulation 2015/2120, Article 5(3)

²⁸⁷ Regulation 2015/2120, Article 5(1)

of zero-rated offers.²⁸⁸ But to detect consumers' fundamental view about this, one should instead ask them whether they would prefer an ordinary zero-rated offer or an offer where they can control themselves how to use the additional data allowance.

Another major limitation with consumer surveys is that it is difficult to assess long term effects in the market based on these. Long term effects are typically the effects on entry barriers to start-ups and innovation of new applications. New applications could become a major advantage for consumers in the future, as we have seen already on the Internet in the past.

It is probably possible to construct examples where Zero Rating has good effects for end-users, but the market requires clear rules to avoid regulatory uncertainty. Therefore one should be careful when considering targeted examples, and one should instead take an overall view when drawing general conclusions about regulation of Zero Rating.

In the later years, observers have argued that the challenge to Net Neutrality has shifted from throttling and blocking of applications over to Zero Rating of applications.²⁸⁹ In other words, some ISPs are moving from *technical* discrimination of traffic to *economic* discrimination, where some traffic is cheaper or free to transmit over the network than other traffic.

Even though traffic may not be prioritized from a technical point of view, end-users would be incentivised to select applications from specific CAPs²⁹⁰, steered by the decisions taken by their ISPs. Smaller CAPs, start-ups and non-commercial content providers will typically not receive the same advantage. This would harm the users' free choice and freedom of expression.

Furthermore, to be able to be zero-rated, CAPs would have to engage with ISPs around the world, which would represent an economic burden that may be particularly difficult to bear for small-and-medium-size CAPs. This is a significant hurdle compared to an open Internet, where any application is sharable from a single access. Therefore, Zero Rating is likely to raise the barrier for start-ups entering the market, becoming an obstacle to "innovation without permission" which should be safeguarded by Net Neutrality.

²⁸⁸ However, research has shown that consumers are interested in zero-rated applications mainly when data allowance is low. See BEREC (2015)

²⁸⁹ Digital Fuel Monitor (2014)

²⁹⁰ See e.g. BEREC (2016a), paragraph 48

9.3.1 Regulatory assessment of Zero Rating

Commercial practices, and Zero Rating in particular, have been surrounded by some uncertainty in the European discourse on Net Neutrality, and the opinions have been strong on both sides.²⁹¹ Law-makers have chosen a middle course regarding Zero Rating and other commercial practices in the Regulation, and such practices are neither explicitly allowed nor explicitly prohibited.

Article 1 affirms that “This Regulation establishes common rules to safeguard equal and non-discriminatory treatment of traffic in the provision of Internet access services and related end-users’ rights.” In the following detailed provisions, end-users rights are described, followed by equal and non-discriminatory treatment of traffic. The former is discussed in this section, while the latter is discussed further below.

End-users’ rights are defined in Article 3(1): “End-users shall have the right to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the end-user’s or provider’s location or the location, origin or destination of the information, content, application or service, via their internet access service.”

Furthermore, Article 3(2) explains that agreements on commercial and technical conditions, as well as any commercial practices “shall not limit the exercise of the rights of end-users laid down in paragraph 1”. It is under these provisions that the commercial practices, including Zero Rating will be assessed. In case technical practices are intertwined with commercial practices, provisions regarding technical practices still apply.

Therefore, based on the Regulation’s ban on technical blocking and throttling of applications²⁹², BEREC’s Guidelines recommend to prohibit Zero Rating practices where the zero-rated applications receive preferential treatment after the data cap is reached, e.g. where the zero-rated application is still accessible, while other applications are blocked.²⁹³

For more complex cases, BEREC recommends general assessment criteria which national regulators can use to assess commercial

291 See e.g. BEREC (2016b)

292 Regulation 2015/2120, 3rd subparagraph of Article 3(3)

293 BEREC (2016a), paragraph 41

practices in general, including Zero Rating. These criteria encompass market positions of the providers involved, covering ISPs and CAPs, the scale of the practice, effects on end-user, including effects on CAPs, and whether the general aims of the Regulation are circumvented.²⁹⁴

When conducting such assessment, regulators may take into account several aspects, according to the Guidelines. Commercial practices that have similar effects as technical blocking are likely to be limiting the exercise end-users rights. Practices that apply a higher price to specific applications are likely to do the same, while the possibility of higher prices for applications may also discourage innovation. Practices that apply a lower or zero price, will incentivise end-users to use zero-rated applications, and the lower the data cap is, the stronger such influence is likely to be.²⁹⁵

Due to such case-by-case approach, national regulation in this area may vary to some extent across Europe, and BEREC's Guidelines can't provide the same level of regulatory certainty as for other areas. Upcoming cases of Zero Rating will need a comprehensive assessment by national regulators. The Guidelines provide criteria for the regulatory assessment, but in particular the earliest cases may be complex to settle. Over the coming years, regulators' experiences will show how well this methodology eventually works.

9.4 Different levels of traffic management

Traffic management refers to any technical measures used to forward traffic through the networks. In modern IP-based communication networks, the packet switching enables rather flexible allocation of capacity for the different communication sessions. Such traffic management measures vary from simple first-come-first-serve handling of packets, to more or less sophisticated scheduling of packets belonging to the different communication sessions.²⁹⁶

When assessing traffic management practices for Internet communications, the European Net Neutrality rules define three different levels of traffic management. The *ground level* is when Internet traffic is treated agnostic to applications and endpoints generating the traffic, which is described in the 1st subparagraph of Article 3(3). The two next levels contain *reasonable* traffic

294 BEREC (2016a), paragraph 46

295 BEREC (2016a), paragraph 47

296 See for example BITAG (2013)

management described in the 2nd subparagraph, and *exceptional* traffic management described on the 3rd subparagraph of Article 3(3). (Note that this categorization does not align with the ones used in other regulations, e.g. FCC open Internet rules²⁹⁷.)

Traffic handling on the Internet is referred to as “best effort”²⁹⁸, reflecting the fact that Internet communication does not provide any guaranteed quality levels. However, ISPs can provide relatively good quality through proper operation of their networks. The “weak link” will be the capacity provided towards interconnected ISPs, since communication in many cases is performed across several ISPs’ networks. However, this can to some extent be mitigated by the interconnection agreements with peering and transit ISPs.

When Internet traffic is transmitted together with specialised services over a shared infrastructure, which often is the case, regulatory assessment of the Net Neutrality rules also takes into account *overall* traffic management practices. Such traffic management is related to how traffic from specialised services is handled in parallel with traffic from Internet communications. In the European Regulation, this is described in Article 3(5).

The main question when specialised services come into the picture will typically be whether network capacity is sufficient to avoid a detrimental effect on the quality of internet access services. Regulations may, as in the European case, set out requirements in this regard. The next question will then be *how* sufficient capacity is ensured, and in particular how ISPs ensure that specialised services don’t degrade Internet communications. The assessment of traffic management related to specialised services is further discussed in section 4.

In the three subsections below, the different types of traffic management related to Internet access services are discussed in the context of the European Net Neutrality Regulation.

9.4.1 Ground level of traffic management

The Regulation establishes common rules “to safeguard equal and non-discriminatory treatment of traffic”²⁹⁹. Traffic can normally be considered to be treated equally as long as packets are processed

297 FCC (2015)

298 Best effort is further discussed in section 2.1

299 Regulation 2015/2120, Article 1

agnostic to sender and receiver, to the content accessed or distributed, and to the application used or provided. This constitutes the ground level of traffic management, usually referred to as “best effort”. However, this may not necessarily lead to identical network performance and quality of service (QoS) for all end-users.³⁰⁰

A less well-known but fundamental functionality of the Internet technology is *endpoint-based congestion control*.³⁰¹ This works as a feedback-based adjustment of the transmission rate at which packets are sent into the network by endpoints, applied to relieve the congestion in the network. Note that endpoint-based congestion control is separate from network-internal congestion management discussed in subsection 3.3.

Applications use transport layer protocols when IP packets are transmitted into the network. Traditionally, two different transport layer protocols are used on the Internet, TCP and UDP, and this has been supplemented with other alternatives the later years. The transport layer protocol used may, and often does (as in the case of TCP), execute congestion control in the endpoints, as described above. However, UDP does not support congestion control.

When the traffic load on the network increases beyond the available capacity, packets start to get queued in the network nodes. If the traffic load continues to increase, the queues eventually get filled, and packets start to become dropped. Packet drops can therefore be interpreted by endpoints as a signal about congestion in the network. TCP traffic flows are responsive to such signals and “back off” during congestion. When congestion disappears after a while, traffic sources start to speed up again.³⁰²

An interesting example of congestion control for ongoing development of applications is related to *Web Real-Time Communication*, WebRTC³⁰³. WebRTC is a relatively new standardised telephony application architecture executing in web browsers. A dedicated congestion control scheme, RMCAT,³⁰⁴ is developed for the WebRTC architecture to limit the congestion due

300 BEREC (2016a), paragraph 53

301 IETF (2010a)

302 IETF (2015b), Section 2

303 W3C(2016) and IETF (2016a)

304 IETF (2016b)

to the anticipated increase in real-time communication. This example illustrates the adaptability of the congestion control functionality to accommodate new needs in Internet communications.

BEREC's Net Neutrality Guidelines explicitly recognise endpoint-based congestion control as a legitimate measure under equal treatment of traffic.³⁰⁵ This is due to the fact that such mechanisms are executing in the terminal equipment together with the application software, as opposed to functionality implemented inside the ISP's network. This is also in line with the end-to-end principle, since the congestion control is running in the endpoints connected to the Internet.

9.4.2 Reasonable traffic management

The requirement to treat traffic equally does not prevent ISPs from applying *reasonable* traffic management for Internet traffic, as a second level of traffic management. Note that the concept "reasonable traffic management" in the European Net Neutrality Regulation is a narrower concept than in many other jurisdictions, such as FCC's open Internet rules. An important criterion for reasonable traffic management is that it is based on objective technical QoS requirements, such as latency, jitter and packet loss. Furthermore, such measures shall not monitor the specific content of the traffic.³⁰⁶

An essential aspect of reasonable traffic management is the feature "*categories of traffic*" introduced by the European Net Neutrality Regulation. As the Regulation explains, categories of traffic are defined based on "objectively different technical QoS requirements". Furthermore, BEREC's Guidelines explain that this may be linked to applications, but it is anyway the QoS requirements that provide the basis for the categorisation. An important requirement in this regard is that applications with equivalent requirements are handled agnostically within the same category.³⁰⁷

Differentiating traffic by treating packets based on objective, technical reasons with a goal to optimise *overall* transmission quality would thereby be allowed. However, reasonable traffic management is not allowed to throttle or block specific applications.³⁰⁸ Furthermore,

305 BEREC (2016a), paragraph 54

306 Regulation 2015/2120, 2nd subparagraph of Article 3(3)

307 BEREC (2016a), paragraph 66

308 BEREC (2016a), paragraph 74

such measures should be clearly distinguished from specialised services where optimisation may be performed in order to meet requirements for a *specific* level of quality for that service.³⁰⁹

The Regulation requires that any implementation of categories of traffic does not monitor “*specific content*”.³¹⁰ This term is explained in BEREC’s Guidelines to be understood as “transport layer protocol payload”.³¹¹ However, this still allows for identification of QoS requirements of individual IP packets based on IP header and transport layer protocol header, and this information will also be available in case transport layer protocol payload is encrypted.

If an ISP implements “categories of traffic” in the network, the general transparency requirements of the Regulation should ensure that end-users, including CAPs, receive sufficient information to run their applications according to the ISPs’ traffic categories. This may contribute to a feasible approach for a QoS architecture which takes both ISPs’ and CAPs’ needs into account. A well-known approach to user-controlled QoS is proposed by Barbara van Schewick.³¹²

An ISP’s reasonable traffic management is relying on information in IP and transport layer protocol headers, and this information is ultimately provided by the applications sending packets into the network. As expressed by recital 9, ISPs’ traffic management measures are “responding to” the QoS requirements of the categories of traffic. In principle, this encompasses an application-controlled/user-controlled aspect, since the content of the traffic will necessarily have to be provided by the end-users’ applications.³¹³

A potential way of implementing reasonable traffic management may be to base it on IETF DiffServ architecture³¹⁴, where each DiffServ class corresponds to a “category of traffic”. Packets belonging to each DiffServ class could be identified based on the information available in the header as described above. However, the concrete implementation would of course have to be done in line with the Net Neutrality Regulation.

