



BERMUDA  
**REGULATORY  
AUTHORITY**

## **Open Internet Consultation**

Consultation Document

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## **I. INTRODUCTION**

1. The purpose of this Consultation Document is for the Regulatory Authority of Bermuda (the “Authority”) to:
  - i. Present its proposals on an open internet regulation for the electronic communications sector;
  - ii. Invite public comments on the Consultation Document; and
  - iii. Issue a General Determination (“GD”) at the end of the consultation process defining an open internet framework.
2. The Authority is responsible for the regulation of the electronic communications sector in Bermuda. In accordance with section 12 of the Regulatory Authority Act 2011 (“RAA”), the Authority’s overarching responsibilities are to:
  - a) Promote and preserve competition;
  - b) Promote the interests of the residents and consumers of Bermuda;
  - c) Promote the development of the Bermudian economy, Bermudian employment, and Bermudian ownership;
  - d) Promote innovation; and
  - e) Fulfil any additional functions specified by sectoral legislation.
3. Under section 5 of the Electronic Communications Act 2011 (“ECA”), the purposes of the ECA are to:
  - a) Ensure that the people of Bermuda are provided with reliable and affordable access to quality electronic communications services;
  - b) Enhance Bermuda’s competitiveness in the area of electronic communications so that Bermuda is well-positioned to compete in the international business and global tourism markets;
  - c) Encourage the development of electronic communications sector that is responsive to the requirements of users (both individuals and businesses) and provides them with choice, innovation, efficiency and affordability;
  - d) Encourage the development and rapid migration of innovative electronic communications technologies to Bermuda;
  - e) Promote the orderly development of Bermuda’s electronic communications sector;
  - f) Encourage sustainable competition and create an invigorated electronic communications sector that will lay the groundwork for the further development of communications-reliant industries;

- g) Encourage the development and maintenance of resilient and fault-tolerant communications infrastructures;
  - h) Promote investment in the electronic communications sector and in communications-reliant industries, thereby stimulating the economy and employment; and
  - i) Promote Bermudian ownership and Bermudian employment at all levels of the electronic communications sector.
4. In accordance with section 9(2)(b) of the ECA, the Authority's functions include those necessary to effectively and efficiently achieve the purposes of the ECA. Therefore, it is of upmost importance to define an open internet framework in compliance with the Authority's legislative responsibilities to effectively regulate the electronic communications sector.
5. There are different definitions of the concept of an open internet, also known as net neutrality. According to the Body of European Regulators for Electronic Communications ("BEREC") net neutrality is defined as follows:<sup>1</sup>

*"net neutrality refers to a debate about the way that Internet Service Providers (ISPs) manage the data or 'traffic' carried on their networks when data is requested by broadband subscribers [...] from providers of content, applications or services (CAPs) [...] as well as when traffic is exchanged between end-users."*

#### **I.A Importance to end-users in Bermuda**

6. An open internet, also referred to as net neutrality, is very important for the end-users of internet services. Internet Service Providers<sup>2</sup> ("ISPs") provide internet access services to end-users. They must, to a certain extent, manage how traffic is carried across their network, as well as manage end-user access to the internet. However, the Authority considers that ISPs should not be the sole decision-makers on how traffic is carried and how services are delivered. An open internet framework should clearly set out guidelines which specify what is and is not acceptable, for the benefit of end-users, to ensure that the internet is an open, innovative ecosystem. The Authority may impose any open internet framework on holders of a Communications Operating Licence ("COL"), which includes an Integrated Communications Operating Licence ("ICOL").

#### **I.B International precedent**

7. The European Union ("EU") introduced regulations in 2015 on open internet access (the "EU Regulation").<sup>3</sup> The EU Regulation imposes a range of obligations on ISPs regarding

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<sup>1</sup> BEREC is the Body of European Regulators for Electronic Communications, an advisory group to the European Commission that leads on policy development. [<https://berec.europa.eu/eng/netneutrality/>]

<sup>2</sup> ISP is a generic term used through-out this report. Specific to Bermuda, any policy would apply to ICOL holders that provide internet access services.

<sup>3</sup> EU, Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on

their provision of internet access services (“IAS”). The aim of the EU Regulation is to “safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-user rights” and “guarantee the continued functioning of the internet ecosystem as an engine of innovation”.<sup>3</sup>

8. To secure these goals, the EU Regulation imposes measures dealing with the way in which ISPs manage data traffic on their networks. For the provisions of IAS, the EU Regulation also places an obligation on ISPs regarding the terms and conditions and the information contained in consumer contracts. The EU Regulation has been adopted across the 31 members of the EU and European Economic Area (“EEA”).<sup>4</sup>
9. In contrast, the Federal Communications Commission (“FCC”) of the United States of America (“USA”) has changed its position regarding net neutrality with the imposition of its Internet Freedom Order (December 2017)<sup>5</sup>, obliging that “ISPs disclose information about their practices” of blocking and slowing of traffic. Additionally, the FCC has delegated its responsibility for consumer protection to the more generalist Federal Trade Commission (“FTC”). Previously, with the 2015 Open Internet Order<sup>6</sup>, the FCC had prohibited the blocking, throttling or prioritization of internet traffic and required ISPs to disclose accurate information regarding network management practices, performance, and commercial terms. The difference between the Internet Freedom Order (December 2017) and the 2015 Open Internet Order is largely attributable to the change in government in 2017.
10. These two positions present only some of the discussions held and positions taken relating to an open internet. This Consultation Document identifies further precedents in detail as it discusses the options available to the Authority and the preliminary positions taken by the Authority.

### **I.C Next steps**

11. This Consultation Document discusses the important issues an open internet framework should cover, as identified by the Authority.
12. The Authority invites all stakeholders (including end-users, electronic communications service providers and other representative bodies) to join the debate on what is meant by open internet access and the way in which internet services can be protected and improved upon.

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universal service and users’ rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union (Text with EEA relevance), 26 November 2015 [<http://data.europa.eu/eli/reg/2015/2120/oj>].

<sup>4</sup> EU: European Union. EEA: European Economic Area, which includes the 28 countries of the EU as well as Norway, Lichtenstein and Iceland.

<sup>5</sup> FCC, FCC-17-166 Restoring Internet Freedom, 4 January 2018 (‘FCC-17-166A1.pdf’)

<sup>6</sup> FCC, FCC-15-24 Open Internet Order, 12 March 2015 (‘FCC-15-24A1.pdf’)

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**Consultation questions:**

Through section V, consultation questions are highlighted in this format and then summarised in paragraph 152.

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## II. CONSULTATION PROCEDURE

13. This public consultation is being undertaken in accordance with sections 69 to 73 of the RAA. The procedures and accompanying timelines (as set out in section 70 of the RAA) under which this consultation is taking place has been set out in Part III below.
14. Written comments should be submitted before 5:00 PM (AST) on 28 June 2019.
15. The Authority invites comments from members of the public, electric communications sector participants and sectoral providers, and other interested parties. The Authority requests that commenting parties, in their responses, reference the numbers of the relevant questions to which they are responding, as set forth in this Consultation Document. A complete list of questions, presented by this Consultation Document, appears in paragraph 152.
16. All submissions will require a 'declaration of interest'. Any submission must include the name, address and occupation of the commenting party. It must be signed by the individual, in the case of a personal submission, or by an authorised representative of any business. Personal submissions must declare any relevant link to a licenced carrier (COL or ICOL) or government body, whether commercial or personal (i.e. family, etc). Where a business is not a licenced carrier, any business's submission must declare commercial relationships to any licenced operator. Failure to declare an interest that is subsequently identified will lead to the rejection of the submission.
17. Responses to this Consultation Document should be filed electronically in MS Word or portable document format ("pdf"). Parties filing comments should go to the Authority's website, [www.rab.bm](http://www.rab.bm), follow the link to the Consultations and Response page, and click the "Click here to submit a response" icon, which appears at the top of the page. All comments should be clearly marked "Response to Consultation Document: Comments on open internet framework General Determination" and should otherwise comply with Rules 18 and 30 of the Authority's Interim Administrative Rules, posted on the Authority's website.
18. The Authority intends to make responses to this Consultation Document available on its website. If a commenting party's response contains any information that is confidential in nature, a clearly marked "Non-Confidential Version", redacted to delete the confidential information, should be provided together with a complete version that is clearly marked as the "Confidential Version". Redactions should be strictly limited to "confidential information", meaning a trade secret, information whose commercial value would be diminished or destroyed by public disclosure, information whose disclosure would have an adverse effect on the commercial interests of the commenting party, or information that is legally subject to confidential treatment. The "Confidential Version" should highlight the information that has been redacted. Any person claiming confidentiality in respect of the information submitted must provide a full justification for the claim. Requests for confidentiality will be treated in the manner provided for in Rule 30 of the Authority's Interim Administrative Rules.
19. Individuals making personal submissions may request that personally sensitive information (e.g. their name, address) is redacted from the publication of their statements. Any individual claiming that other information submitted is confidential must provide a full

justification for the claim. Requests for confidentiality will be treated in the manner provided for in Rule 30 of the Authority's Interim Administrative Rules.<sup>7</sup>

20. In accordance with section 73 of the RAA, any interested person may make an *ex parte* communication during this consultation process; subject to the requirements set forth in paragraph 16. Under section 2 of the RAA, an *ex parte* communication is defined as any written or oral communication made to a Commissioner or member of staff of the Authority regarding the matter being consulted on in this Consultation Document, other than a written submission made pursuant to this Consultation Document.
21. In accordance with section 73(2) of the ECA, within 2 business days after making an *ex parte* communication, the person who initiated the *ex parte* communication shall submit the following to the Authority:
  - (i) a written description of the issues discussed, and positions espoused; and
  - (ii) a copy of any written materials provided.
22. This will be posted on the Authority's website, along with a notice of the *ex parte* communication.
23. The principal point of contact at the Authority for interested persons for this Consultation Document is Michael Wells, Chief Technical Officer, who may be contacted by email, referencing "Comments on Open Internet Framework General Determination" at [consultation@rab.bm](mailto:consultation@rab.bm) or by mail at:

Michael Wells  
Chief Technical Officer  
Regulatory Authority  
1st Floor, Craig Appin House  
8 Wesley Street  
Hamilton, Bermuda
24. In this Consultation Document, except insofar as the context otherwise requires, words or expressions shall have the meaning assigned to them by the RAA, the ECA, and the Interpretation Act 1951.
25. This Consultation Document is not a binding legal document and does not contain legal, commercial, financial, technical or other advice. The Authority is not bound by this Consultation Document, nor does it necessarily set out the Authority's final or definitive position on particular matters. To the extent that there might be any inconsistency between the contents of this Consultation Document, the due exercise by the Authority of its functions and powers, and the carrying out of its duties and the achievement of relevant objectives under law, such contents are without prejudice to the legal position of the Authority.

