Canadian Radio-television and Telecommunications Commission
Conseil de la radiodiffusion et des télécommunications canadiennes

Telecom Regulatory Policy CRTC 2009-657

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Review of the Internet traffic management practices of Internet service providers

File number: 8646-C12-200815400

In this decision, the Commission sets out its determinations in the proceeding initiated by Telecom Public Notice 2008-19 regarding the use of Internet traffic management practices (ITMPs) by Internet service providers (ISPs). The Commission establishes a principled approach that appropriately balances the freedom of Canadians to use the Internet for various purposes with the legitimate interests of ISPs to manage the traffic thus generated on their networks, consistent with legislation, including privacy legislation.

The Commission based its determinations in this matter on the following four considerations:

1. *Transparency*

   - *Where any ITMPs are employed, ISPs must be transparent about their use. Consumers need this information to make informed decisions about the Internet services they purchase and use.*

   - *Economic practices are the most transparent ITMPs. They match consumer usage with willingness to pay, thus putting users in control and allowing market forces to work.*

2. *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 Commission recognizes that some measures are required to manage Internet traffic on ISP networks at certain points in the network at certain times.*

   - *Where ITMPs are employed, they must be designed to address a defined need, and nothing more.*

3. *Clarity*

   - *ISPs must ensure that any ITMPs they employ are not unjustly discriminatory nor unduly preferential. The Commission has established an ITMP framework that provides clarity and a structured approach to evaluating whether existing and future ITMPs are in compliance with subsection 27(2) of the* Telecommunications Act *(the Act).*

4. Competitive neutrality

- *For retail services, ISPs may continue to employ ITMPs without prior Commission approval. The Commission will review such practices, assessing them against the framework, based upon concerns arising primarily through complaints by consumers.*

- *For wholesale services there will be additional scrutiny. When an ISP employs more restrictive ITMPs for its wholesale services than for its retail services, it will require Commission approval to implement those practices. Technical ITMPs applied to wholesale services must comply with the ITMP framework and must not have a significant and disproportionate impact on secondary ISP traffic.*

The Commission is also taking steps to ensure that personal information collected for the purpose of managing Internet traffic is not used for other purposes and is not disclosed.

In recognition of the growing importance of wireless data services to Canadians and to the telecommunications system, the Commission announces that it intends to undertake a future review of the regulatory measures applied to these services with respect to ITMPs.

Finally, the Commission clarifies the circumstances in which an ITMP employed by an ISP would result in the carrier controlling the content or influencing the meaning or purpose of telecommunications. In these circumstances, the Commission's prior approval would be required, pursuant to section 36 of the Act, but the Commission would not use the ITMP framework in its review, as the matter is not one of discrimination or preference.

Introduction

1. The availability of the Internet has had a profound impact on Canadians and has fundamentally changed the communications landscape. The rapidly developing array of Internet services and applications represents an extraordinary advance in the availability of educational, entertainment, and informational resources. In addition, the Internet plays an important role in the economy, as an engine for productivity growth. Governments around the world are taking actions intended to establish the Internet as a fundamental part of society and a preferred means by which citizens engage with one another. Information and communications technologies are expected to be used increasingly to support health care, to provide educational opportunities, to connect and foster communities, to support cultural activities, and to facilitate trade and commerce.

2. An essential consideration when examining the evolution of the Internet is how best to foster and secure the environment for innovation. Innovation is at the heart of the Internet. The Internet has given people the freedom to innovate without permission. It has dissociated certain elements that previously had been inextricably joined:

    - the ownership of networks and the uses to which networks are put; and

- the costs of running networks, which are measured in billions of dollars, and the costs of developing services and products that are delivered through networks, which can be measured in millions.

3. Dissociating the ability to innovate from the ownership of networks, and the costs of innovation from the costs of maintaining networks, has led to unprecedented innovation. The Internet has pushed innovation from the core of networks to the edges, from large carriers to innovators such as Tim Berners-Lee, inventor of the World Wide Web. This shift has reduced the power of network owners, which used to be absolute. It has also created some problems, some of which will be explored further in this decision.

4. At the core of the debate over "net neutrality" is whether innovation will continue to come from the edges of networks, without permission. Will there continue to be rapid and uncontrolled innovation in computer communications? Will citizens have full access to that innovation? The Commission earnestly hopes so. However, due to the limited capacity of their networks, carriers have legitimate interests in the management of these networks. Will they be able to develop networks that can bear the traffic generated by this innovation? Will they, in turn, be empowered to innovate?

5. In Canada, the high adoption rate of broadband Internet services and the use of innovative new services by Canadians have led to steady growth in Internet traffic for the better part of a decade. Data collected in the course of this proceeding indicate that the average growth of Internet traffic on Internet service providers' (ISPs) networks in Canada has been over 43 percent per year for the period from 2005 to 2008. In response to the impact of this growth on their networks, some ISPs have implemented Internet traffic management practices (ITMPs), which, in turn, have given rise to debates about the appropriateness of such practices and their compliance with the *Telecommunications Act* (the Act). ITMPs may take many forms and approaches, including using technologies to alter the flow of traffic or linking usage prices to user consumption.

6. In Telecom Decision 2008-108, the Commission addressed a complaint by the Canadian Association of Internet Providers against Bell Canada, a primary ISP,[1] with respect to Bell Canada's slowing down of traffic generated by peer-to-peer (P2P) file-sharing applications. The decision was limited to the treatment of secondary ISPs[2] that were using Bell Canada's Gateway Access Service, a wholesale service,[3] to offer a competing Internet access service to their own customers.

7. Concurrent with Telecom Decision 2008-108, the Commission issued Telecom Public Notice 2008-19 with the purpose of examining the ITMPs of ISPs and determining whether any measures are required to ensure that such practices are in accordance with the Act. The primary objective of the proceeding was to develop a policy that appropriately balances the

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1 A primary ISP is an ISP that is also a Canadian carrier, generally offering both retail Internet services and tariffed wholesale services.

2 A secondary ISP uses tariffed wholesale services from a primary ISP to provide, among other things, its own retail Internet services.