309 BEREC (2016a), paragraph 75

310 Regulation 2015/2120, 2nd subparagraph of Article 3(3)

311 BEREC (2016a), paragraph 70

312 van Schewick (2015)

313 See also BEREC (2016a), paragraph 64

314 IETF (1998) and IETF (2015)

9.4.3 Congestion management and exceptional traffic management

As a third level of traffic management, exceptional traffic management *going beyond* reasonable traffic management may be used under stricter conditions. For this purpose, the Regulation specifies these exceptions: (a) other legislative measures; (b) network integrity and security; and (c) congestion management. Only under these three exceptions, measures such as throttling or blocking of applications are allowed.³¹⁵

In this subsection the focus is on *congestion management*, since this is a particularly complex traffic management measure to implement, and therefore also complex to assess.

As BEREC's Guidelines describe, congestion management may also be done on a general basis, independent of applications. In light of the principle of proportionality, regulators should consider whether such *application-agnostic* congestion management would be sufficient and equally effective to manage congestion, when assessing ISP's practices.³¹⁶

Mitigation of network congestion was discussed above under the section concerning equal treatment of traffic, where endpoint-based congestion control was presented. The result of such congestion control functionality is that the different communications sessions reach a state of dynamic equilibrium³¹⁷ which shares the available network capacity between different traffic sources.

Traffic management measures with different strengths, or level of intrusion, may be used to mitigate congestion in net works, and these levels of traffic management are relevant to assess based on the proportionality criterion. First, the full potential of endpoint-based congestion control should be investigated. Second, network-internal mechanisms of ISPs which *assist* endpoint-based -congestion control should be examined. Finally, regular network-internal congestion management should be considered.

1. Firstly, as described in section 3.1, endpoint-based congestion control is not used for all traffic sources, and increasing deployment of up-to-date software in terminal equipment is prerequisite for this functionality to provide adequate

³¹⁵ Regulation 2015/2120, 3rd subparagraph of Article 3(3)

³¹⁶ BEREC (2016a), paragraph 92

³¹⁷ Huston (2015)

avoidance of congestion. Therefore, the usage level of well-behaving congestion control is relevant.

2. The simplest congestion control functionality responds to packets that are dropped at the end of queues in network nodes, so-called “tail drop”. Network-internal mechanisms can be added to assist the congestion control function in the endpoints. Such complementary functions are called Active Queue Management (AQM), and they can signal congestion in a more intelligent way to endpoints. An important criterion in relation to equal treatment of traffic is that such mechanisms are agnostic to the applications running in the endpoints.

Secondly, if “categories of traffic” are implemented by the ISP in the network, AQM may differentiate between traffic belonging to the different categories based on the QoS requirements of each category. In that regard, the general assessment criteria for reasonable traffic management apply, as described in section 3.2 above.

3. Finally, regular network-internal congestion management functions may be implemented by ISPs. Such measures can be either application-agnostic or application-specific, where the former would be less intrusive than the latter. Regarding the former type, some variants are currently available, but this is also an area for further research. The latter type would typically involve deep packet inspection (DPI).

Application-agnostic measures would be considered to be “equal treatment”, as described previously. Moreover, based on the 3rd subparagraph of Article 3(3) the Regulation which says that exceptional traffic management should not be applied “except as necessary, and only for as long as necessary”, one could challenge whether application-specific congestion management would be necessary when application-agnostic alternatives exist, depending on how effective the different measures are.

The conclusion that can be drawn from this discussion is that there are several softer measures to mitigate congestion that should be considered, before considering application-specific congestion management as necessary. As BEREC’s Guidelines say, “When assessing congestion management exceptions under letter (c), NRAs should refer to the general criteria of strict interpretation and proportionality set out in Article 3(3) third subparagraph. Furthermore, NRAs should check that congestion management is not used to circumvent the ban on blocking, throttling and discrimination.”³¹⁸

318 BEREC (2016a), paragraph 90

9.5 Specialised services

Specialised services, denounced by some, praised by others, are also covered by the Regulation and by BEREC's Guidelines. These services are other services than Internet access services that may be offered by providers under certain conditions. The first main condition is that the service is offered to meet requirements for a specific level of quality which can't be achieved over the Internet access service, and the second main condition is that the network capacity is sufficient to provide the service in addition to any Internet access service provided.³¹⁹

Regarding the first main condition, which is introduced by the 1st subparagraph of Article 3(5), this also works as a kind of definition of the term "specialised services". BEREC's Guidelines uses the term as a short expression for "services other than internet access services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality".³²⁰

Furthermore, the Guidelines provide a few examples of specialised services, such as specific types of VoIP and IPTV³²¹, but are carefully avoiding "freezing" the interpretation of the concept. Through Article 3(5) of the Regulation, providers are maintaining the opportunity to provide services with QoS requirements, and the role of the regulators is not to foresee which services these could be, but to supervise the safeguarding of the Internet access service.

Specialised services ensure "compatibility" between the European Net Neutrality Regulation and provision of services with QoS requirements e.g. in 5G networks. As the 5G Manifesto from European industry says, "A fundamental enhancement brought by 5G is the possibility to deliver virtual 'network slices' offering different capabilities according to specialised needs. 5G network slices are meant to run on shared infrastructure without deteriorating the agreed levels of service."³²² Specialised services and Internet access can thereby coexist in mobile infrastructure.

³¹⁹ Regulation 2015/2120, Article 3(5)

³²⁰ BEREC (2016a), paragraph 2

³²¹ BEREC (2016a), paragraph 113

³²² 5G Manifesto for timely deployment of 5G in Europe, July 7th 2016

Regarding the second main condition about sufficient capacity which is introduced by the 2nd subparagraph of Article 3(5), it is essential that the Regulation's goal is to safeguard the Internet access service, and not the specialised services. As the Regulation says, the ISP may offer specialised service "only if the network capacity is sufficient to provide them in addition to any internet access services provided".³²³

On the other hand, implementation of specialised services will have their own inherent "protection mechanisms" based in the QoS architecture used by the ISP. This is the nature of the specialised services. Specialised services should under no circumstances be provided at the expense of Internet access services.

According to the Regulation, in fixed access networks the access speed shall be relatively precisely defined. Furthermore, both based on ISPs' information, and based on regulators' measurements, the performance of the Internet access service can be monitored to check whether it is degraded or not.³²⁴

In mobile access networks it is more challenging to check potential degradation of Internet access services. Both ISPs' information and regulators' measurements will need particular attention for regulators to fulfil their obligation to "closely monitor and ensure compliance" in the case of mobile Internet access.³²⁵

9.6 Conclusion

Summing up, the European Net Neutrality rules are based on a democratic law-making process, providing a solid basis for regulation of Net Neutrality the next years. However, due to the novelty of the rules, there will most probably be challenging questions to resolve. With a view to preserve the value of the Internet for upcoming generations, it is important to continue the work to maintain the net as an open and non-discriminatory platform for everyone.

The current high-profile Net Neutrality question about Zero Rating has not achieved a clear answer under the European Net Neutrality Regulation. However, a general assessment methodology is provided, with a possibility for national regulators to intervene

³²³ Regulation 2015/2120, 2nd subparagraph of Article 3(5)

³²⁴ BEREC (2016a), paragraph 121

³²⁵ BEREC (2016a), paragraph 123

if necessary. Over time the development of the market under this regulatory regime will gather experiences that can be used to feed into any future legislative processes.

The discussion in this paper shows that the European Net Neutrality Regulation provides a framework which is compatible with the technology evolution. On the one hand the traffic management measures cover traditional best effort communications, advanced congestion handling, and potential class-based QoS architectures. This includes a user-controlled aspect of such QoS architecture, which has an interesting potential.

On the other hand, the Regulation allows provision of specialised services in parallel with Internet communications, which facilitates experimenting with different business models. This may show particularly interesting for mobile access networks, where the upcoming 5G network architecture emphasises QoS-based services, at the same time continue today's use of mobile access networks to provide Internet access services.

The conditions for Net Neutrality in Europe and related regulatory measures should over time be reconsidered based on how commercial and technical practices develop. In case Zero Rating practices should distort the market and reduce end-users' control over their own Internet use and raise entry barriers for CAPs, this may spur clearer rules of such commercial practices.

Tension between Internet-based communication and specialised services may evolve over time. The European Net Neutrality Regulation prescribes obligations on national regulators to "closely monitor and ensure compliance" with the Regulation, whereby this evolution will be scrutinised, and corrective regulatory measures may be launched if necessary.

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BEREC, 2016a, BEREC Net Neutrality Guidelines, “BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules”, http://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/6160-berec-guidelines-on-the-implementation-b_0.pdf.

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10 Users' rights, ad blocking and Net Neutrality

by Roslyn Layton

10.1 Introduction

Globally in 2016 more than 400 million³²⁶ users employ ad blocking on mobile phones, twice the rate of desktop ad blocking. Not only do users want to reduce their exposure to ads, but as some 20-80% of mobile subscription data is advertising, they want to reduce the cost of unwanted data. Users employ ad blockers for other reasons including privacy, security, energy efficiency, and usability to speed the running of mobile apps and websites. Browser-based ad blockers are common but have limited functionality. Cloud-based ad blockers allow users more control to define settings across a larger range of parameters. Given the purported sovereignty of the user, one's choice to deploy ad blocking from the browser or cloud, should be compatible with Net Neutrality. The user provides same consent for ad blocking on a mobile device, browser, or cloud service. Indeed the Dutch³²⁷ and Colombian³²⁸ Net Neutrality laws have affirmed that ISPs must block content at user's request.

However immediately following the publication of the guidelines³²⁹ for the EU Net Neutrality rules by the Body of European Regulators for Electronic Communications (BEREC), the Interactive Advertising Bureau (IAB) Europe announced "BEREC say [sic]network-side ad blocking illegal."³³⁰ This is likely in response to the phrase "BEREC considers that management of such features at the network level would not be consistent with the Regulation" in the consultation report³³¹ associated with the guidelines. IAB Europe Policy Committee Chairman said Allan Sørensen noted, "*This official clarification aligns to what any sensible person would consider to be intuitively correct.*"

326 <https://pagefair.com/downloads/2016/05/Adblocking-Goes-Mobile.pdf>
<https://pagefair.com/blog/2016/mobile-adblocking-report/>

327 http://wetten.overheid.nl/BWBR0009950/2016-07-01#Hoofdstuk7_Artikel7.4a

328 http://www.wipo.int/wipolex/en/text.jsp?file_id=226358

329 http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

330 <http://www.iabeurope.eu/all-news/news/eu-outlaws-network-wide-ad-blocking/>

331 http://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/6161-berec-report-on-the-outcome-of-the-publi_0.pdf

But this is not intuitive. Indeed in response to a question about ad blocking at the press conference,³³² BEREC noted that ad blocking is a “reasonable” practice. Moreover BEREC recognized the view of civil society to “allow network-internal blocking by the ISP if it is done at the request of the end-user and is under the control of the end-user, since they considered the most important principle was that the end-user could decide.” In point of fact, BEREC’s guidelines are not binding. The rules won’t be tested until a group decides to challenge them in one of the member states. Prohibition of user-requested ad blocking at the network level could run afoul of the technological neutrality requirements of the legislation, and there is a case that ad blocking is not even a traffic management practice, but a human right assured by the Charter of Fundamental Rights of European Union and the ePrivacy directive.

To their credit, the IAB admitted that excessive and overzealous advertising has created a problem in which users now wield tools of digital self-defense. “We messed up. As technologists, tasked with delivering content and services to users, we lost track of the user experience,” noted the IAB.³³³ They have proposed that all of their members adopt “LEAN” standard for Light, Encrypted, Ad choice supported, Non-invasive ads.³³⁴ The response exemplifies how digital markets can resolve problems voluntarily in user-centric ways. The question is whether it’s right that the ad tech industry gets to leverage Net Neutrality rules to ensure their profitability at the expense of users’ choice, safety, and privacy.