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<sup>7</sup> RAB Interim Administrative Rules 2013 [<https://rab.bm/documents/consultation-on-administrative-rules-7-12-13-pdf/?wpdmdl=11488&refresh=5ca20d79b12e61554124153>]



### III. LEGISLATIVE CONTEXT

26. As set forth in section 12 of the RAA, the Authority was established as a cross-sectoral, independent and accountable regulatory body to promote and preserve competition, to promote the interests of the residents and consumers of Bermuda, to promote the development of the Bermudian economy, Bermudian employment and Bermudian ownership and to promote innovation.
27. Section 9(1)(b) of the ECA requires the Authority to supervise, monitor and regulate the electronic communications sector in Bermuda. Section 9(2)(b) of the ECA states that the Authority's functions include those functions necessary to effectively and efficiently achieve the purposes of the ECA. Such purposes, as set forth in section 5 of the ECA, include to:
- (a) Ensure that the people of Bermuda are provided with reliable and affordable access to quality electronic communications services;
  - (b) Enhance Bermuda's competitiveness in the area of electronic communications so that Bermuda is well-positioned to compete in the international business and global tourism markets;
  - (c) Encourage the development of an electronic communications sector that is responsive to the requirements of users (both individuals and businesses) and provides them with choice, innovation, efficiency and affordability;
  - (d) Encourage the development and rapid migration of innovative electronic communications technologies to Bermuda;
  - (e) Promote the orderly development of Bermuda's electronic communications sector;
  - (f) Encourage sustainable competition and create an invigorated electronic communications sector that will lay the groundwork for the further development of communications-reliant industries;
  - (g) Encourage the development and maintenance of resilient and fault-tolerant communications infrastructures;
  - (h) Promote investment in the electronic communications sector and in communications-reliant industries, thereby stimulating the economy and employment; and
  - (i) Promote Bermudian ownership and Bermudian employment at all levels of the electronic communications sector.
28. Section 9(2)(c)(ii) of the ECA states that the functions of the Authority include the making of administrative determinations to provide for the control and conduct of public electronic communications services, including transparency measures and notice requirements relating to the rates, charges and other terms and conditions for the provision of public electronic communications services for the benefit of consumers.

#### **IV. BACKGROUND**

29. On 2 February, 2018, the Authority sent out a request for information to all ICOL holders that provide broadband services. This request for information provided the Authority with market and technological information indicating the current state of the open internet in the electronic communications sector of Bermuda.
30. In February 2018, responses were received from the following ICOL holders:
  - Telecommunications (Bermuda & West Indies) Limited trading as (“Digicel”);
  - LinkBermuda Ltd. (“LinkBermuda”); and
  - One Communications Ltd. (“OneComm”).
31. On 2 May 2018, Fide Partners provided the Authority with its benchmark report, which looked at other jurisdictions and the relevant practices concerning net neutrality and an open internet.

## V. FRAMEWORK DISCUSSION

32. As noted in paragraphs 1 through 12 above, the Authority believes it is very important to define an open internet framework as part of its responsibilities to the electronic communications sector and end-users of the sector.
33. The framework illustrated below in Figure V.1 shows how the Authority proposes to define its open internet framework.

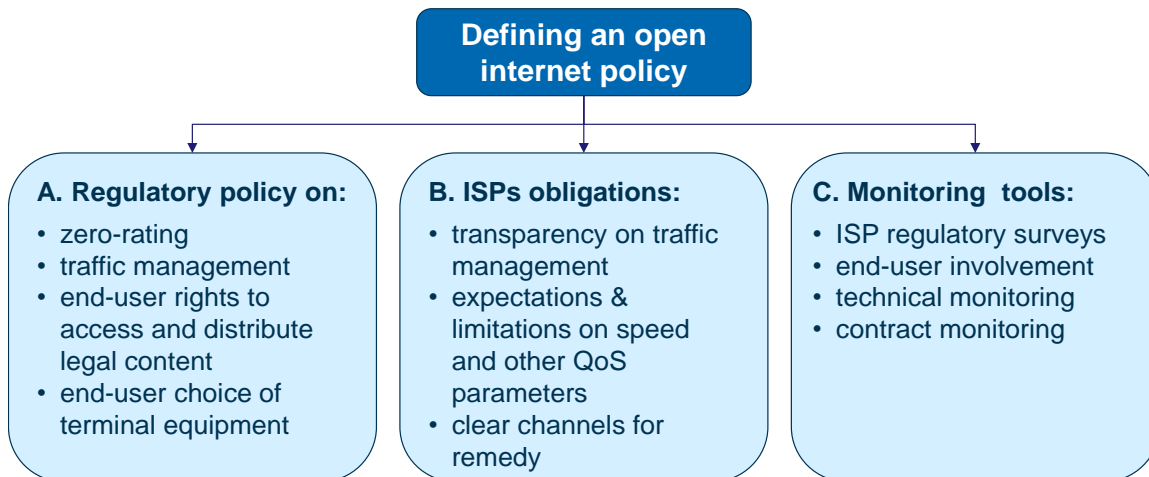


Figure V.1: Open internet framework

34. This section discusses each of the areas identified in Figure V.1 above and highlights international precedent which the Authority believes is of relevance to the reader. At this stage, the Authority presents its proposed open internet framework and identifies questions for stakeholders' response.
35. In its efforts to obtain precedents that reflect international methods of best practice, the Authority reviewed approaches taken by National Regulatory Authorities ("NRAs") across selected countries of the EU and the EEA, as well as the USA, Canada and Australia.
- There are 28 NRAs in the EU which implemented the EU Regulation and BEREC guidelines<sup>8</sup>, thus providing a range of situations, interpretations and solutions to the issues of an open internet.
  - The USA, Canada and Australia have been selected for the review as they provide different perspectives of view on how open internet has been managed.

### V.A Regulatory Approach to issues relating to maintaining an Open Internet

36. The following sections discuss issues requiring a clear position from the Authority, specifically:
- Zero-rating;
  - Traffic management;

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<sup>8</sup> BoR (16) 128, BEREC Report on the outcome of the public consultation on draft BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality rules, August 2016

- End-user rights to access and distribute legal content of their choice; and
- End-user choice of terminal equipment.

### **V.A.1 Zero-rating**

37. Zero-rating can be defined as the commercial practice of exempting<sup>9</sup> internet traffic generated through certain applications, or access to certain content, from usage charges. The commercial and practical application of zero-rating results in ISPs selectively not accounting for the data traffic generated when accessing particular content, applications or services from a limited monthly data volume cap. Alternatively, ISPs may account for data traffic generated when accessing particular content, applications or services at a discounted rate. The concept of zero-rating applies to retail packages that include a limited usage allowance (e.g n GBytes per month). In Bermuda’s electronic communications sector, zero-rating would apply to mobile packages but not to fixed broadband packages.
38. The practice of zero-rating is a concern in circumstances where its application results in a direct contravention of the principle of an open internet. Zero-rating may conflict with the principle of an open internet by distorting end-user behaviour through economic incentives which promote the adoption of one service over another. It is quite possible that a third-party content, application or service provider (“CAP”) could not afford to subsidise the cost of delivery of its own service, in order to compete against a zero-rated service from an ISP which, whether in the short-term or long-term, is cross-subsidising the zero-rated service. Such behaviour goes against the principle of an open internet ecosystem.
39. Subsequently, the Authority is of the belief that it is important to restrict such anti-competitive behaviour in accordance with its responsibilities set forth in section 12(a) of the RAA. It is also worth noting that, although zero-rated services can be beneficial to consumers in the short term, these benefits are arguably superficial, given the above concerns.
40. The Authority wishes to take a clear position on this matter so that ICOLs, CAPs and end-users have more certainty in the future and to ensure that ICOLs operators understand how they may structure their commercial activities.

#### **V.A.1.i International Precedent**

41. Significant discussion around zero-rating has taken place internationally and various positions have been taken by NRAs.

##### **a) European Union**

42. In the European Union, BEREC provides the following definition in its guidelines on net neutrality:<sup>10</sup>

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<sup>9</sup> The Authority would also include counting traffic at a reduced rate within zero-rating.

<sup>10</sup> BEREC, BoR (16) 127 - Guidelines on the Implementation by National Regulators of European Net Neutrality Rules, 20 August 2016, §40.

*“There is a specific commercial practice called zero-rating. This is where an ISP applies a price of zero to the data traffic associated with a particular application or category of applications (and the data does not count towards any data cap in place on the IAS [internet access service]). There are different types of zero-rating practices which could have different effects on end-users and the open internet, and hence on the end-user rights protected under the Regulation.”*

43. Several examples of zero-rating have been identified by European NRAs with different conclusions reached, as documented in BEREC’s first net neutrality implementation report<sup>11</sup>. The Authority highlights in particular the Belgian NRA’s review of an offer by Proximus, the Belgian incumbent fixed and mobile operator below.
44. In late 2016, the Belgian Institute of Post and Telecommunications (“BIPT”) conducted a review<sup>12</sup> of several mobile tariffs launched by Proximus. These mobile tariffs under review contained elements of zero-rating and were launched by Proximus in October 2016. According to BIPT’s interpretation of the EU regulation and BEREC’s guidelines, a multifactor analysis was conducted in order to assess the impact of zero-rating on end-users.
45. The conclusion of BIPT’s multifactor analysis was that none of these offers provided by Proximus violated the EU Regulation for a number of reasons:
  - In a response to questions from BIPT, Proximus explained that these tariffs allowed users to pick a “favourite app” that would then be zero-rated. However, Proximus would not discriminate traffic once the data cap is reached (i.e. traffic speed for the selected application would also be decreased in the same way as other traffic). BIPT noted that if traffic was indeed subject to discrimination as has been observed in Hungarian and Swedish cases, the practice would be in direct contradiction of Article 3.3 of the EU Regulation.
  - BIPT also noted that Proximus had selected the applications in its zero-rated offers on the basis of results obtained from consumer surveys regarding end-user interests. Proximus justified in its selection of each of the zero-rated applications in the tariff based on the results of the consumer survey. BIPT considered this explanation to be coherent.
  - BIPT also concluded that most users of these zero-rated tariffs generally did not reach the limit of their data allowance and therefore it was not observed that Proximus’ zero-rating negatively impacted the use of alternative applications.
46. BIPT noted that it would continue to monitor for zero-rated tariffs that were found to have contravened the EU regulation.

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<sup>11</sup> BEREC, BoR (17) 240 - Report on the implementation of Regulation (EU) 2015/2120 and BEREC Net Neutrality Guidelines, 7 December 2017, pg 7-10.