3 In this decision, the term "wholesale service" refers to a tariffed service offered by a primary ISP and used by a secondary ISP to provide, among other things, its own retail Internet services.

freedom of Canadians to use the Internet for various purposes with the legitimate interests of ISPs to manage the traffic thus generated on their networks, consistent with legislation, including privacy legislation.

8. In Telecom Public Notice 2008-19, the Commission sought input from the public on a range of issues related to the Internet and to the ITMPs used by ISPs. The following issues were examined in this proceeding and will be dealt with in this decision:

    I. Framework for determining acceptable ITMPs

    II. Regulatory approach for retail services

    III. ISP disclosure of ITMPs to retail customers

    IV. Regulatory approach for wholesale services

    V. Protection of privacy

    VI. Applicability of determinations to mobile wireless data services

    VII. Scope of section 36 of the Act

9. In the Commission's view, the outcome of this proceeding must be the establishment of an appropriate balance between society's interest in innovation in computer communications and its equally legitimate concern regarding the rights of carriers to manage the traffic thus generated. For this reason, the Commission has found it necessary to devise a policy framework for traffic management that takes into account these competing concerns.

10. Canadians' interest in this subject was highlighted through submissions made to the Commission throughout the process. The Commission received 437 initial comments, 35 reply comments, and 34 final replies from parties (companies and advocacy groups) and individuals. In addition, an online campaign resulted in over 13,000 email submissions to the Commission from individuals. At the oral hearing in July 2009, 26 presentations were made. Finally, an online consultation initiated by the Commission resulted in 1,400 additional individual comments.

11. The public record of this proceeding, which closed on 28 July 2009, is available on the Commission's website at www.crtc.gc.ca under "Public Proceedings" or by using the file number provided above.

Regulatory background

12. The Commission notes that in various determinations, including those set out in Telecom Order 99-592, it concluded that the retail Internet service market was sufficiently competitive to protect the interests of users. On this basis, the Commission forbore from the regulation of these services pursuant to section 34 of the Act, retaining its powers under section 24 (in part) and subsection 27(2), among other sections.

13. In contrast, the Commission has not forborne from regulating the services that primary ISPs provide to secondary ISPs, which remain subject to tariff approval. This approach ensures that services required by secondary ISPs, as competitors of primary ISPs, are made available according to rates, terms, and conditions that are consistent with the Act.

14. In Telecom Decision 2008-108, the Commission made the following determinations with respect to Bell Canada's traffic shaping of its Gateway Access Service customers' P2P traffic, based on the record of that proceeding:

    - Bell Canada was responsible for ensuring that its network was operated effectively and efficiently, and should be able to take measures in that regard;

    - Bell Canada had established that there was congestion in its network during peak periods; and

    - the traffic shaping was not in violation of sections 24 or 36, or of subsections 25(1) or 27(2), of the Act.

Policy Direction

15. As required under section 47 of the Act, the Commission must exercise its powers and perform its duties in accordance with any policy direction from the Governor in Council. The Governor in Council's Policy Direction (the Policy Direction)[4] requires the Commission to implement the policy objectives in the Act in accordance with specific terms and criteria, including relying on market forces to the maximum extent feasible and ensuring that any technical regulatory measures are implemented in a symmetrical and competitively neutral manner to the greatest extent possible.

16. In all cases in this decision where the Commission has imposed regulatory requirements on ISPs, it has done so where market forces cannot be relied upon to achieve the telecommunications policy objectives. Further, in imposing such requirements, the Commission has used measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives.

17. In this regard, the Commission is of the view that the ITMP framework set out below interferes with market forces to the minimum extent necessary, as ISPs will be free to decide what types of ITMPs to apply to their services, consistent with the Act.

18. The Commission considers that the policy objectives set out in paragraphs 7(*a*), (*b*), (*c*), (*f*), (*g*), (*h*), and (*i*) of the Act are advanced by the regulatory measures imposed in this decision.

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[4] *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, P.C. 2006-1534, 14 December 2006

19. The Commission has imposed the regulatory measures set out in this decision in a symmetrical and competitively neutral manner to the greatest extent possible. The Commission notes that the ITMP framework will be used to assess the ITMPs of any ISP where such an assessment is required and will therefore apply in a symmetrical and competitively neutral manner.

I. Framework for determining acceptable ITMPs

20. A broad range of ITMPs are available to ISPs. The ITMPs currently employed by Canadian ISPs include technical approaches,[5] which manage traffic to prevent or respond to network congestion, as well as economic approaches,[6] which link rates for Internet service to end-user consumption. In general, ISPs commented that, in order to offer differentiated retail services, it is important for them to have the ability to determine which ITMPs they apply to their own retail Internet services.

21. Some parties, including consumer advocacy groups and individuals, submitted that investing in network capacity would reduce the need for ISPs to rely on ITMPs to deal with congestion. Primary ISPs responded that, in isolation, investment in infrastructure would not sufficiently address the issue of congestion. These ISPs submitted that such investment is a primary approach to addressing traffic growth, and that significant capital expenditures are dedicated to infrastructure every year.

22. Parties generally acknowledged that some traffic management is required to address congestion in order to ensure that all end-users receive acceptable Internet service. Parties also generally agreed that ISPs must employ ITMPs to protect the integrity of their networks from security threats.

23. On the other hand, some parties submitted that ITMPs can be unjustly discriminatory towards end-users, application providers, and secondary ISPs, contrary to subsection 27(2) of the Act.[7] They also submitted that ITMPs can degrade a user's Internet experience and stifle innovation on the Internet.

24. Some parties submitted that the Commission should rule on the acceptability of specific ITMPs or types of ITMPs. In particular, many parties alleged that application-specific ITMPs[8] employed by ISPs violate subsection 27(2) of the Act.

25. Other parties suggested that, owing to the broad range of ITMPs and the rapidly evolving nature of the Internet, guidelines on acceptability are required but should be of a general nature and be applied on a case-by-case basis.

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5 Technical ITMPs include slowing down a user's traffic, prioritizing traffic, and detecting heavy users in order to limit their bandwidth.