It’s understandable that the trade association representing dozens of American and European ad tech companies wants to eliminate ad blocking and brandish an opportunistic view of the no blocking rule to support their business goal. That BEREC sides with the media industry over end users on this issue is an example of growing “edge centrism” in which Net Neutrality regulation rewards content application providers (CAPs in EU parlance or “edge providers” in US parlance) over end users. This article explores the arguments both for and against ad blockers and how they may either support or conflict with Net Neutrality. Noting the growing tension between

332 <https://webcast.ec.europa.eu/berec-public-debriefing>

333 <http://www.iab.com/news/lean/>

334 *Ibid.*

user-centric solutions and rigid Net Neutrality rules, the article suggests that policymakers consider the unintended consequences. Ad blocking, a suboptimal solution to addressing unwanted ad tracking, is indicative of the unchecked oligopolistic ad tech industry which leverages Net Neutrality rules to protect its revenue from competition and innovation. It's important that policymakers and Net Neutrality advocates ensure that end users rights are not compromised under the guise of arbitrary bans on practices purporting to protect them.

10.2 Arguments for ad blocking

10.2.1 User choice

Compared to the pre-online days, the amount of advertising a person sees has exploded, up to some 2000-5000 ads per day.³³⁵ The Net Neutrality principle holds the user sovereign³³⁶ and supports that users can access the services, applications, and devices of their choice.³³⁷ Presumably this includes ad blockers and filters, which are types of software or hardware used to remove or alter advertising from a network, website, or application. Net Neutrality advocates hold that users purchase broadband subscriptions not to access the operator's network, but the content that is served over that network from third parties. Either way, it is certainly not the case that subscribers are buying the advertising, at least not willingly. Advertising frequently represents something which consumers typically do not want and do not realize that they are paying for.

Even in countries with the strictest Net Neutrality rules, mobile operators block spam, malware, and child pornography. Even though there are "edge" applications that serve this purpose, users welcome network level blocking for security because the benefits of protecting the system far exceed the cost. Users value minimizing the risk of their device, service, or application being compromised by malware. As such, network level blocking is an acceptable tradeoff with the

335 <http://cbi.hhcc.com/writing/the-myth-of-5000-ads/>

336 Wu, Net Neutrality, Broadband Discrimination

337 Michael K. Powell, "Preserving Internet Freedom: Guiding Principles for the Industry," Silicon Flatirons Symposium, February 8, 2004, https://apps.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf. In these remarks, Chairman Powell referred to four freedoms: (1) Freedom to Access Content; (2) Freedom to Use Applications; (3) Freedom to Attach Personal Devices; and (4) Freedom to Obtain Service Plan Information.

additional benefit of bringing better performance to the network and users overall. User-driven ad blocking at the network level is a superior solution to browser, hardware, or application blocking. It is arbitrary and inconsistent that regulators would bless network level malware control, but not ad blocking.

Some suggest that ad-blocking can improve a user's quality of life. Excessive exposure to marketing and advertising promotes the profligate purchase of goods and services, creating consumer anxiety.³³⁸ Online ads, which download automatically and require manual removal, steal users' time from valued activities. Moreover ad blocking appears to serve the goal for many Net Neutrality activists who have long championed that the Internet be primarily a tool for education and communication, not commerce.³³⁹ Unwanted ads can also harm the advertiser, as users may develop negative associations with such a provider.

Moreover, the European Union protects private communications from unlawful tracking and profiling.

Article 8³⁴⁰ of Charter of Fundamental Rights of European Union under the "protection of personal data" assures this, as does as well as the ePrivacy directive Article 5(3) 2002/58/EC.³⁴¹ The regulations suggest that just because services over mobile broadband networks are available, indeed ubiquitous, does not allow ad servers to undermine users' fundamental rights.

10.2.2 Cost

For online access in the developed world, the amount advertising mattered less on a broadband subscription as people connected primarily to the Internet via a desktop computer with a wireline connection. But that situation is different on mobile networks where bandwidth is constrained. Online advertising can consume up to

338 Della Costa, Chloe. Seven Tricks Advertisers Use To Manipulate You Into Spending More Money. <http://www.cheatsheet.com/personal-finance/7-advertising-tricks-you-should-stop-falling-for.html> Becker, Sam. Do You Know Who Spends All Day Thinking About Your Kids? <http://www.cheatsheet.com/business/why-kid-focused-fast-food-marketing-is-economically-toxic.html>

339 Atkinson, Rob. "Who's Who in Internet Politics: A Taxonomy of Information Technology Policy & Politics." *The Next Digital Decade: Essays on the Future of the Internet*. TechFreedom, 2010. Atkinson describes "Social Engineers" such as Lawrence Lessig and Yochai Benkler who tend to believe that the Internet should serve mainly as an educational and communications tool.

340 <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12010P&from=EN>

341 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0058:en:HTML>

50% of a user's mobile subscription³⁴², and some reports put the number as high as 80 percent.³⁴³ Without ad blockers, users are forced effectively to subsidize the delivery of advertising to their mobile device, which is indistinguishable from the actual content the user wants.

To be sure, ad blocking is more pronounced in emerging countries where mobile broadband fees take a higher portion of one's income than in developed countries. This also suggests that the prevailing mobile business models in which users' effectively subsidize advertising should diversify. Indeed the moneyed advertisers' which want to stop ad blockers could also direct their advertising spend to support the end users directly by subsidizing the broadband access cost; this would allow advertisers to communicate to end users (win) and end users to get online with less expense (win).

Having higher data caps might be one solution, but that still does not address the serious problem of ad-induced congestion. For example, ads from the popular game Angry Birds brought down two mobile networks in Norway in 2010.³⁴⁴ Some ads "chat" with the user profile or device and its settings, sending frequent signals across the network, which exacerbate congestion.³⁴⁵ Simply removing data caps is not a viable solution for every mobile operator. While large incumbent operators may have the capacity to raise, if not remove, data caps, this is not necessarily an option for small mobile operators with limited spectrum. In addition, requiring the removal of data caps could perversely strengthen the incumbent's power versus challengers. Removing data caps may also be associated with the general increase in access costs for all subscribers. So, while high volume users may only be slightly worse off, low volume users are significantly worse off.³⁴⁶ Moreover, the lack of bandwidth constraints unwittingly incentivizes advertising designed in a sloppy fashion, which devours data.³⁴⁷ If we value the Internet primarily as an educational and communications

342 <http://www.sfu.ca/content/dam/sfu/snfchs/pdfs/Adblock.Plus.Study.pdf>

343 Enders Analysis suggests between 18% to 79% of mobile broadband data go to advertising. Shine suggests 10% and 50%.

344 <http://www.strandreports.com/sw5218.asp>

345 <http://transition.fcc.gov/cgb/events/Presentation10-9-12.ppt>

346 <http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=2011&context=lsfp>,
<http://www.techpolicydaily.com/technology/usage-based-pricing-a-step-up-in-fairness-and-effectiveness/>

347 <http://repository.jmls.edu/cgi/viewcontent.cgi?article=1769&context=jitpl>

medium, a social commons as it were, we should be concerned about the traffic cost of excessive advertising, a cost which all users bear, which is not necessarily socially beneficial.

10.2.3 Privacy

With analog advertising, it was possible to change the channel or leave the room to avoid exposure to advertising. But avoiding online advertising is not so easy. Mobile advertising is particularly pervasive and integrated with the user's online profiles as well as device data including geolocation and other information gleaned from application program interfaces (APIs). Without ad blockers and dedicated attention to fix settings on every possible website and platform, users cannot avoid the "Frankenstack",³⁴⁸ the set of 2000 ad-tracking tools deployed across the most-visited Internet content.

Ghostery, a leading platforms for users to take control of their online experience through transparency, reports that ad serving technologies have doubled in 2015³⁴⁹ and are on track to be even further integrated in mobile service and with the Internet of Things applications.³⁵⁰ A survey of its 100 million users' opinions on ad tracking found that some 40 percent are concerned about security, 20 percent about privacy, and 20 believe that ad tracking technology slows the page download time. Of Ghostery users who downloaded ad blockers, 17.45 percent said they did so mainly to protect their privacy.³⁵¹

There is no doubt that this reality has informed the European Union new and sweeping regulation to address concerns about online privacy and data protection,³⁵² but it also suggests that the ad tech industry has not taken full advantage of the many privacy by design and default innovations which could also serve to address the problem. Regulation, regardless of how well-intended, is subject to human judgement and politics. To the degree that innovation can improve privacy technology, it is the preferable outcome. This is driving idea behind "privacy by design"³⁵³ - i.e., privacy is considered

348 <http://chiefmartec.com/2015/03/springtime-marketing-technology-martech/>

349 <https://www.fcc.gov/ecfs/filing/60001677159/document/60001711450>

350 *Ibid.*

351 *Ibid.*

352 <http://ec.europa.eu/justice/data-protection/>

353 "Introduction to PbD" Information and Privacy Commissioner of Ontario, Accessed May 27, 2016, <https://www.ipc.on.ca/english/Privacy/Introduction-to-PbD/>

and built-in at every stage of a product's development - so that private data is protected against being compromised at multiple layers of the product. In fact, the mix of convoluted regulation, poor definitions, focus on compliance rather than innovation, and a preference for ad-hoc legal responses rather than fundamental reinvention are why privacy by design solutions are not more widespread. That is to say regulation, even Net Neutrality rules, could "crowd out" the efforts to create new and better systems to protect privacy, as the FCC's attempt to impose opt-in requirements perversely increases the amount of tracking on a smaller set of users versus less tracking across a larger user base.³⁵⁴ Indeed with the threat of ad blocking, the ad tech industry has moved more quickly than ever to make more user-friendly advertising. It is arguable that the market pressure has been more effective than traditional privacy regulation requiring transparency. For example the EU cookie directive³⁵⁵ is not effective. An ad track warning that pops up every time one visits a European website. It costs businesses \$2.3 billion annually³⁵⁶ in lost sales and productivity with no reported improvement for users' privacy or experience.

10.2.4 Security

The market for ad blocking is large and growing, as consumers use these tools as a form of digital self-defense.³⁵⁷ This includes the user-driven implementation of cloud and network ad blocking services, which offer more effective, secure means to protect oneself from advertising. The sheer volume of ads and their poor design create disturbances in network traffic flows, adding further to congestion to networks, forcing traffic management that would not be needed had ads been designed better. While blocking unwanted content at the end-user's device is one method, it is not ideal. When examining implementation of similar blocking measures, the actual recommended practice of implementing fine-tuned firewalls and network access-lists is to block at network

354 <http://roslynlayton.com/should-the-fcc-regulate-broadband-privacy/>

355 http://ec.europa.eu/ipg/basics/legal/cookies/index_en.htm#section_2

356 <https://itif.org/publications/2014/11/06/economic-cost-european-unions-cookie-notification-policy>

357 <http://www.digital-selfdefense.com/#book>

boundaries,³⁵⁸ as close to the content source as possible.³⁵⁹ Such configuration saves network capacity used by data that will ultimately be discarded at the user device (data users are forced to pay for which they don't use). In wireless networks, saving capacity also results in saving scarce spectrum for the customers' actual desired use. The resulting efficient utilization of network capacity makes for better user experience. Traffic flow disturbances can also be security events (such as denial-of-service attacks). Thus, network refusal of misbehaving traffic is most effective as close to the source as well. It is clearly evident that the most effective data refusal solutions are implemented at the network level. This is why users appreciate that ISPs block spam, malware, viruses, and other offending data at the network level.

Not only are some ads irrelevant to users, a number may be infiltrated with "malvertising", the malicious practice of embedding malware within legitimate advertising (or even running parallel to legitimate advertising³⁶⁰), which can infect users' systems without even clicking on the ads. Such fraudulent and flawed advertising is responsible for \$8.5 billion in lost advertising revenues annually.³⁶¹ Recently, the Hummingbad³⁶² malvertising attack, designed to exploit Android's open architecture, emerged from a seemingly legitimate ad platform Yingmob and has attacked 85 million Android devices by producing fake clicks and installing fake apps. The malware looks like a browser tool bar and displays legitimate advertising to the user. The tool steals the user's data, which is then packaged and sold.

While BERC's guidelines prefer that operators simply add more capacity than manage traffic, such a solution is a non-starter for security concerns. Any virus or malware will simply spread across the attack surface, regardless of its size. Moreover, most mobile operators are constrained in their capacity, as spectrum is scarce and expensive.