<sup>12</sup> BIPT, Report regarding the analysis of zero-rating of apps in the Proximus offers, 30 January 2017

## **b) Canada**

47. In 2017, the Canadian Radio-television and Telecommunications Commission (“CRTC”) established a new framework for assessing the differential pricing practices of ISPs. The term differential pricing practice refers to the zero-rating or discounting of certain sources of internet data traffic. The evaluation criteria were defined as the following:<sup>13</sup>
- the degree to which the treatment of data is neutral;
  - whether the offering is exclusive to certain customers or certain content providers;
  - the impact on internet openness and innovation; and
  - whether there is financial compensation involved.
48. In publishing this framework and other legislation<sup>14</sup>, the CRTC has taken a clear approach towards an open internet framework by declaring itself in favour of net neutrality:<sup>15</sup>

*“We believe that it is important that all Canadians have access to choice, innovation and free exchange of ideas. Internet providers should compete on the quality of their networks, by lowering their prices or increasing data allowances instead of treating certain content differently. In the past few years, we have issued many decisions in order to support net neutrality.”*

## **c) USA**

49. The Internet Freedom Order (December 2017) effectively revoked the 2015 Open Internet Order and is the current regulation in the United States of America. The Internet Freedom Order (December 2017) classifies broadband internet access services as an “information service” as defined by Title I of the Communications Act<sup>16</sup> and mobile broadband internet access service as a private mobile service and not a commercial mobile service.<sup>17</sup>
50. Under the new Internet Freedom Order (December 2017), the FCC therefore allows<sup>18</sup> zero-rating tariffs that it had previously raised concerns over under the 2015 Open Internet Order.<sup>19</sup>

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<sup>13</sup> CRTC, 2017-104: Framework for assessing the differential pricing practices of internet service providers, 20 April 2017

<sup>14</sup> See also CRTC, 2009-657: Review of the Internet traffic management practices of Internet service providers, 21 October 2009

<sup>15</sup> CTRC, ‘Strengthening net neutrality in Canada’, [<https://crtc.gc.ca/eng/internet/diff.htm>]

<sup>16</sup> Communications Act of 1934 which led to the creation of the FCC. The act was amended with the adoption of the ‘Telecommunications Act of 1996’.

<sup>17</sup> FCC, Internet Freedom Order News Release, 14 December 2017 (‘DOC-348261A1.pdf’)

<sup>18</sup> FCC - Wireless Telecommunication Bureau, Order DA 17-127, 3 February 2017 (‘DA-17-127A1.pdf’)

<sup>19</sup> FCC - Wireless Telecommunication Bureau, Policy Review of Mobile Broadband Operators’ Sponsored Data Offerings for Zero Rated Content and Services, 11 January 2017 (‘DOC-342987A1.pdf’)

## V.A.1.ii Proposed Approach of the Authority

51. The Authority wishes to better define how it would assess cases where certain tariffs have zero-rating characteristics and determine if they raise concerns of an anti-competitive nature. Based on the international precedents identified above, the Authority proposes to evaluate zero-rating tariffs against the following criteria:
- the degree to which the treatment of data is neutral;
  - the impact on internet openness and innovation;
  - whether the offering is exclusive to certain customers or certain content providers; and
  - whether there is financial compensation involved.
52. It is the preliminary position of the Authority that zero-rated tariffs raise concerns regarding their anti-competitive nature and shall not be permitted. The Authority notes that it has regulatory oversight of broadband providers. Therefore, the Authority invites the public to comment on the following:
- 
- 1) Please comment on the proposal of assessing zero-rating tariffs and whether the Authority should take a position as part of its open internet framework.
  - 2) Please comment on the proposed criteria for assessing whether zero-rating tariffs should be permitted.
  - 3) Please comment on the preliminary position described by the Authority relating to zero-rating.
  - 4) Please comment on how the Authority can oversee tariffs offered by ICOLs, specifically if the tariffs may raise concerns relating to an open internet framework.
- 

## V.A.2 Traffic management

53. Many NRA positions concerning the regulation of an open internet ban the following three internet traffic management practices:<sup>20</sup>
- **Blocking:** refers to the blocking of legal content, applications or services;
  - **Throttling:** refers to the degradation of lawful internet traffic based on content, applications or devices; and
  - **Paid/ affiliate prioritisation:** refers to favouring some lawful internet traffic over other lawful content in exchange for some form of compensation (fast lane).
54. It is generally considered that the identified practices go against the principle of an open internet and would impede on end-users rights to freely access legal content, services and

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<sup>20</sup> Including the now-superseded FCC, 2015-24 – Open Internet Order, 12 March 2015, pg 7

applications of their choice. The banning of such practices does not prevent operators from reasonable<sup>21</sup> use of traffic management tools.

55. Closely related to the subject of traffic management is the treatment of specialised services (e.g. IPTV<sup>22</sup>, VoIP<sup>23</sup>) that may need to be subject to some form of protected traffic management practises on IP networks to ensure they achieve the required quality of service (“QoS”) expected. The Authority understands that IP networks can be engineered to provide sufficient capacity for these specialised services, in addition to the provision of internet access services, without impeding on each other.

#### **V.A.2.i. International precedent**

56. The following subsections present the positions of the European, Canadian, USA and Australian NRAs.

##### **a) European Union**

57. The EU Regulation requires ISPs to treat all internet access traffic equally.<sup>24</sup> Additionally, the EU Regulation establishes a series of exceptions<sup>25</sup> to this main principle. These exceptions must be reasonable and transparent. The EU Regulation rejects certain practices<sup>26</sup> that discriminate against specific content without a justifiable reason, which may include:

- (i) complying with EU law;

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<sup>21</sup> The EU defines reasonable as follows: “In order to be deemed to be reasonable, such measures shall be transparent, non-discriminatory and proportionate, and shall not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic. Such measures shall not monitor the specific content and shall not be maintained for longer than necessary.” - EU regulation 2015/2120, Article 3 §3

<sup>22</sup> IPTV: internet protocol television – in this report, has the meaning of subscriber television service, offered by telecommunications providers over high-speed access networks via set-top boxes or other customer-premises equipment.

<sup>23</sup> VoIP: voice-over internet protocol – in this report, has the meaning of subscriber voice service, offered by telecommunications providers over high-speed access networks via networks via customer-premises equipment.

<sup>24</sup> EU regulation 2015/2120, Article 3: “Providers of internet access services shall treat all traffic equally, when providing internet access services, without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used.”

<sup>25</sup> EU regulation 2015/2120, Article 3: “The first subparagraph shall not prevent providers of internet access services from implementing reasonable traffic management measures. In order to be deemed to be reasonable, such measures shall be transparent, non-discriminatory and proportionate, and shall not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic. Such measures shall not monitor the specific content and shall not be maintained for longer than necessary.”

<sup>26</sup> EU regulation 2015/2120, Article 3: “Providers [...] shall not block, slow down, alter, restrict, interfere with, degrade or discriminate between specific content, applications or services, or specific categories thereof [...]”



- (ii) preserving the integrity and security of the network; and
- (iii) preventing congestion of the network.

58. In the latter case, the EU Regulation stipulates that equivalent categories of content should be treated equally.
59. The EU Regulation also allows ISPs to provide specialised services<sup>27</sup> (e.g. IPTV, VoIP) under certain conditions. Specialised services are classified under the EU Regulation as “services other than internet access services”. The EU Regulation determines that specialised services can only be provided if their existence does not impact the quality of the internet access services.<sup>28</sup>

#### b) Canada

60. In 2009, the CRTC published a determination to clarify how existing and future internet traffic management practices (“ITMP”) comply with the Canadian Telecommunications Act of 1993, for both retail and wholesale internet services.<sup>29</sup>
61. The CRTC bases its assessment of the matter on the following points:
- **Transparency:** if ITMPs are employed, ISPs must be transparent about their use;
  - **Innovation:** Network investment is a fundamental tool for dealing with network congestion and should continue to be the primary solution that ISPs use. However, investment alone does not obviate the need for certain ITMPs. The CRTC recognises that although some measures are required, where ITMPs are employed they must be solely designed to address a defined need;
  - **Clarity:** ISPs must ensure that any ITMPs they employ are not unjustly discriminatory nor disproportionately preferential. In its ITMP framework, the CRTC established a structured approach to evaluating whether existing and future ITMPs comply with the Telecommunications Act of 1993; and
  - **Regulatory approach (‘Competitive neutrality’):** Two approaches are defined:

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<sup>27</sup> Article 3: “[...] providers of internet access services [...] shall be free to offer 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. [...]”

<sup>28</sup> Article 3: “[...] providers of internet access services may offer or facilitate such services only if the network capacity is sufficient to provide them in addition to any internet access services provided. Such services shall not be usable or offered as a replacement for internet access services, and shall not be to the detriment of the availability or general quality of internet access services for end-users”

<sup>29</sup> CRTC, 2009-657: Review of the Internet traffic management practices of Internet service providers, 21 October 2009

- (i) **Retail Services:** ISPs may continue to employ ITMPs without prior CRTC approval. The CRTC will apply ex-post regulation to review retail ITMPs practices against the defined framework.
- (ii) **Wholesale Services:** If an ISP provides more restrictive ITMPs for its wholesale services than for its retail services, it will require the authorisation of the CRTC. These extra ITMPs must be aligned with the defined framework to ensure that there is no disproportionate impact on secondary ISP traffic.

62. Additionally, in the CRTC's determination, it also emphasised that personal information collected for managing internet traffic should not be used for other purposes nor disclosed.

### c) USA

63. The 2017 Internet Freedom Order obliges that "ISPs *disclose* information about their traffic management practices to consumers, entrepreneurs, and the Commission."<sup>30</sup> The types of traffic management practices that are under review in the 2017 Internet Freedom Order include:

- **Blocking.** Any practice (other than reasonable network management elsewhere disclosed) that blocks or otherwise prevents end user access to lawful content, applications, service, or non-harmful devices, including a description of what is blocked.
- **Throttling.** Any practice (other than reasonable network management elsewhere disclosed) that degrades or impairs access to lawful internet traffic on the basis of content, application, service, user, or use of a non-harmful device, including a description of what is throttled.
- **Affiliated Prioritisation.** Any practice that directly or indirectly favours some traffic over other traffic, through the use of techniques such as traffic shaping, prioritisation, or resource reservation, to benefit an affiliate, including identification of the affiliate.
- **Paid Prioritisation.** Any practice that directly or indirectly favours some traffic over other traffic, through the use of techniques such as traffic shaping, prioritisation, or resource reservation, in exchange for consideration, monetary or otherwise.
- **Congestion Management.** Descriptions of congestion management practices, if any. These descriptions should include:
  - (i) the types of traffic subject to the practices;
  - (ii) the purposes served by the practices;

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<sup>30</sup> FCC, Internet Freedom Order News Release, 14 December 2017 ('DOC-348261A1.pdf'). [Emphasis added].

- (iii) the practices' effects on end users' experience;
  - (iv) criteria used in practices, such as indicators of congestion that trigger a practice, including any usage limits triggering the practice, and the typical frequency of congestion;
  - (v) usage limits and the consequences of exceeding them; and
  - (vi) references to engineering standards, where appropriate.
- **Application-Specific Behaviour.** Consideration as to why an ISP blocks or rate-controls specific protocols or protocol ports, modifies protocol fields in ways not prescribed by the protocol standard, or otherwise inhibits or favours certain applications or classes of applications.

64. The Commission provides two options for disclosure to ISPs. Firstly, ISPs may “include the disclosures on a publicly available, easily accessible website”. Secondly, ISPs may alternatively transmit their disclosures to the Commission, who will then be in charge of making them available on a publicly available website.
65. The 2017 Internet Freedom Order reversed the FCC’s previous position of banning ISPs from blocking, throttling and prioritisation.