6 Economic ITMPs include monthly bandwidth capacity limits, where users who exceed a predefined threshold must pay additional money for bandwidth consumed, and time-of-day pricing for bandwidth consumed.

7 Subsection 27(2) states: "No Canadian carrier shall, in relation to the provision of a telecommunications service or the charging of a rate for it, unjustly discriminate or give an undue or unreasonable preference toward any person, including itself, or subject any person to an undue or unreasonable disadvantage."

8 Application-specific ITMPs are those which degrade or prefer one application, class of application, or protocol over another.

26. Some parties suggested that guidelines are not necessary and that the Commission can rely on the Act to determine the acceptability of ITMPs. They argued that guidelines or a framework would materially interfere with market forces and would therefore violate the Policy Direction.

27. With respect to the content of a framework, some parties suggested that it should incorporate the following key considerations:

    - Does the ITMP address a justifiable purpose?

    - Is the ITMP rationally connected to, or narrowly tailored to, the purpose?

    - Is the ITMP the least restrictive means to achieve the purpose? In particular, does the ITMP result in as little discrimination or preference as possible? Also, does the ITMP control the content as little as possible, or have as little impact on the meaning or purpose of any content as possible?

28. Some parties suggested that such a framework would be unworkable because it would be difficult or impossible to determine whether or not a given ITMP is the single best method for managing traffic. Other parties suggested that, in practice, such a framework would not require that a determination of the single best method for traffic management be made, but rather that the solution fall within a range of reasonable alternatives.

29. Some parties supported what they referred to as a "reasonableness test," which would require ISPs to show that they had made reasonable efforts to limit the negative impact of a given ITMP on users, services, protocols, and applications. Other parties suggested that such a test would be inappropriate because it would not assess an ITMP in light of the Act.

30. With respect to whether or not a framework should apply in a technologically neutral fashion, parties generally agreed that there are significant differences between wireless and wireline technologies, most prominently the capacity limitations of wireless networks. Some of these parties further submitted that the unique technical challenges of providing wireless Internet access might mean that more restrictive ITMPs are required to ensure network integrity in a wireless environment, and that symmetric regulation would therefore be too restrictive. Other parties submitted that any determinations related to ITMPs should apply equally to both wireline and wireless Internet services.

31. Some parties also requested that, due to their small size, they not be subject to the same regulatory requirements that apply to other ISPs in relation to the ITMPs they may choose to employ for their retail Internet services.

32. Advocacy groups representing persons with disabilities submitted that such persons may access and use the Internet in a unique fashion. These groups requested that the Commission consider the unique requirements of persons with disabilities when making determinations related to ITMPs.

Commission's analysis and determinations

33. The Commission notes that ITMPs can affect innovation in applications, the performance of users' Internet services, and competition in the provision of retail Internet services. The Commission further notes that some of the largest ISPs in Canada have implemented ITMPs and others have indicated that they may do so in the future. In addition, the Commission notes that there is a wide range of ITMPs and that associated technologies are evolving rapidly.

34. In light of these considerations, and in view of the importance of the Internet to Canadians, the Commission considers it necessary at this time to provide a level of certainty as to the application of the Act to ITMPs.

Importance of continued network investment

35. The Commission notes the investments that Canadian ISPs are making in network infrastructure and encourages continued investment to address changing network conditions caused, in part, by the growing reliance on the Internet and the use of innovative new services by Canadians.

36. The Commission notes that investment in network capacity is a fundamental tool for dealing with network congestion and should continue to be the primary solution that ISPs employ. However, the Commission considers that investment alone does not obviate the need for certain ITMPs, which may be used to address temporary network capacity constraints and changing network conditions, as well as for service innovation.

No bright-line rules

37. Given the varied and evolving nature of networks, services being offered, and user needs, the Commission considers that it would not be appropriate to create bright-line rules as to which types of ITMPs are acceptable. However, the Commission is of the view that ISPs and users would benefit from a framework that would be applied to determine whether or not specific ITMPs are in compliance with subsection 27(2) of the Act. Such a framework would provide clarity to the industry while allowing ISPs and application providers to continue to innovate.

Development of ITMP framework

38. The Commission considers that, for an ITMP to be evaluated properly, it must first be described, along with the need for it and its purpose and effect. The description should also identify whether or not the ITMP results in discrimination or preference.

39. Where an ITMP does result in discrimination or preference, the Commission considers that establishing that the ITMP is carefully designed and narrowly tailored is important in an evaluation of whether or not the discrimination or preference is unjust or undue.

40. In addition to the above points, the Commission notes the following:

    - Application-specific ITMPs degrade or prefer one application, class of application, or protocol over another and may therefore warrant investigation under subsection 27(2) of the Act.

    - In contrast, economic ITMPs would generally not be considered unjustly discriminatory, as they link rates for Internet service to end-user consumption. Economic ITMPs also provide greater transparency to users than technical ITMPs, as they are reflected in monthly bills. Furthermore, these practices match consumer usage with willingness to pay, thus putting users in control and allowing market forces to work.

41. With respect to parties' requests that the Commission's determinations not apply to small ISPs and the requests made by advocacy groups on behalf of the accessibility community, as well as comments made with respect to the varying technologies in use by ISPs, the Commission considers that the framework will provide sufficient flexibility to account for the particular circumstances of each ISP as well as any unique requirements of persons with disabilities.

42. With these considerations in mind, the Commission will apply the framework that follows.

ITMP framework

43. When an ISP is responding to a complaint regarding an ITMP it has implemented, it will use the ITMP framework. In doing so, the ISP shall:

    - Describe the ITMP being employed, as well as the need for it and its purpose and effect, and identify whether or not the ITMP results in discrimination or preference.

    - In the case of an ITMP that results in any degree of discrimination or preference:

        - demonstrate that the ITMP is designed to address the need and achieve the purpose and effect in question, and nothing else;

        - establish that the ITMP results in discrimination or preference as little as reasonably possible;

        - demonstrate that any harm to a secondary ISP, end-user, or any other person is as little as reasonably possible; and

        - explain why, in the case of a technical ITMP, network investment or economic approaches alone would not reasonably address the need and effectively achieve the same purpose as the ITMP.