358 <http://csrc.nist.gov/publications/nistpubs/800-41-Rev1/sp800-41-rev1.pdf>

359 <http://www.ciscopress.com/store/ccent-ccna-icnd1-100-101-official-cert-guide-9781587143854>

360 <http://www.trendmicro.com/vinfo/us/security/news/cybercrime-and-digital-threats/malvertising-when-online-ads-attack>

361 <http://www.iab.com/news/digital-ad-industry-will-gain-8-2-billion-by-eliminating-fraud-and-flaws-in-internet-supply-chain-iab-ey-study-shows/>

362 <http://blog.checkpoint.com/2016/07/01/from-hummingbad-to-worse-new-in-depth-details-and-analysis-of-the-hummingbad-android-malware-campaign/>

10.2.5 Usability

A number of users rely on ad blockers to improve their mobile experience. By stripping out advertisements and ad tech code, websites and apps load significantly more quickly. Desired content is easier for users to consume without automatic ads, pop-ups, “skins”, and videos, all of which consume data and the user’s time. Some users have difficulty removing ads manually from touch screens because of the so-called “zombie finger”³⁶³ problem; the difficulty of calibrating touch screens to a range of users. The ad blockers also serve to lower the device’s power consumption, an issue for users who find they have to recharge their phone every few hours on account of poorly designed ads in popular apps.³⁶⁴

10.2.6 Lack of competition in the advertising industry

To the degree that such sub-optimal advertising proliferates may reflect that online advertising platforms have too few competitors and little incentive to improve. In that case, ad blocking can be a user-driven signal to advertisers to improve their formats. Internet advertising was a \$50 billion industry in the US in 2014³⁶⁵, on track to double by 2019. Its revenue exceeds that from ads on broadcast and cable TV by 25 percent. To be sure, internet advertising works well for many advertisers, largely on account of the better tracking and analytic abilities available with online channels, but many users feel “surveilled” under this paradigm.

The IAB tracks³⁶⁶ growth driven primarily by the sale of ads in search, display, and on mobile platforms. A single company emerges as the overwhelming winner: Google. Over two-thirds of searches in the US are performed in Google, and Google takes the lion’s share of advertising revenue. In the \$19 billion mobile advertising market in 2014, Google earned 37 percent of the revenue. Globally Google earned \$44 billion on advertising on its websites in 2014.³⁶⁷

363 <http://www.consumerreports.org/cro/news/2015/06/zombie-finger-and-touchscreens/index.htm>

364 Thomas Claburn, “Blocking Online Ads May Save Energy” Information Week (2008) <http://www.informationweek.com/e-commerce/blocking-online-ads-may-save-energy-/d/d-id/1074562>

365 Tim Peterson, “Digital to Overtake TV Ad Spending in Two Years, Says Forrester” *Advertising Age* (2014) <http://adage.com/article/media/digital-overtake-tv-ad-spending-years-forrester/295694/>

366 “IAB internet advertising revenue report” PricewaterhouseCoopers, April 2015, http://www.iab.net/media/file/IAB_Internet_Advertising_Revenue_Report_FY_20142.pdf

367 Annual Report for the fiscal year ended December 31, 2015, Alphabet Inc./Google Inc., (2016) https://abc.xyz/investor/pdf/20151231_alphabet_10K.pdf

While it allows ad blocking extensions to its Chrome browser, Google outlawed ad blockers from its Google Play app store in 2013. This makes it very difficult for every 4 out the 5 smartphone users (which incidentally use the Android operating system) to take advantage of ad blockers. This could be an anti-trust violation. It's no surprise that consumers welcomed Apple's incorporation of ad blocking functionality in its iOS9 operating system.³⁶⁸

Mobile advertising is now on track to consume 70% of all online ad revenues,³⁶⁹ and the explosion of digital advertising is exacerbating differences in tax policy and reducing the amount that corporations pay in tax. For example, American ad servers base their European operators in the UK and Ireland where they can enjoy a favorable tax rate while delivering services across the EU.³⁷⁰ Meanwhile local ad competitors have to pay (higher) taxes in the country where they are based.

This current paradigm of internet advertising is based upon a keyword bid and pay-per-click model. This model is very granular, enabling relevant ads to appear next to highly specific search queries, but it requires a high level of skill and budget by experts to be successful. This model has the advantage of offering highly tailored and targeted transactions between users and advertisers, and advertisers and platforms. But this same technology also engenders a sense of "creepiness", that the technology is extremely intrusive and granular.

As the FTC describes, "Effective competition is about price, selection, and service."³⁷¹ If we look at the market for internet advertising, this is not the case today. Advertisers face increasing bid prices for keywords,³⁷² and the selection of ad serving platforms are limited;³⁷³ Google has a poor reputation for customer service, apart from its very

368 https://developer.apple.com/library/prerelease/content/releasenotes/General/WhatsNewInSafari/Articles/Safari_9_0.html

369 <http://www.smartinsights.com/mobile-marketing/mobile-marketing-analytics/mobile-marketing-statistics/>

370 <http://www.reuters.com/article/us-google-tax-idUSKCN0V5IGP>

371 "Competition Counts" US Federal Trade Commission, Accessed May 27, 2016, <https://www.ftc.gov/sites/default/files/attachments/competition-counts/zgen01.pdf>

372 Mark Ballard, "AdWords Brand CPCs Rising? Here's Why And What You Can Do About It" *Search Engine Land* (2015) <http://searchengineland.com/adwords-brand-cpcs-rising-heres-can-225648>

373 Described in the next section

best advertisers.³⁷⁴ Though Google has made an effort to improve to win small and medium sized customers,³⁷⁵ the vast majority of its revenue come from the largest companies in a few verticals.³⁷⁶ Having little to no competitors, Google is able to increase bid prices significantly above marginal cost. Having more and different ad providers in the marketplace along with new ad delivery models would change some of these dynamics.

The online advertising market has also become highly concentrated through numerous mergers and acquisitions in the ad tech industry, as well as the massive shift of advertising spending from offline to online. The reality is that much of the technology running in the background is owned and operated by just a few large entities. The Google content network is a perfect illustration. It is a platform technology underpinning millions of websites and news outlets. To be sure, the ability to serve a tracked ad across millions of digital destinations is beneficial for advertisers, but this scale is also a concern for privacy advocates.³⁷⁷

It does not appear that the trend will change soon. The IAB also notes that Internet advertising has grown more than any other advertising channel in the last 21 years.³⁷⁸ Their report shows that the largest ad platforms are getting more concentrated. The top 10 ad-selling companies commanded 75% of revenues in Q4 2015, an increase of the prior year. With the top 11-25 ad sellers losing market share over the same period, now down to 9 percent. The IAB notes, “Despite the emergence of a few heavyweights in internet advertising publishing, the concentration of top-10 revenue has remained relatively unchanged over the past ten years, fluctuating between 69% and 75%.”³⁷⁹

While many cheered the banning of differential pricing in India, the ruling has the perverse effect of enshrining a Google advertising

374 Allen Cheung, Comment on “Why is Google so abysmally bad at human-based customer service?” *Quora* August 26, 2010, <https://www.quora.com/Why-is-Google-so-abysmally-bad-at-human-based-customer-service>, <http://searchengineland.com/why-does-the-smartest-company-in-the-world-have-the-dumbest-customer-service-139356>

375 Micah Solomon, “Google Customer Service Steps Into The Spotlight” *Forbes* (2014) <http://www.forbes.com/sites/micahsolomon/2014/05/05/google/#255f3162621f>

376 <http://www.wordstream.com/articles/google-earnings>

377 “Online Tracking and Behavioral Profiling” Electronic Privacy Information Center, Accessed May 27, 2016, https://epic.org/privacy/consumer/online_tracking_and_behavioral.html

378 “IAB internet advertising revenue report” PricewaterhouseCoopers, April 2016, <http://www.iab.com/wp-content/uploads/2016/04/IAB-Internet-Advertising-Revenue-Report-FY-2015.pdf>

379 *Ibid.*

monopoly. Leading mobile industry analyst Richard Windsor declares of the India, “game may already be over for the home grown alternatives.”³⁸⁰ Further, eMarketer has reported³⁸¹ the dominance of Google in both a US and global perspective:

This year, eMarketer predicts, 30.9% of net digital ad revenues will go to Google. Facebook will be in second place with 12.0%. Google’s lead is even stronger as a share of worldwide net search ad revenues, at 55.2%. Google also takes in a third of all mobile internet ad revenues in the world, and mobile is helping to power the company’s overall ad revenue growth rate. This year, for example, Google’s net worldwide mobile internet ad revenues are expected to rise more than four times as fast as its ad revenues overall. By 2018, mobile ad streams will still be growing nearly twice as quickly as the total.

YouTube also figures significantly in Google’s worldwide ad revenue growth. Net ad revenues at the video site were up 40.6% last year, and will continue to grow by 21.1% this year — more than twice the overall growth rate for ad revenues at Google. YouTube revenues are growing more quickly in the US than elsewhere in the world, and are accounting for a larger share of Google’s ad revenue stream there each year. This year, eMarketer forecasts, YouTube will continue 10.8% of Google’s net US ad revenues, up from 9.1% last year. By 2018, the end of our forecast period, that share will rise to 12.4%.

A look at Google’s 2015 annual financial report³⁸² is telling. Google earned \$45 billion in 2014 and \$52 billion in 2015, strictly from its website advertising. (3) Additionally, Google posted revenues of \$14.5 billion in 2014 and \$15 billion in 2015 from Google Member Networks website advertising. It is not just the revenue and market share of Google that is a concern, but rather its ubiquity. Google’s share of presence on the top 100 websites has increased from 74

³⁸⁰ Radio Free Mobile (2016) Blog: <http://www.radiofreemobile.com/google-vs-facebook-almost-the-final-frontier/> and <http://www.radiofreemobile.com/google-from-russia-with-love-pt-ii/>

³⁸¹ “Google Ad Revenue Growth to Drop to Single Digits This Year” eMarketer, April 20, 2016. <http://www.emarketer.com/Article/Google-Ad-Revenue-Growth-Drop-Single-Digits-This-Year/1013853>

³⁸² <https://abc.xyz/investor/>

in 2012 to 92 in 2015.³⁸³ Google tracking is present on 92 of the top 100 most popular websites, and on 923 of the top 1,000 websites.³⁸⁴

The Google domination story continues beyond online advertising. According to ComScore, Google's Android operating system commands 53% of the worldwide mobile market³⁸⁵ and Google Search, 64% of desktop search.³⁸⁶ Google's Chrome web browser accounted for 56.75% of all browser usage³⁸⁷, and Gmail scores with 56.4% of US websites using mail technology.³⁸⁸ An assiduous accounting of Google's search engine, operating system, browser, and 193 products, services and tools has been described as a Google "Inner-net" regime.³⁸⁹

A related issue is the degree to which many small and startup companies struggle to achieve advertising success with Google. Many small and medium-sized advertisers frequently don't participate because it is too expensive and complex, and their businesses lack the scale to take advantage of such platform technology. Findability in the search engine requires extensive budget not just for paid search but the murky world of search engine optimization (SEO)³⁹⁰ and app store optimization (ASO). Companies frequently hire consultants and agencies for such a task. However, Google can make a change to its algorithm, resulting in traffic and rank disappearing overnight. There is a tremendous need for a more transparent, predictable experience for small and medium-sized advertisers.

