

## Telecommunications Regulatory Affairs Advisory Committee

### Update on Network Neutrality

#### PURPOSE

This paper briefs Members on the latest development of network neutrality in some overseas jurisdictions, the relevant regulatory regimes in Hong Kong, and the findings of tests conducted by the Office of the Communications Authority (“OFCA”) for monitoring the access to Over-the-Top (“OTT”) content services in Hong Kong.

#### BACKGROUND

2. The general understanding of the term “network neutrality” is that the same treatment should be applied to the delivery of all electronic communication irrespective of their origin, content and destination. Among the stakeholders, which constitute two opposite camps of thoughts on network neutrality, there is tension between the demand for more and unrestrained use of network capacity by users and the perceived right to recoup relevant costs by suppliers for the new investment that is required for that capacity.

3. In recent years, overseas jurisdictions including the United States (“US”), the European Union (“EU”), the United Kingdom (“UK”) and Singapore have reviewed or formulated their regulatory regimes with a view to addressing the various network neutrality issues that may arise. One major development is that the Federal Communications Commission (“FCC”) voted in December 2017 to revoke the network neutrality rules promulgated in 2015 that prevented Internet Service Providers (“ISPs”) from charging extras for prioritising the delivery of any particular services or contents, and blocking services or contents provided by competitors.

## LATEST DEVELOPMENT OF NETWORK NEUTRALITY

### The US

4. The FCC first promulgated its rules on network neutrality in the Open Internet Order 2015 (“2015 Order”), which came into effect on 12 June 2015. In that Order, the FCC re-classified broadband Internet access service as a telecommunications service under Title II of the Communications Act<sup>1</sup>, and as such ISPs would be classified as common carriers. The FCC set out rules banning the blocking of legal content, forbidding paid prioritisation of affiliated or proprietary content, and prohibiting the throttling of legal content by broadband Internet access service providers.

5. On 14 December 2017, the FCC voted to revoke the 2015 Order and promulgated the Restoring Internet Freedom Order to end utility-style regulation of the Internet in favour of the market-based and light-touch policies with a view to promoting Internet growth, openness and freedom. According to the FCC’s announcement<sup>2</sup>, the FCC will no longer regulate broadband Internet access service as a “telecommunications service”, but will restore its classification as an “information service”. The previous rules that prevented ISPs from charging extras for prioritizing the delivery of any particular services or contents, and blocking services or contents provided by competitors will no longer apply. Instead, the FCC will only require ISPs to disclose how they treat traffic, including any blocking, throttling, paid prioritisation or affiliated prioritisation. Any unfair trade practice and competition issues will be handled by the Federal Trade Commission.

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<sup>1</sup> Historically, broadband services were classified in the US as “information services” which fell under Title I of the Communications Act and were subject to less stringent regulations. Title II of the Communications Act imposes specific requirements on common carriers in their provision of telecommunications services. Generally, Title II requires common carriers to, among others, provide service “upon reasonable request”, at a “just and reasonable” rate, and without “unjust or unreasonable” discrimination in charges, practices, classifications, regulations, facilities, or services.

<sup>2</sup> FCC’s announcement  
<https://www.fcc.gov/document/fcc-takes-action-restore-internet-freedom>

6. The latest FCC decision is seen to be favoured by facility-based carriers and ISPs. They have been arguing hard against the previous network neutrality rules as they consider that certain OTT content providers have unfairly consumed a large amount of the Internet bandwidth and are free riding on ISPs' investments. The latest decision will pave the way for carriers / ISPs to charge premiums for priority access to content providers and consumers may in the future experience differential treatments for access to different applications and services available on the Internet.

7. On the other hand, there are other opinions that the repeal of the network neutrality rules will not be detrimental to the development of the Internet. It will simply return to the hands-off regulatory framework that has nurtured the past two decades or more of the Internet revolution before the 2015 Order. The cessation of the network neutrality rules will lead to a closer link between cost and consumption. ISPs may probably be able to use any additional revenues generated from high-bandwidth users to support the investment on network infrastructure for use by all users and bridging digital divide.