    Where an ISP is seeking prior Commission approval in order to implement an ITMP, the ITMP framework will also be applied.

ITMPs used for network security or employed temporarily to protect network integrity

44. The Commission notes that Canadian ISPs have used certain ITMPs for the purposes of network security and integrity. Specifically, these ITMPs have been employed to protect users from network threats such as malicious software, spam, and distribution of illicit materials. In the Commission's view, such activities are unlikely to trigger complaints or concerns under the Act and are a necessary part of an ISP's network operations.

45. The Commission is therefore not addressing, in this decision, ITMPs used only for the purpose of network security, nor those employed temporarily[9] to address unpredictable traffic events (e.g. traffic surges due to global events and failures on part of an ISP's network) in order to protect network integrity.

II. Regulatory approach for retail services

46. Consistent with the current regulatory approach, under which the Commission has granted forbearance for retail Internet services, primary ISPs may continue to apply ITMPs to retail Internet services as they consider appropriate, with no requirement for prior Commission approval. This approach remains valid due in part to the large number of existing ISPs. A change in the approach would amount to interference with market forces and would result in inefficient regulation, which is contrary to the Policy Direction.

47. The Commission, of its own motion or upon receipt of a credible complaint, can review ITMPs using the above ITMP framework. This manner of proceeding is frequently referred to as an *ex post* (i.e. complaints-based) regulatory approach.

48. In order for the Commission to evaluate a complaint regarding an ITMP applied to retail Internet services, the complainant should provide evidence and rationale as to why the ITMP does not meet the requirements of the ITMP framework. The Commission notes that the burden of establishing that an ITMP discriminates or results in a preference or disadvantage is on the complainant. However, pursuant to subsection 27(4) of the Act, the burden of establishing that any such discrimination, preference, or disadvantage is not unjust, undue, or unreasonable is on the primary ISP whose ITMP is under review. Accordingly, the primary ISP will be expected to demonstrate, in its response to the complaint, why its ITMP meets the requirements of the framework.

Applicability of framework to secondary ISPs offering retail Internet services

49. The Commission notes that secondary ISPs have the ability to apply ITMPs to their retail Internet services, and that this practice may have many of the same adverse effects as that employed by primary ISPs. As such, the Commission considers that secondary ISPs should be subject to the same framework that applies to retail services offered by primary ISPs.

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[9] In the context of this decision, the term "temporarily" refers to the minimum amount of time required to address a particular problem.

50. In order to ensure that the ITMP framework applies to all ISPs, whether or not they are Canadian carriers, the Commission directs all primary ISPs, as a condition of providing wholesale services to secondary ISPs, to include, in their service contracts or other arrangements with secondary ISPs, the obligation that the latter abide by the requirements of subsection 27(2) of the Act with regard to any ITMP they employ.

III. ISP disclosure of ITMPs to retail customers

51. During the proceeding, many parties commented on the question of whether ISPs should disclose their ITMPs to their retail customers, and if so, the form of any such disclosure.

52. Parties generally agreed with the principle of transparency in the disclosure of ITMPs by ISPs to their retail customers. However, parties expressed varying positions on the nature and extent of information that should be disclosed and on whether such disclosure should be mandatory.

53. Many parties, including consumer advocacy groups and individual Canadians, favoured the mandatory disclosure of ITMPs applied to retail services by ISPs and submitted that adequate disclosure would provide consumers with the tools they need to make informed choices. Some of these parties submitted that adequate disclosure would include a detailed description of the ITMP, specific thresholds that would trigger its application, and its specific impact.

54. In contrast, some ISPs opposed the adoption of requirements for disclosure of ITMPs to retail customers. Certain ISPs submitted that market forces would dictate appropriate levels of disclosure and that any regulatory obligations to disclose ITMPs would introduce an unnecessary burden.

55. With respect to economic ITMPs such as monthly bit caps,[10] parties generally agreed that the disclosure of pricing information related to such practices is appropriate. Some parties submitted that ISPs should also provide users with a method to track bandwidth usage that is easy to use and easy to understand, and provides real-time information.

Commission's analysis and determinations

56. The Commission considers it vital that information regarding the ITMPs applied to the retail services of ISPs be made available to allow consumers to make informed decisions regarding their Internet services. The Commission notes that some ISPs implementing technical ITMPs for their retail services do not currently disclose these practices to consumers, or do so only in a limited fashion.

[10] Monthly bit caps are predefined upper limits on the volume of traffic permitted per connection. Additional charges can be applied when this limit is exceeded.

57. The Commission notes that Internet speeds are affected by multiple factors, including the number of subscribers, the technology being used, and the way ISPs implement their Internet services.[11] The Commission further notes that ITMPs can also affect the Internet speeds of users and is of the view that users should be aware of any such impact.

Disclosure of economic ITMPs

58. The Commission notes that ISPs are currently disclosing pricing information related to economic ITMPs and expects the continued disclosure of such information. The Commission considers that real-time usage monitoring tools available to users are important components of economic ITMPs, informing customers about their actual usage and allowing them to track their usage in relation to any economic ITMPs implemented by ISPs.

Disclosure of technical ITMPs

59. With respect to ISPs' disclosure of technical ITMPs to their retail customers, the Commission considers that such disclosure should adequately inform consumers about ITMPs and the impact such practices have on retail Internet services.

60. In light of the above, the Commission directs all primary ISPs, as a condition of providing retail Internet services, to disclose to their retail customers, clearly and prominently on their websites, information related to their technical ITMPs.[12] The ISP must also reference its online disclosures in relevant marketing materials, customer contracts, and terms of service. Online disclosure should include the following information:

- why ITMPs are being introduced;
- who is affected by the ITMP;
- when the Internet traffic management will occur;
- what type of Internet traffic (e.g. application, class of application, protocol) is subject to management; and
- how the ITMP will affect a user's Internet experience, including the specific impact on speeds.

61. Clear and prominent disclosure of technical ITMPs on the websites of primary ISPs must be made a minimum of **30 days** in advance of a new technical ITMP being implemented or an existing one being modified. With respect to housekeeping changes or changes that result in a less restrictive technical ITMP (as described below in paragraph 87), no minimum time period for advance disclosure is required, so long as disclosure is made upon implementation.

