



Telecom Public Notice CRTC 2008-19

Ottawa, 20 November 2008

Notice of consultation and hearing

Review of the Internet traffic management practices of Internet service providers

Reference: 8646-C12-200815400

In this Public Notice, the Commission initiates a public proceeding to consider Internet traffic management practices for both wholesale and retail Internet services. The Commission invites detailed written comments, with supporting rationale, on the issues identified below. The proceeding will include an oral public hearing, which will begin on 6 July 2009 at the Conference Centre, Phase IV, 140 Promenade du Portage, Gatineau, Quebec.

Introduction

1. Broadband access to the Internet is widely accepted in Canada. The number of residential subscribers to high-speed Internet services increased to 64 percent of households in 2007, up from 58 percent in 2006.¹ The speeds available to access the Internet continue to increase, enabling faster downloads and access to new and innovative applications and services that place increasing demands on the networks that make up the Internet.
2. The growth in Internet traffic is being cited as a main reason why some Internet service providers (ISPs) are adopting Internet traffic management practices to address possible congestion in their networks.² Traffic management practices may take many forms and approaches including using technologies to alter the flow of traffic or new business models. ISPs use many different technologies to offer high-speed Internet services, including digital subscriber lines (DSL), wireless, cable, and satellite, which may affect which traffic management practices are used.
3. The use of certain Internet traffic management practices has raised concerns in Canada and in other jurisdictions. The Commission recognizes the importance of this issue. Accordingly, the Commission is initiating a proceeding under the *Telecommunications Act* (the Act) to:
 - (i) examine the Internet traffic management practices which have been, or may be, adopted by ISPs; and
 - (ii) pronounce on whether such practices are consistent with the Act, and whether any measures are required to ensure that such practices are in accordance with the Act.
4. The Commission anticipates that any determinations it makes in this proceeding will be applied in a technologically neutral fashion.

¹ 2008 Communications Monitoring Report (CRTC) <http://crtc.gc.ca/ENG/publications/reports/PolicyMonitoring/2008/cmr2008.htm>

² See, for example, *CISCO: Approaching the Zettabyte Era*, 16 June 2008 (http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481374.pdf)

Background

5. The Commission has forborne in large part from regulating the retail Internet services of Canadian carriers. In doing so, the Commission has retained its powers under subsections 27(2), which relates to unjust discrimination and undue preference or advantage, 27(3) (in part), and 27(4) of the Act. In addition, the Commission has retained its powers under section 24 (in part) so that, among other things, it may impose conditions on the offering and provision of retail Internet services as may be necessary in the future. The Commission has not forborne from regulating the provision of wholesale Internet services of Canadian carriers. Further, section 36 of the Act prohibits a Canadian carrier from controlling the content or influencing the meaning or purpose of telecommunications carried by it for the public, unless the Commission approves otherwise.
6. On 3 April 2008, the Canadian Association of Internet Providers (CAIP) filed an application with the Commission requesting certain orders directing Bell Canada to cease and desist from throttling³ Internet traffic generated by peer-to-peer (P2P) file-sharing applications on its wholesale ADSL access service known as Gateway Access Service (GAS). In Telecom Decision 2008-108, in response to the application from CAIP, the Commission determined that, based on the record of that proceeding, Bell Canada's application of its traffic-shaping measures to GAS were not in violation of the Act, and it therefore denied CAIP's application.
7. In Telecom Decision 2008-108, the Commission dealt only with Bell Canada's practice of throttling P2P traffic at certain times of the day in relation to its GAS being provided to wholesale customers. In this proceeding, the Commission will explore the current and potential Internet traffic management practices of all ISPs operating in Canada, examining both retail and wholesale services.
8. As noted above, the issues raised in this proceeding will be considered by the Commission pursuant to its mandate under the Act. In its public notice initiating the new media proceeding,⁴ the Commission called for comments on issues regarding practices that may restrict or enhance the distribution of an access to Canadian broadcasting content delivered and accessed over the Internet and through mobile devices. The Commission notes that to the extent that Internet traffic management practices of ISPs raise issues under the *Broadcasting Act* relating to the distribution of and access to Canadian broadcasting content, they will be explored in the context of that proceeding pursuant to the Commission's mandate under the *Broadcasting Act*.

Call for comments

9. The Commission invites parties to comment on Internet traffic management practices of ISPs, including in particular the issues described below. In their comments, parties should provide full supporting rationale and all evidence on which they rely, and structure their submissions according to the topics and questions identified below.