## **The EU**

8. Following the adoption of the first EU-wide network neutrality regulation<sup>3</sup> ("Regulation") on 25 November 2015, a set of common network neutrality rules in the EU ("Rules")<sup>4</sup> came into force on 30 April 2016. The Rules aimed to strengthen network neutrality by requiring ISPs in the EU to treat all traffic equally, subject to strict and clearly identified public-interest exceptions such as network security, and subject to efficient day-to-day network management by ISPs. On 30 August 2016, the Body of European Regulators for Electronic Communications ("BEREC") issued guidelines for the implementation of the obligations of National Regulatory Authorities ("NRA")

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<sup>3</sup> Regulation (EU) 2015/2120  
[http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2015.310.01.0001.01.ENG&toc=OJ:L:2015:310:TOC](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.310.01.0001.01.ENG&toc=OJ:L:2015:310:TOC)

<sup>4</sup> The Rules in the EU  
<https://ec.europa.eu/digital-single-market/en/policies/open-internet-net-neutrality>

(“Guidelines”)<sup>5</sup> in order to contribute to the consistent application of the Regulation and to provide guidance on the implementation of the obligations of NRAs.

9. While the principle of network neutrality is enshrined in the EU law, the Guidelines allow some exceptions to accommodate differential treatment from ISPs. First, the Guidelines state that under Article 3(5) of the Regulation, ISPs are allowed to offer service other than Internet access service (“IAS”), namely “specialised services”<sup>6</sup>, such as VoLTE, Internet Protocol (“IP”) television services and remote surgeries, which are optimised for meeting specific requirements where necessary. Nevertheless, the ISPs may provide specialised services only if the network capacity is sufficient to provide the specialised service in addition to any IAS provided. Specialised services shall not be usable or offered as a replacement for IAS and shall not be to the detriment of the availability or general quality of the IAS for end-users. Second, “zero-rating” would be allowed under which certain applications and services would be exempted from being counted against monthly data limits. When assessing commercial practices like zero-rating, the assessment should take into account the aim of the Regulation to safeguard equal and non-discriminatory treatment of traffic as well as whether such practices would lead to situations where end-users’ choice is materially reduced in practice, or the essence of the end-users’ rights is undermined. Third, reasonable traffic management measures would be allowed for ISPs to reasonably prioritise Internet traffic for some services with differentiation from others. In assessing whether an ISP complies with the principle of equal treatment, the Guidelines set forth the criteria to assess the reasonableness of a traffic management measure, including but not limited to transparency, non-discrimination and proportionality. The traffic management measure shall not be based on commercial

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<sup>5</sup> Guidelines issued by BEREC  
[http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules](http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules)

<sup>6</sup> In the Guidelines, BEREC uses the term “specialised services” as a short expression for “service other than Internet access services which are optimised for specific content, applications or services, or a combined thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality”.

considerations, monitoring of the specific content and maintained for longer than necessary.

10. On 7 December 2017, BEREC issued a report (“BEREC Report”)<sup>7</sup> giving an overview of the activities of the NRAs under the first year application of the Regulation and the Guidelines. The BEREC Report mentioned that NRAs had in general applied consistent treatment of practices relating to the core principles of network neutrality, such as the ban on blocking of applications and discriminatory treatment of specific traffic. On safeguarding end-users’ rights to open Internet access, all NRAs were actively monitoring the commercial practices in the market and the associated technical conditions related to the provision of IAS, including the provision of zero-rating services and “specialised services”.

11. There are ongoing criticism of the Regulation on network neutrality in the EU as not being able to achieve a level playing field because ISPs are still allowed to offer discriminatory access to applications ranging from social media to music and video streaming, i.e. zero-rating. For example, some ISPs are offering two-tiered pricing service packages aside from standard zero-rating pricing, which may be considered as an even bigger departure from network neutrality than zero-rating.

## **The UK**

12. In the UK, it is noted that a more industry-led approach has been adopted to tackle the issue of network neutrality. The Broadband Stakeholder Group (“BSG”), the UK government’s leading advisory group on broadband, published a voluntary industry code of practice called the Open Internet Code of Practice (“Open Internet Code”) in July 2012 and had obtained the signatories of all major UK fixed and mobile ISPs. On 8 June 2016, BSG published the revised Open Internet Code following the adoption of the Regulation in the EU<sup>8</sup>. The revised code

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<sup>7</sup> BEREC Report on the implementation of the Regulation and Guidelines  
[http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/7529-berec-report-on-the-implementation-of-regulation-eu-20152120-and-berec-net-neutrality-guidelines](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/7529-berec-report-on-the-implementation-of-regulation-eu-20152120-and-berec-net-neutrality-guidelines)

<sup>8</sup> Revised Open Internet Code available at

continues to preserve the concept of an open Internet – one in which users can access all lawful content without providers discriminating on the basis of commercial rivalry. It also ensures that traffic management practices employed by ISPs to manage their network are compliant with the Regulation. In addition, the signatories to the Open Internet Code will maintain the information transparency that they already have in place by ensuring that they are communicated to the users effectively.