62. Primary ISPs are required to disclose technical ITMPs currently applied to their retail Internet services, providing the information identified in paragraph 60 above, if they have not yet done

[11] A number of freely available online tools allow consumers to check the upload and download speeds of their Internet connection at a particular moment in time.

[12] Such information, or links to it, should be provided on web pages that describe the actual retail Internet service offerings; for example, where speeds are described, there should be links to information describing how ITMPs may impact these services.

so, within **30 days** of the date of this decision.

Disclosure requirements for secondary ISPs

63. In order to ensure that customers of secondary ISPs receive the same level of information as customers of primary ISPs regarding technical ITMPs applied to their services, the Commission considers that secondary ISPs should also be subject to the disclosure requirements identified above, taking into account the following modifications.

64. For technical ITMPs currently applied by primary ISPs to wholesale services, secondary ISPs are required to provide the information identified in paragraph 60 above to their retail customers within **30 days** of a primary ISP issuing revised tariff pages, or, in cases where prior approval of the ITMP is required, of the Commission granting its approval.

65. Where a primary ISP makes housekeeping changes to an existing technical ITMP applied to wholesale services, or makes changes that result in a less restrictive ITMP, secondary ISPs using that primary ISP's services are to disclose the changes as soon as reasonably possible after the primary ISP issues revised tariff pages.

66. Accordingly, primary ISPs are directed, as a condition of providing wholesale services to secondary ISPs, to include in their service contracts or other arrangements with secondary ISPs the obligation that secondary ISPs abide by the disclosure requirements for ISPs providing retail services described in this decision.

Accessibility of disclosures

67. Disclosures on the websites of ISPs are to be made in a manner consistent with the accessibility determinations outlined in Broadcasting and Telecom Regulatory Policy 2009-430, such that the information disclosed is made accessible for persons with disabilities to the point of providing a reasonable accommodation.

IV. Regulatory approach for wholesale services

68. Many comments were received from consumer groups, primary and secondary ISPs, and individuals regarding the regulatory approach for ITMPs applied to wholesale services, including whether it should be different from the approach for retail Internet services.

69. Several parties, including some consumer advocacy groups, secondary ISPs, and individual Canadians, submitted that any form of ITMP imposed by primary ISPs on wholesale services would violate subsection 27(2) of the Act. These parties submitted that such behaviour would be anti-competitive and would prevent secondary ISPs from developing distinctive services to differentiate themselves from primary ISPs, resulting in undue preference being given to the latter. Some parties further commented that the Commission should mandate the availability of wholesale services without ITMPs in order to encourage competition in the retail Internet services market.

70. Some primary and secondary ISPs submitted that due to the design of some of the wholesale services offered by primary ISPs, traffic from their respective services can traverse the same

portions of the network (i.e. a shared network). These ISPs further submitted that in some cases on a shared network, the traffic of a secondary ISP can impact that of the primary ISP and vice versa. Primary ISPs generally submitted that for this reason, ITMPs designed to address congestion that are applied to their retail services must also be applied to wholesale services provided to secondary ISPs.

71. Some primary ISPs further submitted that imposing ITMPs on wholesale services is both appropriate and not unduly preferential, and that it may be necessary in order to maintain the integrity of their networks. These parties also generally submitted that there is no need to differentiate between determinations with respect to ITMPs as they relate to retail and wholesale services.

72. A number of parties acknowledged that it is appropriate for primary ISPs to notify secondary ISPs of the nature and effect of ITMPs that will be applied to the services provided to the secondary ISPs. Some parties supported the extension of Bell Canada's proposed notification requirements, as set out in Telecom Decision 2008-108, to all primary ISPs. Other parties submitted that no regulatory intervention is required regarding such notifications.

Commission's analysis and determinations

73. The Commission notes the differing views of parties with respect to the application of ITMPs to wholesale services.

74. The Commission notes that some wholesale services provided by primary ISPs are designed such that the traffic from a secondary ISP using the wholesale service and the carrier's own retail Internet service traffic traverse the same portions of the network. The Commission further notes that, in most cases, these types of wholesale services are not designed in a way that guarantees that the traffic from a secondary ISP will not impact the traffic of the primary ISP providing the wholesale service and vice versa.

75. The Commission considers that, in light of the impact a secondary ISP's traffic may have on the traffic of the primary ISP providing the wholesale service and due to the differences in network and service architectures, the application of certain ITMPs to wholesale services would be acceptable.

76. The Commission expects primary ISPs and secondary ISPs to work together with a view to developing mutually acceptable practices regarding the implementation of ITMPs. The Commission considers that technical and other issues can be addressed on a collaborative basis, both prior to and after the implementation of ITMPs applied to wholesale services.

Economic ITMPs applied to wholesale services

77. The Commission notes that no party argued that forbearance from tariff approval would be appropriate with respect to economic ITMPs applied to wholesale services. As the Commission continues to regulate wholesale service rates, and economic ITMPs applied to wholesale services involve charging rates for the provision of those services, the Act requires that they be included in tariffs approved by the Commission. In light of the foregoing, the Commission notes that primary ISPs must continue to file tariff proposals and to obtain prior

Commission approval for the application of economic ITMPs to their wholesale services.

78. The Commission notes that such economic ITMPs will be evaluated using the ordinary principles for rate approvals.

Technical ITMPs applied to wholesale services

79. The Commission considers that technical ITMPs applied by primary ISPs to their wholesale services can adversely affect a secondary ISP's provision of retail Internet services. In particular, the Commission notes that technical ITMPs can have a disproportionate impact on a secondary ISP's ability to offer differentiated services tailored to its unique customer base, therefore affecting consumer choice and innovation. The Commission therefore considers that measures are required to address these potential adverse effects.