³ In the context of CAIP's application, throttling referred to the practice of slowing down the transfer rates of traffic by delaying certain data packets at certain points in the network.

⁴ Broadcasting Notice of Public Hearing 2008-11, 15 October 2008, question 14 (paragraph 29).

- (1) A primary reason given for Internet traffic management practices is the increase in Internet traffic volumes caused by end-users.⁵ This has been attributed to growth in the use of certain applications, as well as growth in online video consumption, which can lead to network congestion.⁶
- a) How has Internet traffic grown in the past three years and what are the predictions for its growth in the future? What has been the impact on Canadian ISP networks?
 - b) How has average end-user bandwidth consumption changed in the past three years and what are the predictions for future changes in Canada?
 - c) How should congestion be defined in an ISP's network?
 - d) Are there applications or services that are more likely to cause congestion, and if so, what are they?
 - e) What are the relative bandwidth requirements for different types of Internet applications?
- (2) The Commission is seeking information regarding technical and economic solutions that are available now, or likely to be available in the future, for the purpose of Internet traffic management. The Commission would also like to understand the impacts of these solutions.
- a) What technologies could be employed by ISPs (for example, deep packet inspection) to manage Internet traffic?
 - b) What developments are under way with respect to traffic protocol (such as modifications to transmission control protocols) and/or application changes (such as changes to P2P file exchange) which could assist in addressing network congestion?
 - c) What are the specific capabilities offered by the technical solutions identified in (a) and (b) above? For example, would these technologies allow for throttling of individual users or groups of users; would they allow for the collection of information about persons and to what extent?
 - d) With reference to questions (a) to (c) above, how effective would these solutions be in addressing network congestion in the ISP networks?

⁵ See, for example *CISCO: Approaching the Zettabyte Era*, 16 June 2008 (http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481374.pdf)

⁶ Network congestion is broadly defined to mean a situation whereby the amount of traffic transiting the network may lead to a deterioration in service for some end-users.

- e) Also with reference to questions (a) to (c) above, what impact could the implementation of technical solutions have on the Internet Engineering Task Force standards upon which the operation of the Internet is based? Could these solutions create interoperability challenges for application developers?
- f) Describe the advantages and disadvantages (including end-user impacts) of employing the following practices in order to manage Internet traffic:
 - i. monthly bandwidth limits (bit caps),
 - ii. excess bandwidth usage charges,
 - iii. time of day usage pricing,
 - iv. peak period throttling,
 - v. end-user-based throttling,⁷
 - vi. application-based throttling,
 - vii. content caching,
 - viii. upgrading network capacity, and
 - ix. others not listed above.

(3) In Telecom Decision 2008-108, the Commission directed Bell Canada to develop and file with the Commission, proposed notification requirements to address future changes that impact materially on the performance of GAS.

- a) Should these requirements be extended to other ISPs providing wholesale Internet services such as the third party Internet access services offered by cable ISPs?
- b) Are similar requirements necessary and appropriate in relation to the provision of retail Internet services?
- c) If so, what kinds of practices, and/or changes to practices, should trigger these requirements and what information and how much notice should be provided to end-users?

⁷ In the context of Internet traffic management, throttling can broadly be defined as slowing down the transfer rates of traffic by delaying certain data packets at certain points in the network.

- (4) Subsection 27(2) of the Act prohibits a Canadian carrier from unjustly discriminating, subjecting any person to an undue or unreasonable disadvantage or giving an undue or unreasonable preference toward any person, including itself, in relation to the provision of a telecommunications service.
- a) What, if any, Internet traffic management practices employed by ISPs would result in unjust discrimination, undue or unreasonable preference or advantage?
- (5) Section 36 of the Act states that unless 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.
- a) What, if any, Internet traffic management practices employed by ISPs would result in controlling the content, or influencing the meaning or purpose of telecommunications?
- b) For any Internet traffic management practice identified in (a), what criteria should the Commission apply in determining whether to authorize such practice?
- (6) Section 47 of the Act states that the Commission shall exercise its powers and perform its duties under the Act with a view to implementing the Canadian telecommunications policy objectives set out in section 7 of the Act⁸ (the policy objectives) and ensuring that Canadian carriers provide telecommunications services and charge rates in accordance with section 27.
- a) What issues do Internet traffic management practices raise concerning the policy objectives of the Act?
- (7) Section 47 of the Act also states that the Commission shall exercise its powers and perform its duties under the Act in accordance with any orders made by the Governor in Council under section 8. The Governor in Council has issued an *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*,

⁸ The objectives of the Canadian telecommunications policy are set out in section 7 of the Act as follows:

- (a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
- (b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
- (c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;
- (d) to promote the ownership and control of Canadian carriers by Canadians;
- (e) to promote the use of Canadian transmission facilities for telecommunications within Canada and between Canada and points outside Canada;
- (f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;
- (g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;
- (h) to respond to the economic and social requirements of users of telecommunications services; and
- (i) to contribute to the protection of the privacy of persons.