13. The Office of Communications (“Ofcom”) is responsible for enforcement of the Regulation. To report the implementation of the Regulation to the European Commission, Ofcom published a report on “Monitoring Compliance with the EU Net Neutrality Regulation” on 23 June 2017 (“Ofcom Report”)<sup>9</sup>. The Ofcom Report covers five areas, including:

- (a) monitoring the quality of IAS;
- (b) safeguarding open Internet access;
- (c) traffic management;
- (d) transparency measures; and
- (e) complaints and remedies.

14. The Ofcom Report found that there were no major concerns regarding the openness of the Internet in the UK. However, there was criticism that network neutrality was being abused by ISPs for selling data packages that would favour certain web sites over their competitors. It was argued that greater choice and competition in the UK among ISPs meant network neutrality would be less of an issue there, with the higher pressure among ISPs to offer appealing services.

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<http://www.broadbanduk.org/wp-content/uploads/2016/06/BSG-Open-Internet-Code-2016.pdf>

<sup>9</sup> Ofcom Report on “Monitoring Compliance with the EU Net Neutrality Regulation”  
[https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0018/103257/net-neutrality.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0018/103257/net-neutrality.pdf)

## Singapore

15. The former Infocomm Development Authority of Singapore (“IDA”) issued a consultation paper on “The Internet Protocol Transit and Peering Landscape in Singapore”<sup>10</sup> which examined Singapore’s Internet traffic connectivity landscape and analysed the market conditions surrounding IP transit and peering arrangements in Singapore. Having considered the views received in the consultation, IDA issued its decision on 24 August 2016<sup>11</sup>. In conclusion, IDA found no evidence that the IP transit and peering landscape had not been functioning well, nor had competition in this area been ineffective or impeded. Therefore, IDA did not find any strong reasons for IDA to directly intervene in IP transit and peering arrangements amongst ISPs. Nonetheless, IDA would encourage ISPs in Singapore who had existing IP peering arrangements in Singapore to publish their IP peering policies on their respective web sites. IDA would expect all licensees to negotiate in good faith and in a commercially reasonable manner with other ISP(s) for the purpose of entering into an IP peering arrangement.

## REGULATORY REGIMES IN HONG KONG

16. In Hong Kong, it is noted that no genuine concern on network neutrality have been raised by members of the industry and the public so far. In general, the keen facilities-based competition in the telecommunications market should have exerted sufficient safeguard against any particular ISP acting unilaterally to violate the principle of network neutrality and undermine the interests of Internet users. In the unlikely event that the market cannot solve a problem associated with network neutrality such as differential treatment of network

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<sup>10</sup> IDA Consultation paper on “The Internet Protocol Transit and Peering Landscape in Singapore”, 13 February 2015  
[https://www.imda.gov.sg/-/media/imda/files/inner/pcdg/consultations/20150213\\_ippeering/ippeerinpublicconsult.pdf?la=en](https://www.imda.gov.sg/-/media/imda/files/inner/pcdg/consultations/20150213_ippeering/ippeerinpublicconsult.pdf?la=en)

<sup>11</sup> IDA’s Decision, 24 August 2016  
[https://www.imda.gov.sg/-/media/imda/files/inner/pcdg/consultations/20150213\\_ippeering/explanatory-memorandum---ip-transit-and-peering-landscape-in-singapore.pdf?la=en](https://www.imda.gov.sg/-/media/imda/files/inner/pcdg/consultations/20150213_ippeering/explanatory-memorandum---ip-transit-and-peering-landscape-in-singapore.pdf?la=en)

communication, the problem will be dealt with under the existing laws or licence conditions.