80. The Commission considers that, for the purpose of its analysis, it is appropriate to distinguish between three types of technical ITMPs applied to wholesale services:

    1. ITMPs that are not more restrictive than the primary ISP's treatment of its own retail Internet services and that do not have a significant and disproportionate impact on secondary ISP traffic;

    2. ITMPs that are more restrictive than those applied by a primary ISP to its own retail Internet services; and

    3. ITMPs that, while not more restrictive than those applied to the primary ISP's retail Internet services, could have a significant and disproportionate impact on secondary ISP traffic.

First type: not more restrictive and unlikely to have a significant and disproportionate impact

81. No prior Commission approval is required with regard to the first type of technical ITMP. The Commission considers that in cases where a question as to the appropriateness of such an ITMP arises, the complaints-based approach outlined above in paragraph 47 is appropriate.

Second type: more restrictive

82. The second type of technical ITMP raises concerns of unjust discrimination and should therefore be approved by the Commission, using the ITMP framework, prior to implementation.

Third type: may have a significant and disproportionate impact

83. Regarding the third type of technical ITMP, the Commission notes that technical ITMPs applied to wholesale services may affect a secondary ISP and its end-users more than they affect the primary ISP. The Commission considers that, as a result, certain technical ITMPs may have a significant and disproportionate impact on secondary ISP traffic even if they are not more restrictive than ITMPs applied to the primary ISP's retail Internet services.

84. In such cases the Commission urges the primary ISP to determine the possible extent and effect of such impacts on secondary ISP traffic. The primary ISP can proceed with implementation of the ITMP where it is satisfied that there will not be a significant and

disproportionate impact on secondary ISP traffic. In such a case, the primary ISP can, but does not have to, seek a prior Commission ruling. Any affected party, however, can raise a complaint with the Commission.

Summary of treatment of technical ITMPs applied to wholesale services

85. Accordingly, the Commission will require prior approval only for technical ITMPs applied by primary ISPs to their wholesale services that are more restrictive than those they apply to their own retail Internet services. All other technical ITMPs applied by primary ISPs to their wholesale services may be implemented by primary ISPs without prior Commission approval.

86. If the Commission receives a complaint regarding a technical ITMP applied by a primary ISP to its wholesale services that has not received prior Commission approval, and the Commission considers, on a *prima facie* basis, that such an ITMP would likely have a significant and disproportionate impact on secondary ISP traffic, or is more restrictive than that applied to the primary ISP's retail services, it may order the primary ISP to immediately cease applying the ITMP to its wholesale services pending a final Commission determination on the matter.

Changes made to technical ITMPs

87. Where an ISP is proposing to implement a change to a technical ITMP that has received prior approval, and the change is a matter of housekeeping or results in a less restrictive ITMP, the Commission considers that prior approval should not be required. In these cases, the Commission will have already ensured that the ITMP complies with the ITMP framework. As such, there is no need to scrutinize a change that will not affect the ITMP or will reduce its impact. In the Commission's view, such changes include the following:

- a reduction of the period during which the ITMP is applied;
- a decrease in the number or type of applications for which traffic is restricted or slowed;
- an increase in transmission speeds available under a technical ITMP that restricts or slows traffic; and
- a housekeeping change to a tariff (e.g. correction of typographical errors).

Forbearance from tariff approval with respect to certain ITMPs

88. In light of the above, the Commission finds the following:

- Pursuant to subsection 34(1) of the Act, it would be consistent with the telecommunications policy objective set out in paragraph 7(*f*) of the Act to forbear from the application of the requirement, in subsection 25(1) of the Act, that primary ISPs file and obtain prior Commission approval
    - for tariffs for technical ITMPs applied to wholesale services that are not more restrictive than those applied by a primary ISP to its own retail services; and
    - for changes to tariffs for approved technical ITMPs that are a matter of housekeeping or that would result in a less restrictive ITMP.
- Pursuant to subsection 34(3) of the Act, forbearance to this extent will not likely impair unduly the establishment or continuance of a competitive market for the provision of wholesale services offered by primary ISPs to secondary ISPs.

Notification and information requirements for wholesale services

89. Because ITMPs can affect secondary ISPs' provision of retail Internet services, the Commission considers it important that primary ISPs provide advance notice of, and basic information about, these ITMPs to the secondary ISPs that use their services.

90. Where a primary ISP is proposing to implement or make changes to a technical ITMP that is subject to prior Commission approval, it is required to describe the ITMP in its proposed tariffs. In order to accord secondary ISPs sufficient notice, the primary ISP is to include in its application a proposed effective date for the tariff that is a minimum of **30 days** after the date of the Commission's determination and send a copy of its application to its wholesale customers when it is filed.

91. For technical ITMPs applied to wholesale services that do not require prior Commission approval, the Commission considers that a description of the ITMPs in the tariffs of primary ISPs is the best means of providing information to secondary ISPs. Accordingly, primary ISPs are required, as a condition of providing service, to issue updated tariff pages describing such ITMPs. Primary ISPs are to issue revised tariff pages, sending copies to their wholesale customers, a minimum of **60 days** prior to implementing the ITMP or implementing changes to the ITMP.

92. If the primary ISP is proposing to implement changes to technical ITMPs applied to wholesale services that are a matter of housekeeping or that result in a less restrictive ITMP, the primary ISP is to update its tariffs, sending copies to its wholesale customers, upon implementation of the changes. No advance notice is required.

93. The Commission notes that in cases where prior Commission approval is not required, filing tariff updates with the Commission does not in any way constitute prior approval of the ITMP by the Commission. Such tariffs must clearly indicate that the ITMP being described in the tariff is not approved by the Commission and that the tariff is for information purposes only.

94. The Commission considers that in the case of all technical ITMPs, the wholesale service tariffs of primary ISPs should, at a minimum, include the information identified in paragraph 60 above. The Commission considers that such information will allow secondary ISPs to fulfill their own customer disclosure requirements (as discussed above at paragraph 63) with respect to the technical ITMPs affecting the wholesale service they are using.

95. Primary ISPs that are currently applying technical ITMPs to their wholesale services are required to issue revised tariff pages, or to file tariff proposals for prior approval, in accordance with the directions set out above, within **30 days** of the date of this decision.