In addition, Google gives preference to websites which already have more traffic, so this has the perverse effect of strengthening the destinations that are already strong.³⁹¹ Google's CFO Patrick

383 Ibrahim Altaweel and Nathaniel Wood, "Web Privacy Census v 3.0" (Presented at PrivacyCon, Washington D.C., January 14, 2016) https://www.ftc.gov/system/files/documents/public_events/776191/part_1_privacycon_slides.pdf

384 *Ibid.*

385 Elizabeth Weise and Edward Baig, "Apple, Android, BlackBerry phones: What can't be hacked?" *USA Today* (2016) <http://www.usatoday.com/story/tech/news/2016/02/26/apple-android-blackberry-phones-what-cant-hacked/80935692/>

386 "comScore Releases August 2015 U.S. Desktop Search Engine Rankings" comScore, September 16, 2015, <http://www.comscore.com/Insights/Market-Rankings/comScore-Releases-August-2015-U.S.-Desktop-Search-Engine-Rankings>

387 "Global Stats" StatCounter, Accessed May 27, 2016, <http://gs.statcounter.com/>

388 "Email Providers market share in United States" Datanyze, Accessed May 27, 2016, <https://www.datanyze.com/market-share/email-providers/United%20States>

389 <http://www.precursorblog.com/?q=content/search-android-chrome-google%E2%80%99s-gatekeeper-inner-net-regime>

390 <http://blog.andreas.com/index.php/seo-for-small-business/#more-2239>

391 Andreas Ramos, "Can We Just Build It and They Will Come?" *andreas.com* (2015), <http://blog.andreas.com/?s=build+it>

Pichette made a joke at an investors event about “feeding the winners and starving the losers” with regard to business lines within Google,³⁹² but this idea also applies to the company’s advertisers. Those advertisers that do well are rewarded; those that don’t, are punished. In practice a large number of advertisers try and leave Google, but there are few options for other advertising platforms that deliver similar scale and reach.

This problem will only be exacerbated by recent changes Google has made to its platform.³⁹³ Beginning in February 2016, Google phased out the traditional list of ads on the right side of the page. Instead, Google now puts only a couple of ads at the top of the page which look similar to “natural” search results. Users click on the ads, frequently not knowing they are ads.

The right side of the page is used for Knowledge Graph results which provide the most authoritative informative result for the search query (frequently a Wikipedia entry), and for Product Listing Ads, which are generally consumer products from well-known brands and companies. These changes have the impact of increasing competition for bids, which increases the bid price and Google’s revenue. It also forces out the small advertisers, those which can’t afford higher bids and don’t have the time or skills to operate the complex AdWords engine. To its credit, Google now offers an automated version of its ad engine for small business, but at least one agency advises against using the platform, citing that the benefits of the platform don’t scale down.³⁹⁴

A number of academics have documented their concerns about Google from a user perspective,³⁹⁵ but in spite of the overwhelming

392 Own Thomas, “Google CEO hints at future: “Starve the losers”” *Gawker* (2008) <http://gawker.com/5064903/google-cfo-hints-at-future-starve-the-losers>

393 Andreas Ramos, “No More Right Side Ads at Google,” *www.Andreas.com*, *No More Right Side Ads at Google*, (February 16, 2016), <http://blog.andreas.com/index.php/no-more-right-side-ads/>. *andreas.com* (2016) <http://blog.andreas.com/index.php/no-more-right-side-ads/>

394 Andrew Lolk, “Does AdWords Express Sabotage Small Business Owners Before They Even Get Started?” *White Shark Media* (2016) <http://blog.whitesharkmedia.com/adwords-express-sabotages-small-business-owners>

395 See: Chris Hoofnagle, “Beyond Google and evil” *First Monday* (2009) <http://firstmonday.org/article/view/2326/2156>, Joseph Turow, *Media Today: Mass Communication in a Converging World* (Routledge, 2013), Serge Egelman, “Android Permissions Remystified: A Field Study on Contextual Integrity” (Presented at PrivacyCon, Washington D.C., January 14, 2016) https://www.ftc.gov/system/files/documents/public_events/776191/part_2_privacycon_slides.pdf, Siva Vaidhyanathan, *The Googlization of Everything and Why You Should Worry* (University of California Press, 2012)

evidence of its market power, there has been little successful antitrust action against the company. The European Union has tried unsuccessfully for a decade,³⁹⁶ but Google's market share has increased consistently. In fact, Google enjoys significantly greater market share in the EU than the US.³⁹⁷ In the US the revolving door between Google and the Obama administration is an open secret,³⁹⁸ a relationship that has supported the company on many policy issues including Open Internet, WCIT-12, and importantly, a cancelled antitrust probe by the Federal Trade Commission.³⁹⁹

10.3 Arguments against ad blocking

While ad blocking may be an effective solution to avoiding unwanted ads, it is not altogether ideal. One downside of effect of the use of ad blockers is it increases the cost and tracking on users who don't block ads.

If the online advertising was competitive however, there would likely be more innovation in business models, better design of advertising, and more user-centric alternatives. Following are the arguments against ad blocking.

10.3.1 Free Speech

Advertising is a form of communication to help promote goods and services. Without it, there would be less content and commerce. Advertising in the US, provided that it is not false or misleading, is protected under the First Amendment of the Constitution.⁴⁰⁰ The view of corporations and advertisers having speech rights is under continued debate. The nonprofit Reclaim Democracy has pointed out that "granting corporations the status of legal 'persons' effectively rewrites legislation to serve corporate interests as though they were human interests."⁴⁰¹ The "corporation is a person" argument which bolstered the negative rights approach with the infamous Citizen United Supreme Court case, affirmed "money is speech", and government regulation

396 <http://www.politico.eu/article/margrethe-vestager-vs-google-round-3-antitrust-battle-search-mobile-and-advertising/>

397 <http://www.businessinsider.com/heres-how-dominant-google-is-in-europe-2014-11?r=US&IR=T&IR=T>

398 <https://googletransparencyproject.org/>

399 <https://theintercept.com/2016/04/22/googles-remarkably-close-relationship-with-the-obama-white-house-in-two-charts/>

400 <http://www.firstamendmentcenter.org/advertising-first-amendment-overview>

401 <http://reclaimdemocracy.org/>

cannot restrict it.⁴⁰² Given that broadband networks are now regulated as communication networks under Title II of the Communications Act, it's not clear that First Amendment protections will apply to stop ad blocking. While broadband providers are considered common carriers and they must deliver communications, they need not do it for free. In *U.S. Postal Serv. v. Council of Greenburgh Civic Associations* (1981), the court found that it was not incumbent on the postal service to deliver mail without postage.⁴⁰³ Noting that the “soap box is not the letter box”, government-regulated communications networks do not have traditional free speech obligations, and operators could argue that they need not deliver communications for which they are not compensated.

10.3.2 Piracy

One suggestion is that ad blocking is a form of piracy,⁴⁰⁴ stealing content without paying for it. Indeed, from the content provider's perspective, the content and the ad may be a single integrated product. However that there is contract for this exchange with the end user is not necessarily obvious or evident. A person may click on a link to a news article, and ad tracking is automatically triggered even without the user consuming the content or application. Given that a content provider could offer the user an opportunity to pay for the content (but chooses not to), it's not clear that this is a piracy violation.

There was wide support from the Net Neutrality community against the Stop Online Piracy Act (SOPA) and Protect IP Act (PIPA) which would have criminalized piracy.⁴⁰⁵ It would seem that ad blocking would be a tool wielded by free culture lovers.⁴⁰⁶ But regardless of one's view on piracy, the emergence of streaming has helped the distribution of copyrighted content and lessened piracy.⁴⁰⁷

10.3.3 Need to cover the cost of content

Another argument against ad blockers is that without advertising there would be no content, or rather there would be significantly less content. But on the other hand, the content provider selects

402 *Supra* Goodman

403 <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2831&context=nlr>

404 <http://adexchanger.com/data-driven-thinking/ad-blocking-theft-or-fair-use/>

405 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2563761

406 <http://www.free-culture.cc/freeculture.pdf>

407 http://dmnricks.wpengine.com/wp-content/uploads/2015/10/EU_JRC_Study_Spotify.pdf

the means of monetization. Content providers use a variety of monetization models: advertising, subscriptions, micro-transactions, sponsorships, or cross-subsidies from separate businesses. There is no doubt that content providers need to cover their costs, but it does not follow that end users must view their advertising and that blockers should be prohibited.

In response to ad blockers, some content providers have taken to educating users about the role of advertisements. Some have started to develop a set of curated, preferred ads which will not offend users, or to allow users to select a list of approved advertisers. The provider and user benefits are clear: better knowledge and appreciation about the role of advertising, a better selection of advertisers, and increased engagement with preferred advertisers.

Given the sheer volume of advertising traffic, it begs the question why regulators, who purport to want transparency, haven't required the creation of a network category called advertising. It could then be categorized in a class and assigned as set of acceptable traffic management practices which the user could then direct. Indeed, such regulations have been part of broadcasting to ensure the protection of the "public interest" and "media pluralism".

Digital technologies have unleashed creative destruction in the ad industry. While traditional newspaper advertising is dead, new forms have more reach and revenue those of the past. Craigslist and online bulletin boards poached traditional classified ads.⁴⁰⁸ Google changed the game for advertising on radio, television, and print. Ad blocking is a minor development compared to what the Internet itself has done. Ad platforms should be grateful for the opportunity to innovate.

In the analog era, users were accustomed to advertising as a means to support media via radio, television, and print. Advertising allowed content to flourish as users did not have to pay to access content, the way they do now with a broadband subscription. Consumers' familiarity with advertising likely played a role with their ease to pick up digital services. Without advertising, companies such as Google, Facebook, Yahoo, LinkedIn, Twitter and so on would not exist, at least as we know them today.

Advertising has been part and parcel of Internet companies, including DoubleClick, AdWords, Yahoo, Flurry, MoPub (Twitter);

⁴⁰⁸ <http://www.forbes.com/sites/jeffbercovici/2013/08/14/sorry-craig-study-finds-craigslist-cost-newspapers-5-billion/#12f232b77bc4>

StartApp, Bing, MiliennialMedia, and others. That these ad platforms face competitive forces is part of the “Darwinian evolution” that Tim Wu described in his seminal article on network neutrality.⁴⁰⁹

The point for policymakers is to review the lessons and support the policies that best maximize users’ outcomes. The following section reviews some solutions.

10.4 Solutions

As mentioned, ad blocking is not necessarily an optimal solution for unwanted ads, but it serves an immediate and an important goal to protect end users’ rights, which given current circumstances, have limited remedies. Ad blocking also communicates to content providers and advertisers the importance of improving their ad delivery, design, and offer. At the same time, banning ad blockers is not the right solution either. The situation is one which a number of positive outcomes could evolve if allowed.

10.4.1 Better ad design

Estimates vary to the cost of ad blocking to advertisers,⁴¹⁰ but smart advertisers and content application providers see ad blocking as an opportunity to improve the user experience, make advertising more relevant, and/or reduce the tracking parameters. There is a major opportunity to improve the design of advertising so that it takes less data, is more secure, and is more private. Advertisers and content providers need to do a better job to demonstrate their value to end users and earn their trust. Many providers, including news outlets have started to transition to full and partial fee-based models. The benefit of course is closer relationship with users, a new appreciation from customers about the value of the product (hence agreement to pay), and improved advertising with preferred advertisers.

10.4.2 Ad management tools

Ad management tools such as Ghostery have been available for years, helping millions manage their online experience. Such tools expose the various tracking tools running on the website and empower the user to make decisions about whether to engage with the content or application. Ghostery’s research gleaned from billions of online experiences shows that users’ preferences change minute to minute

409 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=388863

410 <http://digiday.com/publishers/uh-oh-ad-blocking-forecast-cost-35-billion-2020/>

depending on the site visited, the user's goal, and the user's desire for security and speed.⁴¹¹ Contextual based privacy controls which allow the user to set which sites can collect information and which can be synced across devices, browsers, and apps at the network level would be a winning innovation.

Innovation can in fact deliver better advertising solutions, more privacy, and more security. There is important research and development in privacy in the areas of communication anonymizers, limited disclosure technologies, virtual identities, anonymizing credentials, and data access management. One example of a privacy by design technology is the Privacy Butler⁴¹², an automated service that can monitor a person's online presence and attempt to make corrections based on policies specified by the owner of the presence. Similarly, with online visualization tools detailing where their data goes, users can understand and better manage their personal data. Such a solution can also help Internet entities better explain and engage users in how and why data is needed. The new privacy economy paradigm offers tools and processes that introduce a possibility of assigning value for a privacy exchange, wherein users could be financially compensated to share their information.⁴¹³

10.4.3 Compensating the user

A focus on the end-user would likely create a shift in the current Net Neutrality policy framework which unduly favors edge providers and content application providers. For example, many content and platform providers are willing to make some content available for free without any fee. In the same way that televisions aired public service announcements, broadband providers can provide certain public benefit content at no cost the end user (and without charging a fee to the content provider). Many e-government and social services should be free (or zero rated), if not underwritten by the companies themselves, government, non-profit foundations etc.⁴¹⁴

⁴¹¹ Supra Ghostery

⁴¹² Ryan Wishart, Domenico Corapi, Anil Madhavapeddy, and Morris Sloman, "Privacy Butler: A personal privacy rights manager for online presence" (2010) <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.184.3721>

⁴¹³ [http://vbn.aau.dk/en/persons/samant-khajuria\(5949159a-9dd1-42bc-8a4f-32a15405f7ef\)/publications.html](http://vbn.aau.dk/en/persons/samant-khajuria(5949159a-9dd1-42bc-8a4f-32a15405f7ef)/publications.html) <http://wayf.dk/>

⁴¹⁴ See Layton Calderwood (2016) in how Vodacom South Africa developed a zero rated platform for AIDS prevention and treatment when the government refused to acknowledge the problem, as called "AIDS denial."