17. OFCA had previously provided an overview of various regulatory tools available to the Communications Authority in TRAAC Paper No. 6/2016<sup>12</sup>. In gist, safeguards under the relevant provisions of the Telecommunications Ordinance (Cap. 106) (“TO”) and licence conditions of various telecommunications services licences (viz. sections 7I, 24(1)(c), 36A and 36B of the TO; General Conditions 5, 8 and 9, and Special Conditions 1.2, 3 and 6 of licence conditions), the Trade Descriptions Ordinance (Cap. 362) (viz. sections 7A and 13E) and the Competition Ordinance (Cap. 619) (viz. sections 6 and 21) would continue to be relied on to tackle any emerging issues related to network neutrality. Having said that, OFCA will continue to keep a vigilant eye on the relevant developments in the local telecommunications market as well as the relevant developments in other jurisdictions.

## **PERFORMANCE TEST OF ACCESS TO OTT CONTENT SERVICES**

18. With the emergence and growing popularity of OTT content services in the Hong Kong market, OFCA is aware of the general concerns whether ISPs in Hong Kong may have adopted discriminatory traffic management practices to compromise the principle of network neutrality in the delivery of OTT content services from competing providers. As part of its market surveillance work, OFCA conducted tests for monitoring the performance of access to OTT content services delivered by major ISPs with a view to detecting any improper or problematic degradation or discriminatory prioritisation of the OTT content services being delivered by the concerned ISPs.

19. During the period from May 2016 to January 2017, OFCA conducted more than 150 measurements to evaluate the performance of the three OTT content services popular at that time (viz. LeTV, myTV Super and Netflix) delivered through the broadband services of four

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<sup>12</sup> TRAAC Paper No.6/2016  
[https://www.ofca.gov.hk/filemanager/ofca/en/content\\_757/traac6\\_2016\\_p.pdf](https://www.ofca.gov.hk/filemanager/ofca/en/content_757/traac6_2016_p.pdf)



major ISPs in Hong Kong (the “Test”). The Test was conducted by using ordinary broadband connections provided by these major ISPs at different residential locations covering all three geographical locations in Hong Kong (viz. Hong Kong Island, Kowloon and New Territories), during peak hours at weekdays and weekends/public holidays. The performance of the broadband connections for the delivery of the OTT content services was evaluated at the same time when other typical Internet applications were running in the background over the same broadband connections including streaming of other high-definition (“HD”) videos from other popular web sites, Internet browsing, online games, etc. in order to simulate a normal usage environment.

20. According to the measurements conducted, it was found that there were in general satisfactory reception of all the three OTT content services in the Test. The measured downstream speed and response time of each OTT content service did vary with different broadband connections at different geographical locations, but there was no observed systemic degradation of the delivery of any particular OTT content service as applied by the major ISPs because the overall downstream speed and response time of different OTT content services remained largely consistent. On the key performance indicators of the OTT content services, satisfactory sound and picture quality of all three OTT content services were generally observed for all broadband connections used in the Test. Over 99% of the measurements conducted did not indicate any problem on video and audio synchronisation. Occasionally, buffering of the OTT content services did occur, but again it was unlikely due to any problematic traffic management measures or discriminatory practices imposed by any particular ISPs as the buffering problems were not totally avoidable across all ISPs.

21. The results of the Test affirmed that there was no evidence to suggest any improper or problematic degradation or discriminatory prioritisation of some of the most popular OTT content services being applied by the four major ISPs. Nonetheless, OFCA will continue to keep in view the market developments and may conduct further tests to evaluate the prevailing situation and to identify any problematic practices as and when necessary.

## **WAY FORWARD**

22. Network neutrality regulations in overseas jurisdictions are still evolving. Services and contents delivered over the Internet are growing fast and new commercial practices or traffic management arrangements may emerge from time to time. It is therefore likely that new issues or challenges relating to network neutrality may come up in the future along with further development of the Internet market. OFCA will continue to monitor the relevant developments regarding network neutrality in other jurisdictions and may conduct timely reviews of the latest situations in Hong Kong.

23. Drawing on the experience from overseas jurisdictions, information transparency regarding any traffic management measures implemented by the ISPs is widely accepted as one of the key measures to enrich end users' ability to understand the restrictions of the Internet access service provided by ISPs and choose the suitable Internet access service that best fits their needs. Also, it can reduce the asymmetry of information existing between ISPs and end users, thus fostering proactive behaviour by ISPs which is conducive to effective competition in the market. As such, OFCA would actively encourage all ISPs to enhance information transparency in disclosing information about their implementation of traffic management practices, if any, to consumers at large.

## **VIEWS SOUGHT**

24. Members are invited to give their views and comments on this paper.

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