V. Protection of privacy

96. In Telecom Public Notice 2008-19, the Commission sought views as to whether additional rules are required to contribute to the protection of personal privacy and the impact of any such rules. Several parties commented on the impact of ITMPs on privacy.

97. Consumer groups advocated for privacy provisions beyond the requirements of the *Personal Information Protection and Electronic Documents Act* (PIPEDA). In their view, additional provisions are necessary to safeguard personal information derived through the use of certain ITMPs and associated technologies, including deep packet inspection (DPI). Without such safeguards in place, they submitted, personal information could be collected, stored, and potentially used for purposes other than traffic management without notification and consent. They considered this to be an invasion of privacy. The Office of the Privacy Commissioner of Canada echoed these concerns, noting that privacy issues arise whenever personal information is collected, including situations where organizations access personal information using DPI.

98. ISPs, on the other hand, opposed the introduction of new privacy provisions. They generally argued that existing privacy legislation, such as PIPEDA, and their own corporate privacy policies and practices are sufficient to address the privacy issues raised in this proceeding.

99. ISPs generally submitted that any information (other than bandwidth usage) collected from network traffic for the purposes of traffic management is collected in an aggregate fashion and that, as such, it may not be linked to a specific IP address or user. Further, ISPs currently deploying DPI technologies in their networks submitted that these technologies are being used purely for traffic management purposes and not for monitoring user content and communications nor for collecting, using, or storing personal information. In general, however, parties acknowledged that DPI technologies can be used to access and manage a variety of user information flowing over the ISPs' networks.

Commission's analysis and determinations

100. The Commission notes that the privacy concerns raised on the record are founded on the potential uses of technologies employed by ISPs to implement ITMPs, rather than their current uses. The Commission also notes, however, that certain technologies have the capacity to collect and use personal information as part of an ITMP and that information obtained in this manner can be derived from the flow of network traffic, without the knowledge or consent of the consumer. For these reasons, the Commission considers that certain ITMPs raise privacy concerns in regard to the collection and use of personal information.

101. The Commission notes that in a number of decisions, it has established regulatory measures to safeguard customer information and to protect the privacy of consumers. In Telecom Decision 2006-15, as amended by the Governor in Council's *Order Varying Telecom Decision CRTC 2006-15*, P.C. 2007-532, 4 April 2007 (modified Telecom Decision 2006-15), the Commission considered that protecting the privacy of telecommunications service customers was increasingly important due to the advent of new technologies and the emergence of electronic commerce, which enable information to be more easily processed, rearranged, and exchanged.

102. The Commission notes that parties who argued against privacy provisions did so because they claimed the existence of PIPEDA made additional provisions unnecessary. However, the Commission considers that, as a result of paragraph 7(*i*) of the Act, its role with respect to the protection of privacy in the telecommunications industry is complementary to that of the Office of the Privacy Commissioner of Canada. The Commission considers that in the circumstances of this proceeding, similar to the findings made in Telecom Decision 2003-33 and modified Telecom Decision 2006-15, it would be appropriate to impose a higher standard than that available under PIPEDA in order to provide a higher degree of privacy protection for customers of telecommunications services.

103. In light of the above, the Commission finds it appropriate to establish privacy provisions in order to protect personal information. The Commission therefore directs all primary ISPs, as a condition of providing retail Internet services, not to use for other purposes personal information collected for the purposes of traffic management and not to disclose such information.

104. In order to ensure that customers of secondary ISPs are afforded the same degree of privacy protection as those of primary ISPs, the Commission directs all primary ISPs, as a condition of providing wholesale services to secondary ISPs, to include, in their service contracts or other arrangements with secondary ISPs, the requirement that the latter not use for other purposes personal information collected for the purposes of traffic management and not disclose such information.

105. The Commission notes that ISPs use aggregated information collected for the purposes of network planning and engineering, and expects that they will continue to rely on aggregated information for such purposes.

VI. Applicability of determinations to mobile wireless data services

106. In Telecom Public Notice 2008-19, the Commission anticipated that its determinations in this proceeding would apply in a technologically neutral fashion.

107. In Telecom Decision 96-14 and in follow-up decisions, the Commission forbore from regulating mobile wireless data services, which are used, among other things, to provide Internet access to mobile wireless service subscribers. The Commission determined that for these services, some sections of the Act would not apply, including in particular section 24 and subsection 27(2).

108. Some parties submitted that all retail ISPs should be subject to subsection 27(2) of the Act and requested that the Commission reverse its decision to forbear from the regulation of mobile wireless data services.

109. Parties generally agreed that there are significant differences between wireless and wireline networks, most prominently the strict capacity limitations of wireless networks. Some of these parties further submitted that the unique technical challenges of providing wireless Internet access might suggest that more restrictive ITMPs could be required in a wireless environment in order to ensure network integrity.

110. Some parties submitted that any determinations related to ITMPs should apply equally to both wireline and wireless Internet services, while others submitted that considering the unique characteristics of wireless networks, symmetric regulation would be too restrictive.

Commission's analysis and determinations

111. The Commission notes, as described in the report by Heavy Reading commissioned for this proceeding,[13] that there is "enormous growth in mobile broadband services—and traffic" and that this growth "is the single most significant trend in cellular mobile networking today, and is leading to a re-think of approaches to traffic management."

112. The Commission acknowledges the unique capacity constraints of mobile wireless networks and notes that such constraints, combined with the rapid growth of mobile wireless data services, are likely to lead to congestion as mobile wireless data traffic increases in volume. ISPs will increasingly look to both economic and technical ITMPs to address the increased usage and changing traffic patterns on their mobile wireless networks.

113. The Commission also notes that technologically neutral regulation is in line with the Policy Direction and considers that a consistent approach to the evaluation of ITMPs and the disclosure of these practices is part of a technologically neutral approach.

114. The Commission further notes that, based on the record of this proceeding, ISPs offering mobile wireless data services have indicated that they are applying only economic ITMPs to these services. As indicated above, economic ITMPs are transparent and are unlikely to raise concerns, as they link rates for Internet service to end-user consumption.