#### d) Australia

66. The Australian Competition & Consumer Commission (“ACCC”) oversees competition and fair trade in Australian markets to benefit consumers and businesses. In 2017, the ACCC commenced a market study of the electronic communications sector in Australia. The ACCC’s final report was released April 2018, which presented its analysis of the current situation on net neutrality.<sup>31</sup>
67. Within the report, the ACCC noted the rapid growth of over-the-top (“OTT”) services<sup>32</sup> in the Australian market. The ACCC stated that access networks controlled by ISP’s are a potential point in the supply chain where OTT services might encounter traffic management that influences the quality of the service and that this is a risk associated with net neutrality. When traffic management practices result in commercial activities such as the selective discrimination of third-party services, it ultimately raises issues concerning competition.
68. At the time of publishing this Consultation Document, these issues had not yet arisen in Australia because the incentive and opportunity for ISPs to discriminate or block competition were not as evident as observed in other jurisdictions. The ACCC specifically

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<sup>31</sup> ACCC, Communications Sector Market Study Final report, April 2018  
[\[https://www.accc.gov.au/system/files/Communications%20Sector%20Market%20Study%20Final%20Report%20April%202018\\_0.pdf\]](https://www.accc.gov.au/system/files/Communications%20Sector%20Market%20Study%20Final%20Report%20April%202018_0.pdf)

<sup>32</sup> Over-the-top services – in this Consultation Document, has the meaning of content and services delivered over the internet rather than more traditional telecommunications and broadcast platforms. OTT excludes operator-provided IPTV.

identified that the issues concerning net neutrality are different to those in the USA as “Australians enjoy a greater ability to switch to other providers (than, for example, consumers in the United States) should they dislike discriminatory traffic management policies of their service provider”. In addition, the ACCC’s report identified that retail competition disciplines the behaviour of network operators and the ACCC has enough power to “address any anti-competitive conduct”.<sup>33</sup>

69. The ACCC recognised that ISPs use traffic management tools, especially during periods of high traffic congestion. The ACCC affirmed that “in doing so, they should ensure that they fully disclose to new and existing customers how these traffic management policies may impact on their services”. Moreover, there is the potential for ISP’s to develop elaborate strategies with the specific intention to block competition from innovative emerging services, especially when these emerging services do not have enough countervailing power. Where the ACCC identifies this type of conduct, it stated that, “enforcement action is likely to be the appropriate response”.
70. Specific to OTT services, the ACCC stated that “the risk of net neutrality issues emerging in Australia remain low due to the level of retail broadband competition and countervailing power of many OTT services”. Nonetheless, the ACCC also stated that this would be an ongoing concern “to which we remain vigilant”.<sup>34</sup>
71. Finally, under action 19 of the ACCC’s final report, the ACCC indicated that it would pay close attention to the following traffic management activities:
  - Any traffic and price discrimination of OTT services by ISPs (i.e. blocking, throttling, prioritising and non-metering);
  - The impact of traffic management practices by ISPs, in response to increasing traffic volumes, and whether this is done in a competitively neutral manner and is adequately disclosed in their traffic management practices to their consumers. If ISPs do not fully disclose to their clients how their traffic management policies may impact their services, the ACCC will “consider the need to develop appropriate principles and industry guidance as well as enforcement action where appropriate”;
  - The development of key OTT service markets, which the ACCC suggests reporting as part of its annual telecommunications report; and
  - The risk of potential harm arising from the ability of OTT platforms to amass market power. The ACCC noted that it is currently undertaking an inquiry (pursuant to a Government direction) into the impact of digital platforms (including search engines and social media platforms) on competition in media and advertising services markets.

#### **V.A.2.ii. Proposed Approach of the Authority**

72. The Authority believes that the explicit banning of the traffic management practices of blocking, throttling and prioritisation effectively protects the rights of end-users.

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<sup>33</sup> ACCC, Communications Sector Market Study Final report, April 2018, page 16

<sup>34</sup> ACCC, Communications Sector Market Study Final report, April 2018, page 151

73. The Authority believes that reasonable traffic management practices should be allowed in justifiable circumstances. Justifiable traffic management practices may include the imposition of traffic management practices during high-demand periods of the day, for a limited duration, which do not impact end-user rights or raise concerns over their anti-competitive nature. ICOLs will be obliged to be transparent about traffic management practices (see paragraphs 102 through 119 below).

74. The Authority's proposed position is that justifiable, non-discriminatory internet traffic management procedures are reasonable during periodically high and exceptional usage periods as well as against specific unreasonable usage.<sup>35</sup> These procedures will be clearly disclosed. In the long-term, it is the responsibility of ICOLs to invest in their networks to support the capacity that they sell. The Authority's proposed position would be to specifically ban blocking, throttling and prioritisation.

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5) Please comment on the Authority's proposed position regarding traffic management.

6) Please comment on the specific idea of banning blocking, throttling or prioritisation of internet access traffic.

7) Please comment on how and when traffic management should be allowed and how the behaviour of ICOLs can be assessed as part of an open internet framework.

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75. The Authority recognises that specialised services may need to be subject to some protected traffic management practises on IP networks to ensure the necessary QoS expected. The Authority would include standard industry-defined, carrier-grade services such as IPTV and VoIP but expects that OTT versions of such services may be treated as normal-priority internet traffic. The Authority would also expect that similar OTT services from different CAPs (including the ICOL itself) should perform similarly over the ICOL's network.

76. Secondly, the Authority expects that OTT services should not perform worse than specialised services where the ICOL's internet access service is advertised as sufficient to carry such levels of internet traffic. The Authority may monitor the performance of OTT services and act if concerns are raised.

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8) Please comment on the need to recognise specific services that may be subject to traffic management that could otherwise be considered a breach of an open internet framework.

9) Please identify the specific services and how they need to be managed. How can it be ensured that these services do not impede general internet access?

10) Please comment on the proposal that OTT services should not perform worse, as described in the proposed approach.

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<sup>35</sup> Specific unreasonable usage should be identified in the ISP's terms and conditions, and is addressed in paragraphs 102 through 119 below

### **V.A.3 End-user right to access and distribute legal content of their choice**

77. An end-user's right to access and distribute legal content is considered by many NRAs to be a key aspect of an open internet framework, as reflected in the policies developed and implemented by numerous NRAs. Amongst other reasons, the principle is to ensure that an ISP does not act as a gatekeeper in choosing what can or cannot be accessed by the end-user.

#### **V.A.3.i International precedent**

78. The following subsections present the positions of the European, Canadian and USA NRAs.

##### **a) European Union**

79. The right to access and distribute legal content is specified under Article 3 of the EU Regulation. In order to effectively safeguard the right to access and distribute legal content and ensure open internet access, Article 3 of the EU Regulation states the following:

*“End-users shall have the right to access and distribute information and content [...] of their choice [...] via their internet access service. [...]”*

##### **b) Canada**

80. The right to access and distribute legal content is identified in the Federal Telecommunications Act of 1993 as follows:

*“Except where the Commission approves otherwise, a Canadian carrier shall not control the content or influence the meaning or purpose of telecommunications carried by it for the public.”<sup>36</sup>*

##### **c) USA**

81. In 2004, the FCC announced that it had established a set of non-discriminatory principles. The intention behind the non-discriminatory principles was to promote an initial concept of an open internet without implementing specific regulation.<sup>37</sup> Two of the four non-discriminatory principles of “Internet freedom” were: (i) the freedom to access lawful content; and (ii) the freedom to use applications. Despite subsequent shifts in policy on open internet, these principles remain in place and in the 2017 Internet Freedom Order. In the 2017 Internet Freedom Order, the FCC noted that:

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<sup>36</sup> Subsection 36 of the Canadian Telecommunications Act, 1993, [<https://laws-lois.justice.gc.ca/eng/acts/t-3.4/>]

<sup>37</sup> FCC, Preserving Internet freedom: guiding principles for the industry, 8 February 2004 ('DOC-243556A1.pdf')

*“We emphasize once again that we do not support blocking lawful content, consistent with long-standing Commission policy.”<sup>38</sup>*

#### **V.A.3.ii Proposed Approach of the Authority**

82. The Authority believes that it is important for end-users to have the explicit right to access and distribute legal content, as well use legal applications and services of their choice, on the internet.

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11) Please comment on the Authority’s proposed position – that end-users have the explicit right to access and distribute legal content, as well use legal applications and services, of their choice on the internet.

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#### **V.A.4 End-user choice of terminal equipment**

83. The right of end-users to choose their own terminal equipment is set forth in open internet policies, or wider telecommunications regulation. This right commonly recognises the need of the ISP to maintain network functionality and security. The right allows more competition and therefore innovation and/ or better prices for end-users in the device market. A notable example of this is the mobile handset market (based on GSM<sup>39</sup> standards and subsequently 3GPP<sup>40</sup> standards including UMTS<sup>41</sup>, LTE<sup>42</sup> and 5G<sup>43</sup>). The Authority believes that this right of choice functions appropriately in the mobile market in Bermuda.
84. The Authority has identified that ICOLs may contractually allow for the choice of terminal equipment in Bermuda’s fixed broadband market. The right to choose terminal equipment has been identified below in Figure V.2. With respect to fixed broadband networks, a modem (e.g. DSL<sup>44</sup> modem, GPON ONT<sup>45</sup>, cable modem, firewall) is the end-user terminal equipment. The end-user’s selected modem may also have wired or wireless routing and other capabilities.

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<sup>38</sup> FCC, FCC-17-166 Restoring Internet Freedom, 4 January 2018 (‘FCC-17-166A1.pdf’)

<sup>39</sup> Global System for Mobile Communications (“GSM”) standards govern the cellular networks used by mobile devices. The standards were originally developed by the European Telecommunications Standards Institute and have since become the global standard for mobile communication networks.

<sup>40</sup> 3rd Generation Partnership Project (“3GPP”) is a standards organization that develops various different types of protocols for cellular networks and mobile devices.

<sup>41</sup> Universal Mobile Telecommunications System (“UMTS”) is a set of 3<sup>rd</sup> generation (“3G”) mobile cellular system standards for networks based on GSM standards.

<sup>42</sup> Long-Term Evolution (“LTE”) is a set of 4<sup>th</sup> generation (“4G”) mobile cellular system standards for networks based on GSM standards.

<sup>43</sup> 5<sup>th</sup> Generation (“5G”) is the next generation of mobile communication networks to follow 4G.

<sup>44</sup> Digital Subscriber Line (“DSL”) technology transmits digital data over telephone lines.