P.C. 2006-1534, 14 December 2006 (the Policy Direction), which requires the Commission to, among other things, rely on market forces to the maximum extent feasible and when relying on regulation, use measures in a manner that interferes with market forces to the minimum extent necessary to meet the policy objectives. The Policy Direction also requires the Commission to ensure that non-economic measures are implemented, to the greatest extent possible, in a symmetrical and competitively neutral manner.

- a) In light of the Policy Direction, address the requirement for, and the appropriateness of, implementing any regulatory measures in relation to Internet traffic management by ISPs.
 - b) For each proposed regulatory measure, comment on how such measure would be consistent with the Policy Direction as well as how these measures could be implemented in the least intrusive manner.
- (8) The issue of Internet traffic management practices is increasingly a global issue that is being raised in other jurisdictions.
- a) Discuss any initiatives being examined or undertaken in other jurisdictions in relation to the issues raised in this proceeding concerning the Internet traffic management practices of ISPs.
 - b) With respect to any initiatives described in part (a) of this question, discuss their possible applicability in Canada.

Procedure

10. The Commission will hold an oral public hearing, beginning on **6 July 2009** at the Conference Centre, Phase IV, 140 Promenade du Portage, Gatineau, Quebec, to address the matters set out in this Public Notice. The hearing is expected to last no more than 4 business days. The Commission notes that parties will not be given the opportunity to question each other at this hearing.
11. Bell Aliant Regional Communications, Limited Partnership, Bell Canada, Cogeco Cable Canada Inc., MTS Allstream Inc., Rogers Cable Communications Inc., Saskatchewan Telecommunications, Primus Telecommunications Canada Inc., Shaw Communications Inc., Barrett Xplore Inc., TELUS Communications Company, Videotron Ltd., Bragg Communications Inc. (carrying on business as EastLink), the Coalition of Internet Service Providers, and CAIP are made parties to this proceeding.
12. Other parties interested in participating in this proceeding (including receiving copies of all submissions) must notify the Commission of their intention to do so by filling out the online form, or by writing to the Secretary General, CRTC, Ottawa, Ontario, K1A 0N2, or by faxing at: 819-994-0218 by **19 December 2008** (the registration date). Parties are to provide their email address, where available. If parties do not have access to the Internet, they are to indicate in their notice whether they wish to receive disk versions of hard-copy filings.

13. The Commission will post on its website, as soon as possible after the registration date, a complete list of interested parties and their mailing addresses (including their email addresses, if available), identifying those parties who wish to receive disk versions.
14. Members of the public who wish merely to file written comments in this proceeding, without receiving copies of the various submissions, may do so by filing such comments with the Commission by **16 February 2009** at the address or fax number noted above, or by filling out the [online form](#).
15. To facilitate further dialogue among Canadians, the Commission will be conducting an online consultation on the issues discussed in this proceeding. This online consultation will allow the public to engage in discussion on issues and questions relating to this Public Notice. Further details will be provided in a follow-up to this Public Notice.
16. The Commission will also engage an external consulting firm to prepare a study on the technologies available to ISPs for the purpose of Internet traffic management. The study will be placed on the public record of this proceeding as soon as it is available and will be available for consultation on the Commission's website at www.crtc.gc.ca under "Public Proceedings." It will reflect the views of the consultants and not those of the Commission and will determine neither the agenda nor the outcome of this proceeding.
17. The Commission will address interrogatories to certain parties by **4 December 2008**. The deadline for filing with the Commission and serving on all other parties, responses to these questions, is **13 January 2009**. These interrogatories will be posted on the Commission's website. Other parties wishing to respond to these interrogatories may also do so by filing their responses with the Commission, and serving a copy on all other parties, by **13 January 2009**.
18. Requests by parties for public disclosure of information for which confidentiality has been claimed, setting out in each case the reasons for disclosure, must be filed with the Commission and served on the relevant party or parties by **19 January 2009**.
19. Written responses to requests for public disclosure must be filed with the Commission and served on the party or parties making the request by **26 January 2009**.
20. A determination will be issued with respect to requests for public disclosure as soon as possible. Any information to be provided pursuant to that determination will be filed with the Commission and served on all interested parties by **9 February 2009**.
21. All parties may file with the Commission, serving a copy on all other parties, initial comments by **16 February 2009**. Initial comments should address the issues set out above, as well as the responses to the above-noted interrogatories.
22. To assist the Commission in striking an appropriate balance between ensuring an efficient public hearing and providing access to as many different points of view and areas of expertise as possible, persons or groups that wish to make an oral presentation at the public hearing are asked to note their request at the beginning of their initial comments provided for in paragraph 21. Parties should also provide clear reasons as to why an oral presentation is appropriate.