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[13] The full report can be found on the Commission's website at http://www.crtc.gc.ca/PartVII/eng/2008/8646/isp-fsi.pdf

115. Finally, the Commission notes that this proceeding did not provide an appropriate vehicle for re-examining forbearance regarding mobile wireless data services. However, considering the increasingly important role of such services to telecommunications in Canada, and for the purposes of technologically neutral regulation related to ITMPs, the Commission intends to review, at a future date, the appropriateness of reapplying section 24 and subsection 27(2) of the Act to mobile wireless data services.

116. In the interim, the Commission expects ISPs using mobile wireless data services to offer Internet access services in accordance with the determinations of this decision.

VII. Scope of section 36 of the Act

117. Section 36 of the Act states that carriers must have prior Commission approval when they control the content or influence the meaning or purpose of telecommunications they carry. Some parties claimed that some ITMPs being used by ISPs contravene section 36.

118. In general, parties asserted that section 36 of the Act is important in ensuring that ISPs respect their role as common carriers. Certain parties claimed that ITMPs that result in the blocking[14] or disruption of the transmission of Internet traffic would be prohibited under section 36 absent prior Commission approval. ISPs generally disagreed with the view that their ITMPs blocked or disrupted traffic, and further stated that where consumers give explicit consent to the use of ITMPs, section 36 would not be engaged.

119. The main point of disagreement between parties was whether or not ITMPs that slow down the transmission of Internet traffic control the content or influence the meaning or purpose of telecommunications within the meaning of section 36. Most ISPs and equipment vendors argued that slowing down the transmission of telecommunications does not engage section 36 since it does not involve any editorial control of content nor deny access to content.

120. By contrast, consumer groups, content providers, and some secondary ISPs submitted that by slowing down the delivery of content, ISPs were effectively controlling that content and influencing its meaning or purpose. According to the submissions of these parties, the concept of control of content is broader than editorial control. These parties further submitted that with respect to P2P file-sharing applications, the purpose of the telecommunication is the efficient delivery of content, but this purpose is frustrated by traffic shaping, which slows down transmission of P2P files.

Commission's analysis and determinations

Blocking Internet traffic

121. The Commission notes that the majority of parties are in agreement that actions by ISPs that result in outright blocking of access to content would be prohibited under section 36 unless prior approval was obtained from the Commission.

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[14] Blocking content refers to an ISP preventing a user from accessing the content of his or her choice, or an ITMP that effectively severs a connection that a user may have to a website or online application.

122. The Commission finds that where an ITMP would lead to blocking the delivery of content to an end-user, it cannot be implemented without prior Commission approval. Approval under section 36 would only be granted if it would further the telecommunications policy objectives set out in section 7 of the Act. Interpreted in light of these policy objectives, ITMPs that result in blocking Internet traffic would only be approved in exceptional circumstances, as they involve denying access to telecommunications services.

Delaying or slowing down Internet traffic

123. As noted earlier, there are technical ITMPs currently being deployed by some ISPs that slow down traffic generated by P2P file-sharing applications.

124. The Commission notes that the degree to which an application or service is delayed may have an impact on its performance. Furthermore, transmission delays may affect some types of applications or services more than others. For these reasons, it is important to identify which types of traffic and/or applications would be impacted by transmission delays.

125. In the case of time-sensitive audio or video traffic (i.e. real-time audio or video such as video conferencing and voice over Internet Protocol (VoIP) services), ITMPs that introduce delays or jitter[15] are likely to cause degradation to the service. The Commission considers that when noticeable degradation occurs, it amounts to controlling the content and influencing the meaning and purpose of the telecommunications in question.

126. Accordingly, the Commission finds that use of an ITMP resulting in the noticeable degradation of time-sensitive Internet traffic will require prior Commission approval under section 36 of the Act.

127. With respect to non-time-sensitive traffic, the Commission considers that the use of ITMPs that delay such traffic does not require approval under section 36 of the Act. However, the Commission is of the view that non-time-sensitive traffic may be slowed down to such an extent that it amounts to blocking the content and therefore controlling the content and influencing the meaning and purpose. In such a case, section 36 of the Act would be engaged and prior Commission approval would be required.

ITMP framework will not apply to section 36 complaints regarding ITMPs

128. The Commission notes that, according to its determinations in this decision, parties may submit complaints with respect to an ITMP that may engage section 36 of the Act, and ISPs are to seek prior Commission approval for the use of an ITMP if it engages section 36 of the Act. In such cases, the ITMP framework would not be used to evaluate the use of such ITMPs, as the matter is not one of discrimination or preference, but of controlling the content or influencing the meaning or purpose of telecommunications.

Secretary General

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[15] Jitter is a random variation in the timing of a signal. Jitter results in packets arriving at varying time intervals, causing distortion in the signal. This is best illustrated by the example of broken audio that is experienced with VoIP signals travelling great distances.

Related documents

- *Accessibility of telecommunications and broadcasting services*, Broadcasting and Telecom Regulatory Policy CRTC 2009-430, 21 July 2009

- *Review of the Internet traffic management practices of Internet service providers*, Telecom Public Notice CRTC 2008-19, 20 November 2008, as amended by Telecom Public Notice CRTC 2008-19-1, 11 February 2009; Telecom Public Notice CRTC 2008-19-2, 12 February 2009; Telecom Public Notice CRTC 2008-19-3, 18 March 2009; and Telecom Public Notice CRTC 2008-19-4, 16 July 2009

- *The Canadian Association of Internet Providers' application regarding Bell Canada's traffic shaping of its wholesale Gateway Access Service*, Telecom Decision CRTC 2008-108, 20 November 2008

- *Forbearance from the regulation of retail local exchange services*, Telecom Decision CRTC 2006-15, 6 April 2006, as amended by Order in Council P.C. 2007-532, 4 April 2007

- *Confidentiality provisions of Canadian carriers*, Telecom Decision CRTC 2003-33, 30 May 2003, as amended by Telecom Decision CRTC 2003-33-1, 11 July 2003

- *Forbearance from retail Internet services*, Telecom Order CRTC 99-592, 25 June 1999

- *Regulation of mobile wireless telecommunications services*, Telecom Decision CRTC 96-14, 23 December 1996