<sup>45</sup> Gigabit passive optical network (“GPON”), and the optical network terminal (“ONT”) are network and terminal technologies used to provide fibre connectivity to end-users.

| Operator     | Relevant text  |
|--------------|--|
| Digicel      | <p><b>Residential internet Terms &amp; Conditions<sup>46</sup></b></p> <p>2. Local Telecom Services:</p> <p><i>“You shall, at your own expense, arrange for the installation and maintenance of any necessary telecommunication equipment and link between your location and The Service Provider network. The Service Provider shall have no responsibility for the through transmission of signals, or for the quality of such equipment or link. The Service Provider is not responsible in any way for any customer owned equipment. Inasmuch as such equipment or link will be provided by a third party telecoms provider, you acknowledge and agree that The Service Provider shall have no liability whatsoever to you for any loss, cost or damage (including, without limitation, any special, indirect or consequential damages) related in any way to a failure of deficiency in the installation or use of such equipment or link.”</i></p> <p>3. Charges and Fees; Payments, Disputes, Suspension and Termination of Services</p> <p><i>“In addition, if you terminate your account, for any reason, before the initial term period that was agreed upon by you, and if you received a DSL modem from The Service Provider at no charge, you will be responsible to pay The Service Provider the value of the modem which is currently set at BD \$ 129.00.”</i></p>   |
| Link Bermuda | <p><b>Residential Terms of Service<sup>47</sup></b></p> <p>4. Service and Service Equipment</p> <p><i>“4.1 During the Sign Up Form process You will be notified of any equipment requirements relating to Your selected Service. Because of the continual grooming and upgrading of the electronic communications facilities used by Link and its Suppliers, if You do not use the appropriate equipment for Your Service We do not warrant or guarantee that Your equipment will be compatible with Our Service or that Our Service will be available to You. Any equipment that You purchase from Us or that We may provide You free of charge as part of Your Service is referred to in this RTOS as "Service Equipment."</i></p> <p><i>“(B) use any existing equipment in any manner necessary to install the Service and/or Service Equipment at the Premises; “</i></p> <p><i>“4.3 We shall provide You any information necessary for You to prepare Your Premises reasonably in advance of any Service and/or Service Equipment delivery and installation. You shall be responsible for any authorizations needed by Us to deliver, install and maintain the Equipment at Your Premises.”</i></p> <p><i>“4.5 If You provide or arrange with a third party for the selection, installation, operation, and maintenance of any electronic communications equipment, service or software on or between Your Premises and Our network ("Customer Provided Equipment, Service and Software" or "CPESS"), We shall have no responsibility for the through transmission of signals, or for the quality of and or defects in signals sent or received by such CPESS. We are not be responsible for testing, certifying or inspecting any CPESS, and We shall not be responsible if such CPESS becomes obsolete or requires modification due to changes in Our equipment, network or operations.[...]"</i></p> |
| One-Comm     | No terms identified  |

Figure V.2: Terms of service relating to end-user choice of terminal equipment  
[Source: Operators’ websites, 2018]

<sup>46</sup> Digicel Bermuda, Terms & Conditions, collected July 2018  
[<https://www.digicelgroup.com/bm/en/terms-of-use/residential-internet-t-cs.html>]

<sup>47</sup> Link Bermuda, Terms of Service, collected July 2018  
[<http://www.linkbermuda.com/ResidentialServices/ResidentialToS.aspx>]



85. However, little evidence has been found to demonstrate that end-users have been able to select their own terminal equipment if they wished to do so. The Authority is unaware of any ICOL maintaining a list of compatible or approved hardware devices for use on the fixed broadband networks, which could be considered an appropriate solution. The Authority is aware of complaints about this issue and wishes to use this consultation to identify issues experienced by end-users and collect views from all stakeholders on how the process could be improved to ensure end-user rights. Therefore, the Authority invites ICOL holders to contribute their views on this matter, especially with regards to ensuring network functionality and security as well as customer support.

#### **V.A.4.i International precedent**

86. The following subsections present the positions of the European and USA NRAs.

##### **a) European Union**

87. The right to choose terminal equipment is identified under Article 3 of the EU Regulation. In order to effectively safeguard the right to choose terminal equipment, Article 3 of the EU Regulation states the following:

*“End-users shall have the right to [...] use terminal equipment of their choice [...] via their internet access service. [...]”.*

88. EC Directive 2008/63 on competition in the markets of telecommunications terminal equipment identified a key reason for the freedom to choose terminal equipment. The third point of EC Directive 2008/63 specifies that:

*“(3) Member States have, in response to technical and economic developments, reviewed their grant of special or exclusive rights in the telecommunications sector. The proliferation of types of terminal equipment and the possibility of the multiple use of terminals means that users must be allowed a free choice between the various types of equipment available if they are to benefit fully from the technological advances made in the sector.”*

89. BEREC deputises to NRAs the decision on whether end-users may replace ISPs equipment:<sup>48</sup>

*“Whether end-users may use the terminal equipment of their choice, NRAs should assess whether an ISP provides equipment for its subscribers and restricts the end-users’ ability to replace that equipment with their own equipment, i.e. whether it provides “obligatory equipment.”*

90. Furthermore, BEREC relies on NRAs to consider whether there is an objective technological necessity for the obligatory equipment to be considered as part of an ISP’s network.

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<sup>48</sup> BEREC, BoR (16) 127 - Guidelines on the Implementation by National Regulators of European Net Neutrality Rules, 30 August 2016, §26

91. In August 2016, the Federal Ministry for Economic Affairs and Energy of Germany (the “Ministry”) introduced a new law<sup>49</sup> enabling end-users to decide which modem/router they can use at their premises to connect to the internet.
92. According to the Ministry,<sup>50</sup> this new law increases consumer choice and strengthens market competition. The requirement of some German ISPs to only allow internet access via their own routers is in conflict with end-users freedom of choice of equipment. This restriction also limits equipment providers competition, as the many equipment providers are highly dependent on the few network operators.
93. The law allows providers of telecommunications services to continue to offer their customers with a terminal device. However, consumers have freedom of choice in routers/modems. The law also requires that network operators provide, without prompting, the necessary device set-up information.
94. In December 2017, the Dutch Ministry of Economic Affairs and Climate Policy announced it was working on a policy rule to define whether the network termination point (NTP) of a telecommunications network is the point in front of or behind the modem/ router in the end-user’s premises’.<sup>51</sup> Clarifying the location of the NTP would enable the implementation of a European directive on competition in the markets in telecommunications terminal equipment. This directive promotes competition in the terminal equipment market. In this way, consumers would be given the opportunity to choose the terminal equipment for telecommunications services that meets their needs.
95. The Dutch Authority for Consumers and Markets seeks to increase competition for terminal routing equipment by providing end-users with more control over their privacy and an increase in routing functionalities. With regards to security and privacy concerns raised by telecommunications providers, the Dutch Authority identified that the proposed policy rule does not alter any responsibilities regarding security.
  - Telecommunications providers continue to be responsible for the continuity and security of public networks. They are thus allowed to continue taking measures to secure these networks.
  - The responsibility for privacy lies with the consumers themselves and the manufacturers of terminal equipment. In the event electronic communications service providers supply terminal equipment, they then are responsible instead of the manufacturer.

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<sup>49</sup> Bundesministeriums für Wirtschaft und Energie, Entwurf eines Gesetzes zur Auswahl und zum Anschluss von Telekommunikationsendgeräten ('04 150720-Gesetzentwurf TKEndgeräte.doc'), 27 July 2015

<sup>50</sup> Bundesministeriums für Wirtschaft und Energie, Article 'Freie Routerwahl' [<https://www.bmwi.de/Redaktion/DE/Artikel/Digitale-Welt/freie-routerwahl.html>]

<sup>51</sup> Dutch Authority for Consumers and Markets, Launch of consultation on network termination points, 13 December 2017. A policy ruling was expected by end of 2018 by the Ministry, but none has been published to date. [<https://www.acm.nl/en/publications/launch-consultation-network-termination-points>]

## b) USA

96. In the United States, the end-user's right to choose terminal equipment is implemented in the Title 47 of the United States Code of Federal Regulations,<sup>52</sup> which prohibits multichannel video programming distributors ("MVPDs") from "prevent[ing] the connection or use of navigation devices" on their network. Embedded within Title 47 of the United States Code of Federal Regulations is an exception to this prohibition which can only be relied upon in situations "where electronic or physical harm would be caused by the attachment or operation" of a navigation device, or when the device could be, or is intended or designed to be, used for "the unauthorized receipt of service".
97. Under Title 47 of the United States Code of Federal Regulations, "navigation devices" are defined as cable modems, which are used to access "other services" (namely, broadband internet access) offered over a cable system.<sup>53</sup> "Electronic or physical harm" is described in the Navigation Devices Order<sup>54</sup> to include "harmful interference", "injury to the system", or "compromise of system security", that is, harm to the network facilities beyond the premises of the individual connecting a navigation device.
98. When engaging a fixed broadband internet service, ISPs will either provide the end-user with an ISP modem (for a monthly rental fee or a one-off purchase) or they will provide a list of compatible modems for the corresponding access network via their website.<sup>55</sup> This list of compatible modems will be provided with instructions for installing these modems on the ISP's network.
99. The 2017 Open Internet Order confirmed the obligation that "ISPs disclose information about their practices to consumers, entrepreneurs, and the Commission", including on device attachment rules: "Any restrictions on the types of devices and any approval procedures for devices to connect to the network".

### V.A.4.ii Proposed approach of the Authority

100. The Authority wishes to collect views from stakeholders on this matter and requests that they focus on the following points:
  - Please describe any issues experienced by end-users, ICOLs and third parties in selecting their preferred terminal equipment for use on fixed broadband networks in Bermuda.

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<sup>52</sup> Title 47 of the United States Code of Federal Regulations, Section 76.1201 [[https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title47/47cfrv4\\_02.tpl](https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title47/47cfrv4_02.tpl)]

<sup>53</sup> FCC: Investigation of Compliance with Rules Relating to Navigation Devices, §2, ('DA-16-512A1.pdf')

<sup>54</sup> FCC, Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices, Report and Order (Navigation Devices Order), 24 June 1998, § 29, 32, 35-39, ('fcc98116.pdf')

<sup>55</sup> Comcast list of approved cable modems [<https://www.xfinity.com/support/articles/list-of-approved-cable-modems>]

- How could any information sources or ordering processes be improved to ensure end-user rights to choose their own terminal equipment? Please make reference to international examples where appropriate.
  - Do ICOLs maintain a list of compatible devices for use on their fixed broadband networks?
  - Do ICOLs provide a process to allow approval? Is this information clearly available?
  - What technical and operational issues should be considered to ensure network functionality and security, as well as customer support?
101. The Authority's preliminary position is that end users should have the right to choose their own terminal equipment where this does not compromise a network operator's obligation to maintain a functioning and secure network. Operators will be obliged to enable end-user choice to the greatest extent possible.

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- 12) Please comment on the questions raised by the Authority regarding end-users' right to choose their own terminal equipment.
- 13) Please comment on the Authority's preliminary position on end-users' right to choose their own terminal equipment.
- 14) Please comment on the Authority's preliminary position that operators will be obliged to enable end-users' choice.
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## **V.B ISP Obligations**

102. Many countries with policies on open internet have imposed requirements for ISPs to be transparent to the end-user in their practices and policies relating to internet access, traffic management and contractual terms.
103. The Authority proposes to introduce a number of obligations on ICOLs to maintain an open internet and protect consumer rights. The Authority believes these should include:
- an obligation to be transparent regarding traffic management practices;
  - an obligation to be clear on contractual limitations;
  - an obligation to give reasonable expectations on speed performance;
  - an obligation to provide end-users with a clear route of complaint and remedy in the case of continuing failure in performance; and
  - an obligation to update end-users and the Authority if practices or performance changes.
104. The Authority is currently considering if all of these obligations should be imposed by General Determination or if certain elements could be adopted through other means.