If the goal is for the advertiser to reach end user, then it makes sense to contract with the end user directly, or at least to give the end user a more valued incentive than an advertisement which gobbles her data and tracks her whereabouts. This is why advertisers should fund broadband access, and/or subsidize end users.

In the US, advertising was embraced as a means to fund radio, television and print so that end users did not have to. Users themselves weren't tracked, but independent companies such as Nielsen ran statistical projections as to the uptake of programs. This model had benefits for end users, content providers (studios and newspapers), and advertisers.

It would seem that advertising should be embraced to subsidize the broadband subscription themselves, indeed as people use the Internet as a substitute for the radio, television, and newspaper. Moreover, users complain about high prices, and such a program would materially benefit end users. But oddly, Net Neutrality deters the ability of rich advertisers to support end users financially by lowering the cost of their broadband subscription through zero rated and sponsored data. Users desire free data and have petitioned the FCC to keep it free. For example, the Minority Media Telecom Council notes, "The digital elite can afford to intellectualize the value of free data, but for communities of color it can mean an affordable digital connection to the future. This is even more true for small, multicultural businesses that rely on mobile connections to reach their audiences."⁴¹⁵

A frequent Net Neutrality critique is that the broadband provider will charge a usurious fee, but the truth is that we don't really know, as there is no substantive evidence as such models have not been deployed at scale. On the other hand, if the broadband provider wants a viable business, it needs to charge a competitive fee to support the adoption of its service. Generally, business-to-business providers want to maximize their number of customers, so they are incentivized to price competitively.

Another critique is that such offers would harm the neutral character of the Internet. But legal scholar BJ Ard notes in an assiduous review of leading Net Neutrality scholars van Schewick, Nunziato, Frischmann, Lemley, Lessig, and Zittrain, "Network neutrality is not about neutrality for its own sake but about advancing consumer

415 http://mmtconline.org/WhitePapers/MMTC_Zero_Rating_Impact_on_Consumers_May2016.pdf

choice and welfare, innovation in the development of new services, and democratic participation in the public sphere. Scholars may disagree about which of these factors to prioritize, but these goals share a common thread: each seeks to facilitate diverse contributions from the Internet's global audience in order to maximize the network's benefits for all its participants."⁴¹⁶ It's hard to reason how doing things to help the end user are not in line with Net Neutrality.

Should consumers spend less expenditure on broadband, they would have more money to spend on over the top video services, such as Netflix and its competitors. Alternatively, they could spend their savings on local theatre, live performances etc. Moreover, should consumers take up such models in mobile broadband, it would provide credible competition for wireline providers and further pressure prices down.

Advertisers could connect with end users directly. Advertisers could offer redeemable subscription coupons to end users to visit the content of their choice. Apps that reward users for their data consumption have been deployed. Similarly, advertisers could sponsor specific content. However, the metering and reimbursement from data could take place at numerous points in the value chain. An edge provider could also offer a solution in which data consumed is metered and then the user is reimbursed in points which she could use to reduce subscription costs or to consume products and services. Thomas Sachson describes various alternatives to ad blocking and has a specific solution, his patented technology for toll-free apps.⁴¹⁷ Such a solution is similar to airline miles or loyalty programs to which users are familiar.

The benefits of more competition in online advertising for consumers are numerous. For one, having choice in the marketplace is the optimal way for consumers to decide whether and how to consume online advertising and the services it subsidizes. The binary model of free services via sponsored content (Google), or the fee-based solution (user subscription or fee), is limiting. Consumers should have a third way; they should receive the tangible benefit of having a monetary reimbursement either as a rebate (lowered cost) to the broadband bill in exchange for consuming content or sharing personal data. As such, Zero Rating and sponsored data address provide this solution directly. Alternatively, consumers could also pay to receive advertising from preferred providers, depending on the content quality.

⁴¹⁶ <http://digitalcommons.law.umaryland.edu/cgi/viewcontent.cgi?article=3719&context=mlr>

⁴¹⁷ <https://www.linkedin.com/pulse/how-toll-free-zero-rated-apps-can-solve-mobile-ad-blocking-sachson?trk=prof-post>

The development of such models are not only in the interest of users, but of the small and medium sized advertisers. Eli Noam has conducted the longest-running measurement of growing media concentration.⁴¹⁸ The growing concentration of platforms is also evident in Internet traffic measures. In many countries the downloads and traffic of local made apps and content accounts for less than 1 percent of all activity.⁴¹⁹ As such, sponsored data and Zero Rating may be most beneficial for small providers and advertisers, which don't require the sophisticated ad bidding expertise employed by large companies and agencies. Advertisers can get started for as little as \$100 whereas for a campaign to achieve scale in Google search, in which minimum monthly budgets of \$50,000 are typically required.

10.5 Concerns: Edge provider centrism

The purpose of Net Neutrality is not to create rules for their own sake but for the “generative” capabilities they are to enable on Internet.⁴²⁰ It is troubling that BEREC which purports to stand for users, comes down so hard on users' attempts to practice digital self-defense, to lower their broadband costs, and to experiment with different kinds of offers. This is evidenced in BEREC's Net Neutrality guidelines in which content application providers have been elevated as “end users.”⁴²¹ The impact of which already appears evidence in that BEREC has weighted the profitability of the ad industry over the choice, privacy and safety of human users.

To be sure, some edge providers may be individuals with their own blogs and websites, and the language may be a bona fide effort to protect them, but a close analysis suggests otherwise. Of the 14 official stakeholders in BEREC's consultation for Net Neutrality guidelines, seven had Google either as a member or significant funder.⁴²² Google was represented in 3 of the 4 civil society organizations. It is telling that the Google-funded SavetheInternet.eu which orchestrated the bulk of the clicks to BEREC cheered

418 <https://global.oup.com/academic/product/who-owns-the-worlds-media-9780199987238?cc=dk&lang=en&>

419 See Layton 2016

420 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=847124

421 http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

422 The information was obtained in an email from BEREC on July 8. 2016

“Internet wins”⁴²³ on its website, not “users win.” It seems that some users may be more valuable than others.

Noted free speech scholar Ellen P. Goodman calls this phenomenon “edge provider centrism”⁴²⁴ and describes it as follows,

Broadband access at both edges of the network implicate user speech rights in a very direct way. By focusing on edge provider speech rights, the Net Neutrality movement has marginalized the speech interests of individuals at the other edge of the network. Of course these users have speech interests as “listeners,” derivative of the speech rights of edge providers. But they also have speech interests as speakers, and these are advanced by robust and affordable broadband access at the user end. The end-to-end theory at the center of Net Neutrality advocacy of course recognizes the importance of user participation in Internet speech circulation. However, the policy focus on edge provider neutrality compromises user speech interests where they may conflict with edge provider speech interests.

Excessive concentration on edge provider equality and free speech interests tend to neglect user community inequality and free speech constraints. User interests are not purely derivative of edge provider interests. While neutral treatment of edge providers benefits users, so does free data. The utility of free data for consumers might well outweigh the disutility for certain classes of edge providers, at least in the short term.

Banning network level ad blocking is at best, arbitrary, and at worst, cronyism. It is clearly accepted that ISPs block malware and spam. Hundreds of millions of users have downloaded ad blockers. That these solutions are now available through ISPs is a response to consumer demand and a logical extension of users’ rights and their desire to protect privacy, reduce cost, ensure security, and improve usability. That BERC bans ad blocking is clear favoritism of edge providers over human users. It is a troubling development and is not neutrality.

423 <https://savetheinternet.eu/en/#info>

424 <http://riipl.rutgers.edu/wp-content/uploads/goodman-Zero Rating-draft-1.pdf>

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11 Mexican ISP Practices Contrary to the Network Neutrality principle under the New Telecommunications Legislation

by Carlos Brito

This text is a brief translated version of an original report published in Mexico (August, 2015) by R3D called “Neutralidad de la red en México, del dicho al hecho. Informe sobre prácticas contrarias a la neutralidad de la red ejercidas por proveedores de servicio de Internet en México, 2015”. *A report about local ISPs practices contrary to the network neutrality principle.*

11.1 Net Neutrality in law

The principle of network neutrality (or Net Neutrality) was coined originally by Tim Wu and can be described as a series of policies oriented to the creation of a non-discrimination regime from Internet Service Providers (ISP) over online applications, contents, and services (OACS) in order to maintain a merit-based competition and avoiding unwanted conditioning or gatekeeping on within the digital market. This form of competition guarantees a constant process of innovation (Wu would call it “darwinian”), where OASCs survive, disappear or change according to the pulse of demand and under the assumption of the easy entry for competitors and new or different discourses.⁴²⁵ Net Neutrality is also related to the exercise of fundamental rights, especially freedom of expression⁴²⁶, due to the possibility of ISP conditioning or unduly limiting the access to information, assembly, social media or communication tools in order to fulfill a political or commercial agenda.⁴²⁷

425 According to Wu (2003:145-146), “Speaking very generally, adherents view the innovation process as a survival-of-the-fittest competition among developers of new technologies (...) A communications network like the Internet can be seen as a platform for a competition among application developers (...) It is therefore important that the platform be neutral to ensure the competition remains meritocratic.”

426 Net Neutrality is “a necessary condition to the exercise of freedom of expression on the Internet in the terms of the Article 13 of the American Convention on Human Rights” (IACHR, 2013:11).

427 According to the Joint Declaration on Freedom of Expression and the Internet (2011:3), “there should be no discrimination in the treatment of Internet data and traffic, based on the device, content, author, origin and/or destination of the content, service or application” and “Internet intermediaries should be required to be transparent about any traffic or information management practices they employ, and relevant information on such practices should be made available in a form that is accessible to all stakeholders.”

Mexico has a regulatory framework unique in the world. It contemplates a sectorial regulator agent with a broad set of faculties, obligations, capacities, and powers⁴²⁸ as a result of a 2013 telecommunications and competition constitutional reform. It stands as the guarantor body of several rights exercised through telecommunications and broadcasting – among them, the right of access to information and communication technologies including Internet and broadband⁴²⁹. Such constitutional framework obliges the Mexican State to consider definitions and treatments of its regulatory policies within the respect and fulfillment of its obligations in human rights protection, both derived from its local legislations and international agreements.

In August 2014, the new Telecommunications and Broadcasting Federal Law (in Spanish: *Ley Federal de Telecomunicaciones y Radiodifusión*, LFTR)⁴³⁰ took effect. Article 145 orders the Federal Telecommunications Institute (in Spanish: *Instituto Federal de Telecomunicaciones*) to issue rules regarding Net Neutrality following a set of principles described in this law. Those rules should respect the principles of free choice, non-discrimination, transparency and privacy. Besides, article 146⁴³¹ obliges ISPs to respect the terms of contracting with their users despite the origin, content, device or application, and within the terms of the previous article.

The process for issuing the rules provided by the article 145 in the LFTR began in early 2015 with the publication of the IFT's *Annual Work Program* (in Spanish: Programa Anual de Trabajo, PAT)⁴³². This plan requires a previous public consultation, and establishes August 2016 as expected date for its realization.⁴³³

428 Described in article 28 of the Mexican constitution.

429 This right is recognized by Mexican constitution in its article 6 since 2013.

430 Retrieved 28 July 2016, from: http://dof.gob.mx/nota_detalle.php?codigo=5352323&fecha=14/07/2014

431 "Article 146. The licensees and the authorized shall offer the Internet access service with respecting the capacity, speed and quality agreed by the user with independence of the content, origin, destiny, terminal or application, in order with the previous article.", Telecommunications and Broadcasting Federal Law.