23. The Commission will inform those persons or groups that request to participate in the public hearing whether their request has been granted on or before **11 May 2009**. The Commission reserves the right to group participants of similar views together for the purpose of presenting their views at the public hearing.
24. The Commission will issue a letter, by **8 June 2009**, to those participants that have been granted a request to appear at the public hearing. This letter will describe the organization and conduct of the public consultation.
25. The Commission may issue further questions, by **2 March 2009**, to select ISPs, and some or all of the parties who provided initial comments. The deadline for submitting responses to these questions is **23 March 2009**.
26. Requests by parties for public disclosure of information for which confidentiality has been claimed, setting out in each case the reasons for disclosure, must be filed with the Commission and served on the relevant party or parties by **27 March 2009**.
27. Written responses to requests for public disclosure must be filed with the Commission and served on the party or parties making the request by **3 April 2009**.
28. A determination will be issued with respect to requests for public disclosure as soon as possible. Any information to be provided pursuant to that determination will be filed with the Commission and served on all interested parties by **17 April 2009**.
29. The Commission invites parties to file reply comments with the Commission by **30 April 2009**, serving a copy on all other parties. Reply comments should be limited to responses to initial comments and to answers to Commission questions previously submitted.
30. The Commission expects to issue a decision on the issues raised in this Public Notice within 120 days after the record closes.
31. The Commission will not formally acknowledge comments. It will, however, fully consider all comments and they will form part of the public record of the proceeding.
32. Where a document is to be filed or served by a specific date, the document must be actually received, not merely sent, by that date.
33. Parties may file their submissions electronically or on paper. Submissions longer than five pages should include a summary.
34. Electronic submissions should be in HTML format. As an alternative, those making submissions may use "Microsoft Word" for text and "Microsoft Excel" for spreadsheets.
35. Each paragraph of all submissions should be numbered. In addition, the line *****End of document***** should be entered following the last paragraph. This will help the Commission verify that the document has not been damaged during electronic transmission.

36. The Commission also encourages parties to monitor the record of this proceeding (and/or the Commission's website) for additional information that they may find useful when preparing their submissions.

Important notice

37. Note that all information that you provide as part of this public process, except information granted confidentiality, whether sent by postal mail, facsimile, email, or through the Commission's website at www.crtc.gc.ca, becomes part of a publicly accessible file and will be posted on the Commission's website. This information includes your personal information, such as your full name, email address, postal/street address, telephone and facsimile number(s), and any other personal information you provide.
38. The personal information you provide will be used and may be disclosed for the purpose for which the information was obtained or compiled by the Commission, or for a use consistent with that purpose.
39. Documents received electronically or otherwise will be posted on the Commission's website in their entirety exactly as you send them, including any personal information contained therein, in the official language and format in which they are received. Documents not received electronically will be available in PDF format.
40. Please note that the information you provide to the Commission as part of this public process is entered into an unsearchable database dedicated to this specific public process. This database is accessible only from the web page of this particular public process. As a result, a general search of our website with the help of either our own search engine or a third-party search engine will not provide access to the information which was provided as part of this public process.

Location of CRTC offices

41. Submissions may be examined or will be made available promptly upon request at the Commission offices during normal business hours.

Toll-free telephone: 1-877-249-2782

Toll-free TDD: 1-877-909-2782

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Secretary General

Related documents

- *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
- *Canadian broadcasting in new media*, Broadcasting Notice of Public Hearing CRTC 2008-11, 15 October 2008

This document is available in alternative format upon request, and may also be examined in PDF format or in HTML at the following Internet site: <http://www.crtc.gc.ca>