### **V.B.1 International precedent**

105. The following subsections present the positions of the European, Canadian and USA NRAs.

### a) European Union

106. The EU Regulation<sup>56</sup> establishes the minimum information that an ISP contract must include. ISPs must provide clear and comprehensible information regarding:
- the traffic management measures that could impact the quality of internet access, as well as the privacy of end-users and on the protection of their personal data;
  - the limitations on volume, speed and any other quality parameters;
  - for fixed networks - the minimum, normally available, maximum and advertised download and upload speeds;
  - for mobile networks – the maximum and advertised download and upload speeds; and
  - the remedies available to consumers in the event of any recurring discrepancy between the actual and advertised speeds.
107. Prior to the EU Regulation, regulations already existed in some European countries regarding what information internet contracts should include.<sup>57</sup> In other countries, voluntary guidelines<sup>58</sup> existed. With the introduction of the EU Regulation, there is now an allowance for previous regulations or additional regulations to be included.
108. NRAs have adopted the following approaches, with regard to monitoring ISP compliance with their obligations of transparency:
- reviewing contracts to ensure compliance with EU Regulations;
  - checking the quality of pre-contractual sources of information (e.g. on ISP websites);
  - reviewing the way ISP operators verbally communicate their conditions to users; and
  - reviewing the clarity of the contract, and the existence of a comprehensive summary.
109. NRAs have chosen to conduct such reviews before the launch of specific tariffs and contracts or during the course of daily business activities. The former approach may provide a more systematic review but requires timely review by the NRA, as well as adding a delay to the activities of the ISPs.
110. In March 2018, the UK NRA Ofcom amended its voluntary *Broadband Speed Code of Practice*<sup>59</sup> for ISPs, specifically with regard to the sales processes of ISPs, to ensure that end-users possess the right to terminate a contract with an ISP if promised performance levels are not achieved and maintained. As illustrated in Figure V.3 below, ISPs should provide the following at the point of sale:

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<sup>56</sup> EU regulation 2015/2120, Article 4.1

<sup>57</sup> For example, Swedish Electronic Communications Act

<sup>58</sup> For example, Code of Practice (UK)

<sup>59</sup> Ofcom introduced a voluntary residential code of practice in 2008, and a code for business services in 2016. At least 10 ISPs have signalled intent to adopt the new practices for March 2019, representing over 90% of residential end-users. [<https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/codes-of-practice>]

- more realistic broadband speed estimates, including express consideration of peak time speed estimates. Advertisements and publications must state the average speed that at least 50% of their customers receive when the network is busiest (8pm-10pm), instead of using the maximum, or 'up to', speeds available to the top 10% of customers;
- a minimum guaranteed speed;
- confirmation of the customers' right to terminate the service contact if broadband speeds fall down below the minimum guaranteed level for a certain period of time (30 days has been set). Customers will also be allowed to terminate their service contract for complimentary services obtained at the time in which the contract was entered into (i.e. TV and/ or telephone); and
- confirmation that all fixed broadband customers benefit from the Broadband Speed Code of Practice, regardless of their access to technology (i.e. copper, partial- or full-fibre, cable, fixed wireless).

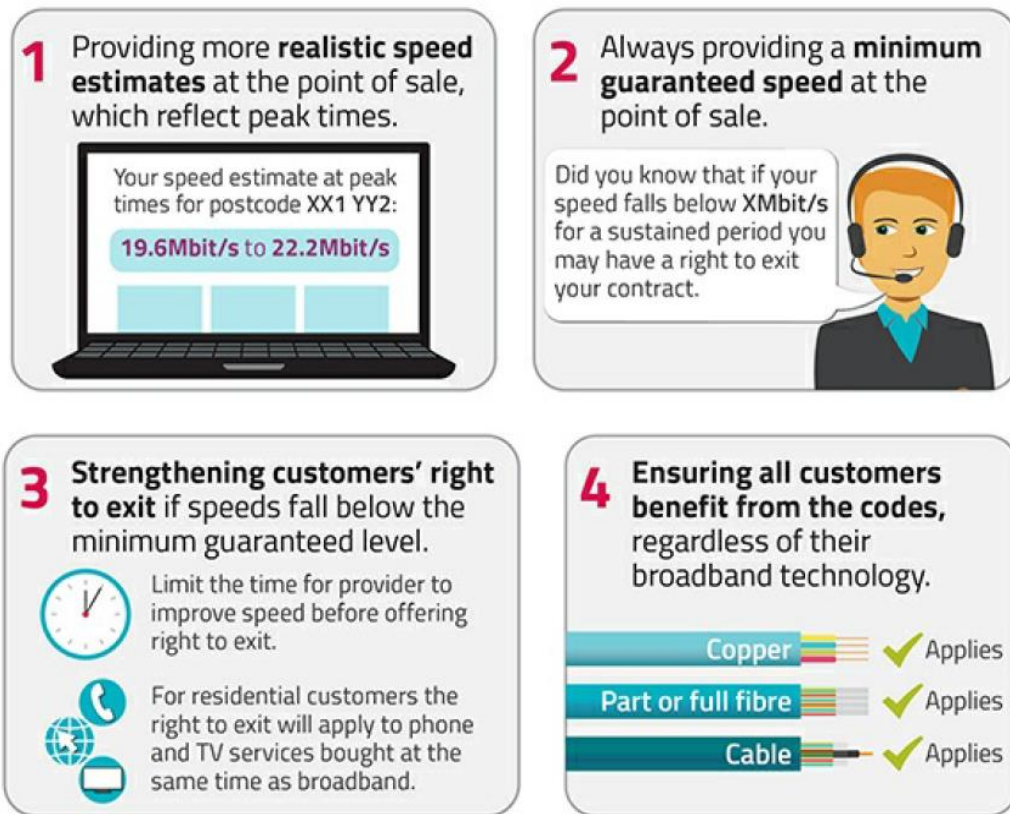


Figure V.3: 2018 Broadband consumer rights at point of sale [Source: Ofcom UK, 2018]

111. Ofcom recognised that the *Broadband Speed Code of Practice* could require ISPs to significantly modify their internal systems and staff training. Subsequently Ofcom afforded ISPs operating in the UK a maximum of 12 months for the policy introduction to be completed.

## **b) Canada**

112. As discussed in more detail above in paragraphs 60 through 62, in 2009 the CRTC published a determination on ITMPs.<sup>60</sup> This determination required that ISPs must be transparent about their usage of ITMPs.

## **c) USA**

113. As discussed in more detail in paragraphs 63 and 65 above, the 2017 Open Internet Order now obliges “ISPs [to] *disclose* information about their practices to consumers, entrepreneurs, and the Commission.”<sup>61</sup> The FCC provides ISPs with two options<sup>62</sup> for disclosure. Firstly, they may “include the disclosures on a publicly available, easily accessible website”. Secondly, ISPs may submit their disclosures to the Commission, which will then publish them on a publicly available website.

### **V.B.2 Proposed approach of the Authority**

114. The Authority believes that ICOLs should be transparent in their traffic management practises and contractual terms, both current and potential. Additionally, the Authority believes ICOLs should provide their customers with realistic expectations on broadband speed, during both normal and peak hours.
115. The Authority proposes to require ICOLs to provide the following information for any electronic communication service product that includes internet access:
- transparency regarding traffic management practices that could impact the quality of internet access;
  - clarity on any performance limitations (e.g. on volume, unreasonable use, speed and any other quality parameters);
  - realistic expectations on the normally available and maximum download and upload speeds for fixed and mobile networks;
  - realistic expectations on the minimum speed for fixed services at a specific location;
  - the channels of complaint and remedies available to consumers in the event of any continuing failure in performance, including discrepancy between the actual and expected speeds;
  - the privacy of end-users and the protection of their personal data; and
  - an update to end-users and the Authority if their practices or performance changes.
116. The Authority is open to discussing the definitions and the measurability of speeds identified above. The Authority also recognises the specific technical challenges of being on an isolated island and is subsequently open to discuss how on-island and off-island speed targets could be separately defined. However, the Authority notes that an off-island

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<sup>60</sup> CRTC, 2009-657: Review of the Internet traffic management practices of Internet service providers, 21 October 2009

<sup>61</sup> FCC, Internet Freedom Order News Release, 14 December 2017 ('DOC-348261A1.pdf')

<sup>62</sup> FCC, FCC-17-166 Restoring Internet Freedom - Transparency rule § 8.1(a), pg. 197, 4 January 2018 ('FCC-17-166A1.pdf')

test using a Google Cloud-based test server was used for the drive testing associated with HDS-1<sup>63</sup> licences (4G mobile).

117. In requiring transparency of traffic management practices, ICOLs would be obliged to publish, for each electronic communication service product which offers internet access, a standard form explaining traffic management measures that could impact the quality of internet access. The Authority could consider imposing an obligation on ICOLs to clearly publish information regarding their traffic management practices on their websites, as well as providing written format at the point of sale. Additionally, to further supplement this obligation to require ICOLs to publish information regarding their traffic management practices, there could be amendments to customer service contracts to state this requirement.
118. The Authority also expects that clarity of performance limitations, reasonable end-user expectations and rights of cancellation are conveyed at the point of sale. As such, the Authority proposes that comparable terms and remedies are used by ICOLs for all contracts relating to internet access. These comparable terms and remedies would include a minimum performance guarantee, a deadline to fix performance issues before contract termination is permitted by the end-user and clear channels for end-users to efficiently communicate their issues. This information should be embedded in the standard consumer contract and any information modified during the contract duration should be approved by the Authority and then subsequently communicated to customers within a prescribed period of time (i.e. 10 working days).
119. The Authority clarifies that such an obligation on transparency of traffic management does not change the Authority's initial position on traffic management proposed above in paragraphs 53 through 76.

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15) Please comment on the proposals of the Authority regarding obligations on ICOLs of:

- a. Transparency regarding traffic management practices;
- b. Clarity on performance limitations;
- c. Giving realistic expectations on speed performance;
- d. Providing end-users with a clear route of complaint and remedy in the case of - continuing failure in performance;
- e. Ensuring the privacy of end-users and the protection of their personal data; and
- f. Updating end-users and the Authority if practices or performance changes.

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16) Please comment on the options identified in the proposed approach above.

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<sup>63</sup> High Demand Spectrum ("HDS-1") licences are licences issued for spectrum allocations.



## **V.C Monitoring tools for the Authority**

120. The Authority proposes to introduce a number of practical tools to ensure the principle of open internet and consumer rights.
121. These tools, as identified in the framework include:
- ISP regulatory surveys;
  - End-user involvement;
  - Technical monitoring; and
  - Contract monitoring.

### **V.C.1 ISP regulatory surveys**

122. Regulatory surveys are a common tool used by several NRAs to ensure that open internet rules are being preserved. An ISP regulatory survey would provide the Authority with transparency on the quality of the internet access service provided to end users, in conjunction with technical monitoring, as set forth below.
123. The availability of transparent, up-to-date and comparable information on services offered is a key element for consumers in competitive markets where several providers offer internet services.
124. The Authority has the power to issue this type of survey, in the form of a formal request to produce information, in accordance with section 91 of the RAA.

#### **V.C.1.i International precedent**

125. The following subsections present the methods adopted by European NRAs.

##### **a) European Union**

126. The European Electronic Communications Code (the “Code”) states that the “availability of transparent, up-to-date and comparable information on offers and services is a key element for consumers in competitive markets where several providers offer services”. Therefore, the Code provides BEREC and NRAs with the power to request information directly from operators.<sup>64</sup>
127. In the UK, ISPs are required to publish a “Traffic Management KFI”,<sup>65</sup> a template detailing the main traffic management measures that operators undertake. Similarly, in Sweden ISPs must answer questionnaires every 6 months which address issues such as traffic management practices.