432 Retrieved 28 July 2016, from: <http://cgpe.ift.org.mx/PAT2016/>

433 Such dates were not met and a new one has been issued for August 2016 to begin the public consultation and expecting to have the rules published by December of the same year.

11.2 ISPs' public positions on Net Neutrality

There are some concrete evidence illustrating the views of the Mexican ISPs with regard to Net Neutrality. The National Telecommunications Association (ANATEL⁴³⁴) gathers the public policy analysis and lobbying activities for the main mobile operators in the country: Telcel, Iusacell, Nextel⁴³⁵ and Telefónica. ANATEL has issued public positions against different Net Neutrality policies: the main one was published right after the approval of the Constitutional Telecommunications Reform of 2013. In this position, ANATEL interprets that the recent changes to article 6 should be interpreted in the law as the following: users have the right to access to ISPs services without discrimination, but simultaneously, the ISPs hold the right to manage the network's traffic.

ANATEL defines this "traffic management" as "the management realized by the network's licensees in order to ensure the integrity of the network, the quality of the service, and to allow the differentiation of the Internet access services, adapting them to the user's needs, subject to the guarantees of transparency and no-realization of anticompetitive practices". This language used by ANATEL on its vision towards Net Neutrality (although not using explicitly the term) has been repeatedly interpreted and used by the Telefonica Movistar's representatives during the Mexican Internet Governance Dialogues, both in 2013⁴³⁶ and 2015⁴³⁷ editions.

11.3 ISP market share and service concentration

The Mexican ISPs market share is marked by extreme concentration, just like the telecommunications sector. According to the regulators figures⁴³⁸ Grupo Carso's Telmex holds (through its *Infinitum* service) 71% of the fixed telephony service with potential for fixed Internet connection. While there is no public information about the exact number of users of Telmex telephony service that also use *Infinitum*, the official figure for Telmex is 60.2% of the fixed broadband market.

434 Asociación Nacional de Telecomunicaciones

435 Iusacell and Nextel by 2016 are now integrated as AT&T. The new operator is still member of ANATEL.

436 Panel on "Neutralidad de la Red e Interoperabilidad." Diálogos para la Gobernanza de Internet 2013. <https://www.youtube.com/watch?v=oZRsFLJebO4>

437 Panel on "Neutralidad de la Red." Diálogos para la Gobernanza de Internet 2015. <https://www.youtube.com/watch?v=UIZYfqFBiuU>

438 Federal Telecommunications Institute, (2015). Statistic Report Third Trimester of 2014. Available at: <http://www.ift.org.mx/sites/default/files/contenidogeneral/comunicacion-y-medios/informe3ertrimestre2014.pdf>

In 86% of the 2,438 municipalities of Mexico, Grupo Televisa holds substantial power (dominance) in the cable television market. This element is key or Internet access offer via *triple-play*. 24.8% of this market is composed by Televisa's companies that also offer Internet access services, representing in sum 15.5% of the fixed broadband market. After Televisa, the only relevant agent in the national panorama is Megacable, with 8.6% of the market.

In Mexico, there are 43.3 mobile broadband subscribers for each 100 inhabitants, while in mobile telephony users, this figure elevates to 85.4 out of 100. This gap has rapidly decreased in recent years: in early 2013, there were just 24.4 mobile broadband subscribers for each 100. This trend suggests that both figures will be equivalent or interdependent in future years.

While Telcel is the principal agent in this market –due to the high concentration of its mobile services–, the recent changes in the sector promoted by the Constitutional Telecommunications Reform suggest that the distance between the runner-up (Telefonica) and Telcel will be significantly reduced in a few years. Besides, the purchase of Iusacell and Nextel by AT&T will include the US operator in this process.

11.4 Findings of this report

This report evaluated nine ISPs (Telmex, Izzi (Cablevisión), Axtel, Megacable, Cablemás, Iusacell, Nextel, Telcel y Telefónica), according to the following criteria: a) Zero Rating or tiering practices; b) throttling practices; c) deliberated blocking content practices; d) deep packet inspection practices; e) transparent and accessible traffic management policies.

One of the main finding of our report is that ISPs in Mexico already feature commercial offers that affect the principles of Net Neutrality. Despite the Telecommunications and Broadcasting Federal Law and the Constitutional dispositions, ISPs offer preferential access, be it free or partially free, to certain contents, applications or services (more often in the form of “free social media packages”). This type of commercial promotion is generally known as “**Zero Rating**”.

While several countries have been permissive of Zero Rating policies⁴³⁹ there are a few examples of regulation and or banning.

⁴³⁹ For a broader summary of the legal rulings, read: http://traf.gov.in/Comments_Data/Others/Yoo.pdf

In July 13, 2010, the Chilean parliament modified the General Telecommunications Law, introducing three amendments to the article 24 that established the principle of Net Neutrality. Under these rules, on 27 May 2014, the Chilean Telecommunications Undersecretary Office (SUBTEL⁴⁴⁰) decided to ban the offering⁴⁴¹ of “free social networks”.

Despite the Net Neutrality debate is still open in the European Union, the Dutch parliament resolved in June 4, 2012, the approval of an amend to the article 7.4a of the Netherlands Telecommunication Law, consecrating the principle of Net Neutrality. The effects of this disposition are executed by the Dutch Consumers Authority (ACM), who in December 2014 penalized the ISP Vodafone and KPN⁴⁴² (in association with HBO) with a fine of 200.000 and 250.000 euros, respectively. Vodafone offered free Internet through hotspots, forbidding the access to certain applications and services; while KPN offer free access to the video-on-demand service HBO Go.

Henk Don⁴⁴³, director of the ACM, indicated that “ISP cannot decide what do the consumers do on the Internet (...) all data should be transmitted under the same circumstances. That is the idea beneath the Net Neutrality.” The organization European Digital Rights (EDRI) commented⁴⁴⁴ that “both regulations generated an immediate positive effect in the Dutch telecommunications market. Banning positive discrimination forces the ISP over general price and data volume. KPN recently announced that they will increase the data volume and will lower Internet access prices to «stimulate usage without worries».”

In November 20, 2013, Ben Klass and the organization OpenMedia. Ca complained to the Canadian telecommunications regulator (CRTC) arguing that ISPs Bell Mobility and Videotron zero rated their affiliated applications. The CRTC resolved that both ISP

440 Subsecretaría de Telecomunicaciones de Chile

441 Chilean Telecommunications Undersecretary Office (May 27, 2014). Ley de Neutralidad y Redes Sociales Gratis. <http://www.subtel.gob.cl/ley-de-neutralidad-y-redes-sociales-gratis/>

442 Autoriteit Consument & Markt, (2015). *Fines KPN and Vodafone for violating Net Neutrality rules*. Available at: <https://www.acm.nl/nl/publicaties/publicatie/13762/Boetes-KPN-en-Vodafone-voor-overtreden-regels-netneutraliteit/>

443 Idem

444 EDRI, (2015). Netherlands: Two telcos fined for Net Neutrality violations. Available at: <https://edri.org/netherlands-two-telcos-fined-for-net-neutrality-violations/>

practices violated the dispositions of subsection 27(2) of the Canadian Telecommunications Law by excluding from charge a set of video applications owned by the operators⁴⁴⁵.

In January 26, 2015, the Communications Networks and Services Agency of the Republic of Slovenia (AKOS) resolved that the ISPs Telekom Slovenia and Simobil violated the principle of Net Neutrality through commercial offerings based on Zero Rating and opposed to the Electronic Communications Law. Telekom Slovenia exercised vertical discrimination in favor of Deezer, a music content application; while Simobil did it in favor of Hangar Mapa, a service of cloud-based data storage⁴⁴⁶.

In Mexico, the Constitution recognizes that “telecommunications are public services of general interest, therefore the State should guarantee they are provided in conditions of competence, quality, plurality, universal coverage, interconnectivity, convergence, continuity, free access, and without arbitrary interference.” Article 145, indent II, indicates that “concessionaires and those authorized to provide Internet access services will refrain from obstruct, interfere, inspect, filter or discriminate contents, applications or services.” Also, article 145, indent V denotes that concessionaires and operators may take the necessary actions to manage the network, as long as those measures do not constitute a practice contrary to a healthy and free competition.

Commercial offers based on Zero Rating constitute a form of vertical and positive discrimination. This distortion of the applications market by the ISPs may infringe free competition and plurality, besides constituting an arbitrary interference over the traffic management. Furthermore, another issue raised within the Net Neutrality debates⁴⁴⁷ is that, Zero Rating may infringe the right to privacy, since ISPs use pervasive tools to monitor the traffic of their networks that include, among other techniques, deep packet inspection (DPI) through filtering-dedicated systems.

445 Update by the author. The case was appealed but turned down in 2016: <http://www.cbc.ca/news/business/bell-mobile-tv-crtc-appeal-1.3645060>

446 Update by the author. The ban was removed by a court in July 2016. Here is an analysis of the ruling by Roslyn Layton available at: <http://www.techpolicydaily.com/communications/slovenia-Zero-Rating-rule-law/>

447 Leman, S. (2009). Net Neutrality and Deep Packet Inspection: Discourse and Practice. Available at: https://www.priv.gc.ca/en/opc-actions-and-decisions/research/explore-privacy-research/2009/langlois_200903/

Zero Rating offerings have become normal in Mexico while there is pending regulation of the Net Neutrality law that may bring more certainty on the matter. The Federal Telecommunications Institute (IFT) has hinted at a position in favor of “free social networks” as a consumer benefit by introducing it in its comparative tool for consumer’s choice⁴⁴⁸. These commercial offerings are provided by different ISPs operating in the country.

For example, Telmex offers Zero Rating packages in its postpaid plans *Telcel Pro* and *Telcel Pro Mixto*, branded as “social media included”. These packages include Twitter, Facebook, and WhatsApp mobile applications. The Social Media Included Use Policy is a document where the ISP enlists a wide number of exceptions, i.e.: a) the access to www.facebook.com and www.whatsapp.com is included; b) while the upload and play of videos and photos is included, the policy excludes contents distributed on other platforms (YouTube, Vimeo, DailyMotion, Instagram, Vine, Retrica, et cetera) despite being accessed through Facebook or WhatsApp. These contents are charged according to the postpaid plan; c) the policy excludes URL redirections to external links such as newspaper articles, application downloads, online games, among others. Voice services and calls are also excluded.

Another ISP, Iusacell, offers a Zero Rating package in its *Iusacell PrePlan +Plus* postpaid plans, denominated as “unlimited social media”. Its website does not provide further details, except that the applications included are Facebook, Twitter and WhatsApp. Opposite to Telcel or Movistar, Iusacell does not have a specific document detailing the policy conditions. Voice services and video calls are also excluded.

Unlike other ISPs, Movistar does not offer Facebook, Twitter and WhatsApp in its postpaid plans, but as an additional service on its prepaid plans, allowing the purchase of packages with social media included. The package *Paquete Movistar Ilimitado* explicitly offers a 1GB “data stock for apps” dedicated to these three applications (and those associated to them) and e-mail services (Yahoo!mail, Gmail and Hotmail). Movistar’s website is not clear about the possible exceptions of those applications’ data consumption. The specificity of the e-mail client is also blurry because some illustrations or informative tables in the site use a generic e-mail icon, while others use the Gmail logo. Similar conditions are offered in other prepaid packages such as *Combo Internet 3 días*, *Combo Internet 7 días* or *Combo Internet 30 días*.

448 Federal Telecommunications Institute, (2006). Comparador de planes de telefonía móvil. Available at: <http://comparador.ift.org.mx/indexmovil.php>

Besides, *Blackberry Social* Movistar's plan is the only commercial Zero Rating based offer conditioned by the device. This plan offers, in addition to Facebook and Twitter, other applications such as Blackberry Mail, Blackberry Messenger, Yahoo Chat, Windows Live Messenger and MySpace. All of these are offered via mobile application or browser. Blackberry 10 and later operative systems are excluded from this offer.

Nextel offers Zero Rating postpaid packages for plans that do not include access to the 4G network. *Plan 300*, *Plan 400* and *Plan 600* include free access to Twitter, Facebook and WhatsApp, except for VoIP calls and external links. *Plan 500* also includes zero-rated access for e-mail services such as Gmail, Outlook and Yahoo! Mail. Nextel's Prip, an application that emulates the push-to-talk (PTT) service, operates on the data network. Most of Nextel's plans have unlimited zero-rated use of the Prip application and, apparently, without any restrictions.