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<sup>64</sup> EU, Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast) (Text with EEA relevance), 17 December 2018, §265 [<http://data.europa.eu/eli/dir/2018/1972/oj>]

<sup>65</sup> KFI: Key Factor Indicator

### V.C.1.ii Proposed approach of the Authority

128. The Authority is considering issuing a regulatory survey such as the draft version set forth in Annex A. This questionnaire would be targeted at all ICOLs and issued every 6 months by the Authority.
129. As part of the preliminary work on an open internet framework, in early 2018 the Authority issued a similar questionnaire to all ICOLs that provide broadband services. The Authority has used the responses to that questionnaire to inform this Consultation Document.
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- 17) The draft Operator Questionnaire on open internet issues (Annex A) is provided as a draft template. Comments or amendments to this draft are invited.
- 

### V.C.2 End-user involvement

130. With regard to protecting the principle of open internet and the quality of internet provision, two common methods exist for NRAs:
- end-users can be consulted proactively through monitoring surveys; or
  - channels can be provided for end-users to submit complaints regarding net neutrality and other issues relating to electronic communications services.

#### V.C.2.i International precedent

131. The following subsections present the methods adopted by European NRAs.

##### a) European Union

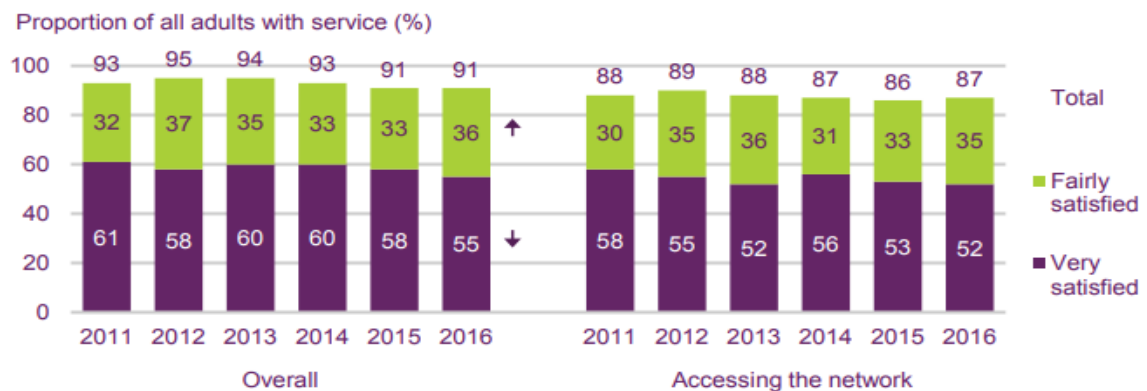


Figure V.4: Market Survey: Satisfaction with aspects of mobile services  
[Source: Ofcom, Communications Market Report 2016]

132. Some European NRAs conduct surveys regularly to measure both user satisfaction with internet access services and users' views on open internet. To ensure the effectiveness of these surveys, European NRAs select a representative sample of users and collect their responses. Survey data is collected, analysed and trends are identified. Upon completion of the survey the NRA publishes a report evidencing the survey results and any notable findings.

133. European NRAs have administrative responsibility to manage end-user complaints specifically related to net neutrality and the traffic management practices of ISPs. According to the EU Regulation,<sup>66</sup> NRAs have an obligation to design a system that allows end-users to submit their complaints regarding open internet. The general practices exhibited with regard to consumer complaints management is consistent across all European NRAs. In conducting this consultation, the Authority notes that the main difference across European NRAs and the way in which they manage consumer complaints is whether the NRA requires consumers to first submit their complaints to the ISP's customer care system.<sup>67</sup>
134. Complaints are individually analysed by NRAs to identify potential unlawful conduct. They are also analysed in aggregate to identify wider trends. The findings of the NRAs in these analyses are published in their net neutrality annual report. Based on the Authority's research, the statistics provided by European NRAs show that user complaints regarding open internet represent a very small minority of the total complaints submitted by users against electronic communications operators.

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<sup>66</sup> EU regulation 2015/2120 Article 4: "Providers of internet access services shall put in place transparent, simple and efficient procedures to address complaints of end-users relating to the rights and obligations laid down in Article 3 and paragraph 1 of this Article."

<sup>67</sup> In countries where users must submit their complaints to the ISP first, operators are legally required to have a conflict resolution system, which is tightly regulated by local NRAs

|          | Portion of Complaints received that involve net neutrality |
|----------|--|
| Spain    | 0.93%  |
| Portugal | “Not significant”  |
| Hungary  | 0.00%  |
| Sweden   | Total of 369   |
| Ireland  | 3.00%  |
| Romania  | 1.50%  |

*Figure V.5: Reported statistics on complaints*  
 [Sources: MINETAD<sup>68</sup>, ANACOM<sup>69</sup>, NMHH<sup>70</sup>, PTS<sup>71</sup>, ComReg<sup>72</sup>, ANCOM<sup>73</sup>]

135. As can be seen from Figure V.5 above, the number of complaints submitted to European NRAs regarding net neutrality specifically has not been very significant. These findings potentially indicate that the existence of unlawful practices may be limited and/ or public awareness of net neutrality is low; therefore, that further public education is required.

#### **V.C.2.ii Proposed approach of the Authority**

136. The Authority currently conducts market surveys as projects require. The Authority, in cooperation with the Department of Consumer Affairs, has existing channels of complaint for end-users.
137. Both activities are set forth under section 9(3) the ECA:<sup>74</sup>

*“In carrying out its functions, the Authority shall endeavour to remain informed of the viewpoints of the residents and consumers of Bermuda, including by—*

*(a) making arrangements for ascertaining from time to time the state of public opinion about the manner in which electronic communications services are provided and the experiences of consumers in relation to the same, including the handling of complaints made to providers of communications networks and facilities and the resolution of disputes; and*

<sup>68</sup> Ministry of Energy, Tourism and Digital (“MINETAD”) is the ministry responsible for electronic communications in Spain.

<sup>69</sup> Autoridade Nacional de Comunicações (“ANACOM”) is the national regulatory authority for the communications sector in Portugal.

<sup>70</sup> National Media and Communications Authority (“NMHH”) is the national regulatory authority for the communications sector in Hungary.

<sup>71</sup> Professional Telecommunications Systems (“PTS”) monitors the electronic communications and postal sectors in Sweden.

<sup>72</sup> The Commission for Communications Regulation (“ComReg”) is the general communications regulator in Ireland.

<sup>73</sup> The National Authority for Management and Regulation in Communications (“ANCOM”) is the body that protects the interests of the communications users in Romania.

<sup>74</sup> Electronic Communications Act 2011, section 9(3)

*(b) establishing and maintaining effective arrangements for seeking the views of consumers and consumer groups in the electronic communications sector, and for disseminating information to consumers relevant to the sector, including by facilitating consumer advisory committees.”*

138. As such, the Authority does not believe it needs additional powers in this regard. The Authority has not yet decided whether a regular report on open internet issues should be issued.

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18) Please comment on activities you believe the Authority could adopt to protect the principle of open internet and the quality of internet provision.

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### **V.C.3 Technical monitoring**

139. NRAs have introduced technical monitoring to assess the quality of internet access services provided to end-users.

#### **V.C.3.i International precedent**

140. The following subsection presents the methods adopted by European NRAs.

##### **a) European Union**

141. The monitoring of quality of internet access services has been a common approach used by European NRAs. However, the method and broadness of this monitoring differs considerably amongst countries. Quality of Service (“QoS”) monitoring includes measuring technical parameters such as internet access speeds (upload, download), jitter<sup>75</sup>, packet loss<sup>76</sup>, delay, etc. The Authority notes that the following methods of measuring QoS have been implemented by European NRAs:

- **End-user device measurement** (“EDM”): test probes are installed in the routers of a group of selected users to monitor speeds in broadband networks;
- **End-user application measurement** (“EAM”): application-based tests are run by users to monitor speeds in broadband networks; and
- **Project self-measurement** (“PSM”): a specific project executes tests using the above-mentioned methods. These methods of measurement can also include drive tests for measuring the performance of mobile networks.<sup>77</sup>

142. BEREC is also considering developing an EAM based tool that could be adopted by NRAs in the future. In 2017, BEREC issued a study on the matter.<sup>78</sup>

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<sup>75</sup> Jitter is variability in latency or delay which is particularly disruptive to audio communications.

<sup>76</sup> Packet loss is the discarding of packets by congested nodes on a network that can degrade the quality of information transmitted over the network,

<sup>77</sup> Such a drive test is used to monitor the obligations of the HDS-1 licence. The obligation is to maintain an average User Download Speed of 15 Mbps and 99% coverage for the duration of HDS-1 licences.

<sup>78</sup> BEREC, BoR (17) 179 Net neutrality measurement tool specification, 5 October 2017

### **V.C.3.ii Proposed approach of the Authority**

143. The Authority is currently considering how to monitor the quality of service of internet access services provided to end-users. The Authority expects that any tests implemented to measure QoS would reflect its final open internet framework.
144. As identified in paragraphs 102 through 119 on ISP obligations, the Authority recognises that there will be a need to develop definitions for measuring internet access speeds. It may also be appropriate to measure on-island and off-island speeds separately.

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19) Please provide your views on what the Authority should consider in acquiring a monitoring tool.

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### **V.C.4 Contract monitoring**

145. Certain NRAs review consumer contracts to ensure compliance with various requirements, including around open internet policies.

#### **V.C.4.i International precedent**

146. The following subsection presents the methods adopted by European NRAs.

##### **a) European Union**

147. In some European jurisdictions, consumer contracts need to go through an approval process managed by the NRA before being implemented. With the introduction of the open internet principle, more countries are considering the implementation of such processes.<sup>79</sup> In addition to ensuring that consumer contracts comply with the EU regulation on open internet, NRAs regularly obtain market data on the current state of the quality of internet access services and current industry practices by analysing new contracts.

#### **V.C.4.ii Proposed approach of the Authority**

148. The Authority generally does not review consumer contracts before electronic communications service providers make them available to the public.
149. In this Consultation Document, the Authority is considering whether it would be appropriate to enforce consumer contract reviews for reasons of protecting the open internet principle and end-user rights.

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20) Please provide comments on whether the Authority should introduce aspects of contract review and the potential benefits or costs of such activities on operators and end-users.

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<sup>79</sup> Following the European Regulation, Ofcom decided to perform an extraordinary revision of all internet access service contracts in 2016.

## V.D Summary of consultation questions

150. Paragraphs 13 through 25 above provides the consultation procedure.
151. All consultation questions have been collated in Figure V6 below. Stakeholders are invited to answer any or all questions. Please reference each question answered.
152. Please also note the requirement of a 'declaration of interest' with any submission, as described above in paragraph 16.

| Q's | Section reference | Section heading  | Question  |
|-----|-------------------|--|---|
| 1)  | V.A.1             | Zero-rating  | Please comment on the proposal of assessing zero-rating tariffs and whether the Authority should take a position as part of its open internet framework.  |
| 2)  |                   |  | Please comment on the proposed criteria for assessing whether zero-rating tariffs should be permitted.  |
| 3)  |                   |  | Please comment on the preliminary position described by the Authority relating to zero-rating.  |
| 4)  |                   |  | Please comment on how the Authority can oversee tariffs offered by ICOLs, specifically if the tariffs may raise concerns relating to an open internet framework.  |
| 5)  | V.A.2             | Traffic management   | Please comment on the Authority's proposed position regarding traffic management.   |
| 6)  |                   |  | Please comment on the specific idea of banning blocking, throttling or prioritisation of internet access traffic.   |
| 7)  |                   |  | Please comment on how and when traffic management should be allowed and how the behaviour of ICOLs can be assessed as part of an open internet framework.   |
| 8)  |                   |  | Please comment on the need to recognise specific services that may be subject to traffic management that could otherwise be considered a breach of an open internet framework.                                    |
| 9)  |                   |  | Please identify the specific services and how they need to be managed. How can it be ensured that these services do not impinge on general internet access?   |
| 10) |                   |  | Please comment on the proposal that OTT services should not perform worse as described in the proposed approach.  |
| 11) | V.A.3             | End-users right to access and distribute legal content of their choice | Please comment on the Authority's proposed position – that end-users have the explicit right to access and distribute legal content, as well use legal applications and services, of their choice on the internet |
| 12) | V.A.4             | End-users choice of terminal equipment                                 | Please comment on the questions raised by the Authority regarding end-users right to choose their own terminal equipment.   |

| Q's | Section reference | Section heading        | Question  |
|-----|-------------------|------------------------|---|
| 13) |                   |                        | Please comment on the Authority's proposed position on end-users right to choose their own terminal equipment.  |
| 14) |                   |                        | Please comment on the Authority's proposed position that operators will be obliged to enable end-users choice.  |
| 15) | V.B               | ISP obligations        | <b>Please comment on the proposals of the Authority regarding obligations on ICOLs regarding:</b>   |
| 15) |                   |                        | a. Transparency regarding traffic management practices;   |
| 15) |                   |                        | b. Clarity on performance limitations;  |
| 15) |                   |                        | c. Giving realistic expectations on speed performance;  |
| 15) |                   |                        | d. Providing end-users with a clear route of complaint and remedy in the case of continuing failure in performance;   |
| 15) |                   |                        | e. Ensuring the privacy of end-users and the protection of their personal data; and   |
| 15) |                   |                        | f. Updating end-users and the Authority if practices or performance changes.  |
| 16) |                   |                        | Please comment on the options identified in the proposed approach.  |
| 17) | V.C.1             | ISP regulatory surveys | The draft Operator Questionnaire on open internet issues (Annex A) is provided as a draft template. Comments or amendments to this draft are invited.                           |
| 18) | V.C.2             | End-user involvement   | Please comment on activities you believe the Authority could adopt to protect the principle of open internet and the quality of internet provision.                             |
| 19) | V.C.3             | Technical monitoring   | Please provide your views on what the Authority should consider in developing a monitoring tool.  |
| 20) | V.C.4             | Contract monitoring    | Please provide comments on whether the Authority should introduce aspects of contract review and the potential benefits or costs of such activities on operators and end-users. |

*Figure V.6: Summary of framework discussion questions*



## Annex A Draft: Operator Open Internet Issues Questionnaire

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This draft is provided for review and any comments or amendments to this draft are welcomed.

Answers to the actual questions set forth herein are **NOT** required during this consultation phase

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The Regulatory Authority of Bermuda (the “Authority”), pursuant to section 91 of the Regulatory Authority Act 2011 (“RAA”) hereby requests information from operators through a comprehensive list of questions included in this document.

Operators are welcome and encouraged to submit additional data, even if it is not explicitly requested, to help support their answers. Operators may highlight any information they consider to be confidential and such data should be submitted pursuant to section 33 of the RAA.

All data provided by operators is subject to publication by the Authority in a form that will be mostly anonymous (generally aggregate), though there could be instances where the anonymous form may be recognisable.

### A.1. Commercial offers in Bermuda

Please answer these questions from the perspective of both:

- Fixed broadband<sup>80</sup> products; and
  - Mobile products which include mobile broadband<sup>81</sup> data access.
- 1) Please confirm whether you include zero-rated products in any of your tariffs? Zero-rating occurs when data from a certain application/content provider, such as WhatsApp, Facebook, etc, does not count towards the data cap of the tariff plan. If yes, please specify which tariffs include zero-rating.
  - 2) Please provide a detailed description of your zero-rated offerings, including:
    - a. the General Terms & Conditions about the practice, as written in the agreement with the end-user.
    - b. How many end-users are concerned by this practice?
    - c. How is the end-user informed about this practice?
  - 3) Please describe the reasons (e.g. popularity, commercial agreement, etc.) for selecting content and services, by user groups, that have been included in the zero-rated tariffs.

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<sup>80</sup> Broadband services provide residential and business users with a means of connecting to Internet-based content and applications (e.g. access products with advertised download speeds of 10MB/s)

<sup>81</sup> Mobile broadband services provide access to Internet-based contents and applications through a portable modem and using the cellular network (e.g. products where subscribers expect to connect to 3G and 4G networks regularly)

- 4) Do you have agreements with Content and Application Providers (“CAPs”) related to zero-rating? Please provide details.
- 5) Please also elaborate on any plans that would change the answer to any of the questions above.

## **A.2. Data usage**

- 6) Please provide information showing the average data usage per user by each zero-rated tariff: a) overall; and b) for zero-rated traffic. Please provide this on a monthly basis for a minimum of 24 months, or since the previous update (if identified, corrections to previous submission are also required). Please also identify the data caps (normal traffic, zero-rated traffic) associated with each zero-rated tariff.
- 7) Please provide statistics on the evolution of the zero-rated applications’ data usage and that of comparable applications. The statistics should show how the zero-rated tariffs modified the usage of the comparable applications when implemented.
- 8) How is traffic from these applications/content providers treated? How is this traffic identified with respect to other traffic (e.g. through certain DPI<sup>82</sup> measures such as assessment of the TCP<sup>83</sup>-port or monitoring the specific packet content)?
- 9) Please describe what happens when a data cap is reached (for normal traffic, and for zero-rated traffic). The Authority has identified tariffs that automatically allocate additional data packages at a cost to users once the data cap is reached. Please confirm whether this is the case for any of your tariff packages, whether the access speed is reduced once a cap is reached, or whether another solution has been implemented. Describe what happens to zero-rated applications when the data cap is reached, if different from the general treatment.
  - a. Please explain how any caps and speed limits are imposed in the network, using which management systems and at which nodes and interfaces.
- 10) Please, also elaborate on any plans that would change the answer to any of the questions above.

## **A.3. Traffic management policies**

Traffic management is one of the core topics of an open internet. It is possible to identify three types of traffic management:

- ‘Best effort’ internet access, under which network operators attempt to convey all traffic on equal terms. This results in an ‘open internet’ with no specific services being hindered or blocked;
- ‘Best effort under traffic congestion’, under which network operators may apply traffic management policies in order to preserve traffic data flow, affecting the minimal number of users; and

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<sup>82</sup> Deep packet inspection (DPI) is a type of data processing that inspects in detail the data being sent over a computer network.

<sup>83</sup> Transmission Control Protocol (“TCP”) is one of the main protocols of the Internet protocol suite.

- 'Managed services', under which network operators will prioritise certain traffic according to the service acquired by the customer.

11) Do you take any of the following actions related to the following targets (not including during busy hours to manage network congestion)?

| Action     | Users | Content/Applications | Services |
|------------|-------|----------------------|----------|
| Block      |       |                      |          |
| Slow down  |       |                      |          |
| Prioritise |       |                      |          |

Figure A7: Commercial traffic management

12) If any of the actions set forth in question 11 are performed, please describe in detail which traffic management measures are put in place and how are these performed.

13) Is traffic management used during peak hours? If so, when are typical peak hours in weekend and week days?

14) What type of traffic is managed during peak hours?

| Action             | Block | Slow down | Prioritise |
|--------------------|-------|-----------|------------|
| Own IP-TV services |       |           |            |
| Own voice service, |       |           |            |
| Own content        |       |           |            |
| Audio streaming    |       |           |            |
| Video streaming    |       |           |            |
| Music downloads    |       |           |            |
| Video downloads    |       |           |            |
| Gaming             |       |           |            |
| VoIP               |       |           |            |
| Peer to Peer (P2P) |       |           |            |
| Newsgroups         |       |           |            |
| Browsing/email     |       |           |            |
| Instant messaging  |       |           |            |
| Software updates   |       |           |            |

Figure A8: Managed traffic in peak hours

15) Do you have separate networks for transporting different services (e.g. guaranteed business data service separate from 'best effort' for internet access for other segments)?

16) Please also elaborate on any plans that would change the answer to any of the questions above.

#### A.4. Traffic management implementation

17) When do traffic management actions take place? Actions may include exceptional or periodic changes to the network policies to manage performance (e.g. blocking or throttling, in known or exceptional peaks).

- 18) Please provide statistics on the general impact of traffic management. What percentage of users and traffic are affected?
- 19) Please provide detailed information on the systems and technologies used to undertake traffic management practices. This includes:
  - a. which management systems allow you to identify the type of user, content or services being used (i.e. packet inspection); and
  - b. where and how is the traffic is being managed. (i.e. node types, interfaces, locations, port numbers).
- 20) Please describe any admission control you apply on your network (e.g. permitting network connection only via pre-specified white-listed CPE/routers) and how you grant access remotely.
- 21) Please provide an overview of your network. key nodes, platforms, management systems, peering and interconnect nodes, caching and content distribution networks.
- 22) Do you operate Content Delivery Networks (“CDNs”)? If so, for which clients? Please elaborate.
- 23) Do you have direct peering arrangements with any content providers (e.g. Google, etc.)? If so, please elaborate.
- 24) Please explain specifically how you implement and manage services over Internet Protocol (“IP”) (VoIP, IP-TV, IP-VPN). Please identify port numbers used by your services over IP.
- 25) Please also elaborate on any plans that would change the answer to any of the questions above.

#### **A.5. Quality of service**

- 26) Please describe what actions you take to manage and guarantee the quality of service.
- 27) Please provide detailed information on the systems and technologies used to measure the quality of service.
- 28) Please provide quality of service measurement data, both current and historic (for a period of 24 months, or since the previous update). If identified, corrections to previous submission are also required. Provide by service type and tariff if possible. Please provide commentary on exceptional events in the provided statistics (e.g. dashboard commentary, management reports or exceptional reports).
- 29) Please also elaborate on any plans that would change the answer to any of the questions above.

#### **A.6. Transparency**

- 30) Is information about traffic management practices made available for end-users? Please provide details.
- 31) Is information about quality of service measurements made available for end-users? Please provide details.
- 32) List the mandatory and voluntary information that is normally made available for end-users.

33) Please also elaborate on any plans that would change the answer to any of the questions above.

**A.7. Complaints**

34) Please provide a detailed description of the existing process that end-users need to follow to submit a complaint.

35) Provide current and historic statistics about the number of complaints received by category and by outcome.

36) Please also elaborate on any plans that would change the answer to any of the questions above.