In addition to the ISP's commercial offers, Facebook's Free Basics initiative (previously known as Internet.org) is also present in Mexico. On 5 September 2014, president Enrique Peña Nieto announced conversations with Facebook's Mark Zuckerberg for the launching of Internet.org in the country⁴⁴⁹. Peña Nieto's announcement was addressed during a Zuckerberg's visit to Mexico for a Fundación Telmex -owned by Carlos Slim- event⁴⁵⁰.

After this announcement, there were few news articles about this potential alliance. However, in April 2015, during the Summit of the Americas in Lima, Facebook proclaimed more collaborations with the governments of Peru, Brazil and Argentina. In this context, Peña Nieto and Zuckerberg had another meeting. In May 2015, the journalist José Leyva anticipated in *El Financiero* newspaper that the launch of Internet.org would happen on 4 June, in alliance with Carlos Slim's Telcel. Later that day, another specialized newspaper, *El Economista*, denied the launch date and that any ISP was involved in the deal.

About 60 organizations across the globe -including Mexico's R3D- sent an open letter to Facebook in order to expose their preoccupations regarding Internet.org. These organizations defined the initiative as

449 FayerWayer, (2014). México decides to join Internet.org. Available at: <https://www.fayerwayer.com/2014/09/mexico-decide-sumarse-a-internet-org/>

450 Latin Times, (2014). Facebook's Mark Zuckerberg Shares Plans With Carlos Slim And President Enrique Peña Nieto To Connect Mexico. Available at: <http://www.latintimes.com/facebook-mark-zuckerberg-shares-plans-carlos-slim-and-president-enrique-pena-nieto-259166>

“a walled garden where some services are benefited over others”⁴⁵¹. The activists also criticized the fact that Facebook is putting itself in a privileged position for blocking contents under authorities’ requests. Finally, the letter points out the lack of protection, since Facebook does not allow encrypted communications, TLS/SSL protocols or HTTPS connections⁴⁵². The Mozilla Foundation observed “selective Zero Rating is undoubtedly bad for long-term opportunities and for the inclusion of the people is supposed to serve.”

Throttling, also known as traffic shaping or degradation, is another practice contrary to the Net Neutrality principle when used with motivations different to the protection of the network’s integrity or during unexpected congestion events and that the consumer is not aware of or does not require. This practice exists when an ISP or operator downgrades contents, applications, services or any form of data transmission, interfering in one or more points of the net. This action is prohibited in Mexico by the article 145 of the telecommunications law. Even though there is not enough evidence to accuse intentional throttling practices from ISP in Mexico, the implications of the case require that the IFT address them through broad and sufficient regulatory measures in order to provide protection tools for the users, such as independent monitoring instruments and adequate mechanisms for sanctioning and damage repairing.

Blocking the access to contents, applications and services on the Internet is prohibited in Mexico by article 145 of the telecommunications law. However, there are some relevant precedents to take into account during the process of issuing regulatory lineaments. Between 2005 and 2006, some users accused Telmex of blocking several voice over IP (VoIP) services, especially Skype. The regulator (at the time named the Federal Telecommunications Commission) alleged the lack of a legal instrument to penalize the ISP for this practice, and insinuated that Skype was providing an illegal telecommunications service. This reaction showed the intention to modify the law to explicitly forbid the ISP blockings.

451 Open Letter to Mark Zuckerberg Regarding Internet.org, Net Neutrality, Privacy, and Security. Available at: <https://www.facebook.com/notes/accessnoworg/open-letter-to-mark-zuckerberg-regarding-internetorg-net-neutrality-privacy-and-/935857379791271>

452 Authors update. Facebook’s response addressed many of the issues cited here after the publishing of the report. Here is the official post: <http://newsroom.fb.com/news/2015/09/update-to-internet-org-free-basic-services/>

Even while the Telmex blocking of Skype didn't endure, it was an openly exercised practice that lasted for several months. Alejandro Navarrete, former director of the Cable Telecommunications Nacional Industry Chamber (CANITEC⁴⁵³), argued back then that “one of the main reasons the calls via voice over IP (such as Skype) and the peer-to-peer traffic are blocked is because they consume a lot of the net resources, and some ISP are trying to distinguish where is traffic of this nature and block it in order to keep the balance in the bandwidth management.” Besides, executives of Megacable and Cablemás have openly stated that they have purchased deep package inspection software from the Israeli company Allot Communications in November 2006 and June 2007, respectively, to perform blocking operations⁴⁵⁴.

The last recorded mention of an open discussion regarding the blocking of contents, applications and services occurred during the creation of the Telecommunications and Broadcasting Federal Law in 2014. The original draft⁴⁵⁵, proposed by president Enrique Peña Nieto to the Senate, included passages in the Net Neutrality chapter that allowed two types of extremely worrisome blockings: a) at the request of an authority without any more detail than that; b) if the ISP considers the violation of any law — empowering with a responsibility that could turn in a form of previous censorship. Both propositions were erased from the draft bill after several critics and social mobilizations.

11.5 Conclusion

In conclusion, the findings of this report show there are legitimate concerns that the IFT's rules should consider figures potential violations to the principle of Net Neutrality together with the need to consider the user as the center of the rulemaking process. Any regulation oriented to establish rules about Internet traffic management and Net Neutrality should adjust to the human rights conventions subscribed by the Mexican State and its own constitutional framework, specially after the telecommunication constitutional reform of 2013. As stressed by the Office of the Special Rapporteur for Freedom of Expression of the Inter-American Commission on Human Rights: “there should not be

453 Cámara Nacional de la Industria de Telecomunicaciones por Cable

454 Reforma, “Filtran cableras contenidos. Limitan a usuarios de internet”. Available in: <https://s3.amazonaws.com/f.cl.ly/items/OJ40131N2D2D1g1y030F/Filtran%20cableras%20los%20contenidos.jpg>

455 García, L. (2014). Enrique Peña Nieto versus the internet at Nexos. Available at: <http://www.redaccion.nexos.com.mx/?p=6176>

discrimination, restriction, blocking or interference in the transmission of Internet traffic, unless it is extremely necessary and proportional to preserve the integrity and security of the network; to prevent the transmission of unwanted contents under explicit request (free and non-incentivized) from the user; and to temporally and exceptionally manage the congestion of the network.”

Ley mexicana sobre neutralidad de la red contenida en la Ley Federal de Telecomunicaciones y Radiodifusión (2014)*	Mexican Law on Net Neutrality contained in the Federal Law of Telecommunications and Broadcasting (2014)*
Ley Federal de Telecomunicaciones y Radiodifusión. Capítulo 8. De la neutralidad de las redes.	Federal Law of Telecommunications and Broadcasting. Chapter 8. On the neutrality of the networks
Artículo 145. Los concesionarios y autorizados que presten el servicio de acceso a Internet deberán sujetarse a los lineamientos de carácter general que al efecto expida el Instituto conforme a lo siguiente:	Article 145. Licensees and the authorized that offer Internet service access shall adjust to the guidelines of general character that for this purpose establishes the Institute compending the following:
I. Libre elección. Los usuarios de los servicios de acceso a Internet podrán acceder a cualquier contenido, aplicación o servicio ofrecido por los concesionarios o por los autorizados a comercializar, dentro del marco legal aplicable, sin limitar, degradar, restringir o discriminar el acceso a los mismos. No podrán limitar el derecho de los usuarios del servicio de acceso a Internet a incorporar o utilizar cualquier clase de instrumentos, dispositivos o aparatos que se conecten a su red, siempre y cuando éstos se encuentren homologados;	I. Free choice. The users of Internet services will be able to access to any content, application or service offered by the licensees or for those authorized to commercialize, in the applicable legal framework, without limiting, degrading, restricting or discriminating the access to them. They won't be able to limit the right of the users of Internet service access to incorporate or use any kind of instruments, devices or apparatus connected through a network, as long as they are homologous;
II. No discriminación. Los concesionarios y los autorizados a comercializar que presten el servicio de acceso a Internet se abstendrán de obstruir, interferir, inspeccionar, filtrar o discriminar contenidos, aplicaciones o servicio;	II. Non discrimination. The licensees and the authorized to commercialize that offer Internet service access, will abstain to obstruct, interfere, inspect, filter or discriminate contents, applications or services;
III. Privacidad. Deberán preservar la privacidad de los usuarios y la seguridad de la red.	III. Privacy. They must preserve privacy of the users and the safety of the network.
IV. Transparencia e información. Deberán publicar en su página de Internet la información relativa a las características del servicio ofrecido, incluyendo las políticas de gestión de tráfico y administración de red autorizada por el Instituto, velocidad, calidad, la naturaleza y garantía del servicio;	IV. Transparency and information. They must publish on their website the information related to the characteristics of the service offered, including the politics of traffic management and network administration authorized by the Institute, speed, quality, the nature and guarantee of service;

Ley mexicana sobre neutralidad de la red contenida en la Ley Federal de Telecomunicaciones y Radiodifusión (2014)*	Mexican Law on Net Neutrality contained in the Federal Law of Telecommunications and Broadcasting (2014)*
<p>V. Gestión de tráfico. Los concesionarios y autorizados podrán tomar las medidas o acciones necesarias para la gestión de tráfico y administración de red conforme a las políticas autorizadas por el Instituto, a fin de garantizar la calidad o la velocidad de servicio contratada por el usuario, siempre que ello no constituya una práctica contraria a la sana competencia y libre concurrencia;</p>	<p>V. Traffic management. The licensees and the authorized will be able to take the necessary measures for the traffic management and network administration in conformity to the politics authorized by the Institute, in order to guarantee the quality or speed of the service acquired by the user, as long as this doesn't constitute a practice contrary to healthy and free competition;</p>
<p>VI. Calidad. Deberán preservar los niveles mínimos de calidad que al efecto se establezcan en los lineamientos respectivos, y</p>	<p>VI. Quality. They must preserve the minimum levels of quality established by the respective guidelines and</p>
<p>VII. Desarrollo sostenido de la infraestructura. En los lineamientos respectivos el Instituto deberá fomentar el crecimiento sostenido de la infraestructura de telecomunicaciones.</p>	<p>VII. Sustained development of the infrastructure. On the respective guidelines the Institute shall promote the sustained growth of the telecommunications infrastructure.</p>
<p>Artículo 146. Los concesionarios y los autorizados deberán prestar el servicio de acceso a Internet respetando la capacidad, velocidad y calidad contratada por el usuario, con independencia del contenido, origen, destino, terminal o aplicación, en cumplimiento de lo señalado en el artículo anterior.</p>	<p>Article 146. The licensees and the authorized shall offer the Internet access service with respecting the capacity, speed and quality agreed by the user with independence of the content, origin, destiny, terminal or application, in order with the previous article.</p>
<p>*R3D considera que ambos artículos deben ser interpretados en el contexto de la misma ley y particularmente, a la luz de los artículos 6, 7 y 128 de la Constitución federal</p>	<p>*R3D considers both articles should be interpreted in the context of the same law but particularly under the articles 6, 7 and 128 of the federal Constitution</p>

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Net Neutrality Reloaded: Zero Rating, Specialised Service, Ad Blocking and Traffic Management

Annual Report of the UN IGF Dynamic Coalition on Net Neutrality

Luca Belli Editor

This Report is the 2016 outcome of the IGF Dynamic Coalition on Network Neutrality (DCNN). The Report gathers a series of case studies on a variety of net neutrality issues from the perspective of different stakeholders. The double purpose of this report is to trigger meaningful discussion on net neutrality trends, while providing informative material that may be used by researchers, policy-makers and civil society alike. Researchers, practitioners and policy-makers regularly contribute to the DCNN report, providing a wide range of heterogeneous views.

In 2016, Zero Rating was by large the most debated net neutrality issue, as reflected by the considerable number of contributions focusing on the topic within this report. Such high number of analyses on zero rating seems particularly useful to meet the increasing demand of research exploring the pros and cons of price discrimination practices. Furthermore, the report examines other very relevant and discussed topics, such as specialised services, ad blocking and reasonable traffic management, providing useful insight on some of the most recent policy evolutions in a variety of countries.

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