DOWNLOAD LIMITS:
The Best Choice for Consumers?

Final Project Report
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of Industry Canada

union des consommateurs

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Union des consommateurs, *Strength Through Networking*

Union des consommateurs is a non-profit organization whose membership is comprised of several ACEFs (*Associations coopératives d'économie familiale*), *l'Association des consommateurs pour la qualité dans la construction* (ACQC), as well as individual members.

Union des consommateurs' mission is to represent and defend the rights of consumers, with particular emphasis on the interests of low-income households. Union des consommateurs' activities are based on values cherished by its members: solidarity, equity and social justice, as well as the objective of enhancing consumers' living conditions in economic, social, political and environmental terms.

Union des consommateurs' structure enables it to maintain a broad vision of consumer issues even as it develops in-depth expertise in certain program sectors, particularly via its research efforts on the emerging consumer issues. Its activities, which are nationwide in scope, are enriched and legitimated by its fieldwork and its member associations' deep roots in the community.

Union des consommateurs acts mainly at the national level, by representing the interests of consumers before political, regulatory and legal authorities and in public forums. Its priorities in terms of research, action and advocacy include family budgets and indebtedness, energy, telephone services, radio broadcasting, cable television and the Internet, public health, food and biotechnologies, financial products and services, business practices, and social and fiscal policy.

Finally, in the context of market globalization, Union des consommateurs works in collaboration with several consumer groups in English Canada and abroad. It is a member of Consumers International (CI), a United Nations recognized organization.

1. Introduction

Internet access is more than simple leisure; it has become essential for a majority of consumers. People today are willing to give up television and even phone services before giving up their Web access. The Internet is therefore no longer a luxury; it has become a necessity.[1] This situation is consistent and understandable in Canada since Canadian consumers were among the first to massively use residential Internet access services.[2]

The level of usage by Canadians continues to grow, and access is now almost universal.[3] E-mail and the downloading of video and music files make it difficult to imagine what life was like before access to the Internet.

Despite the massive use of broadband by Canadians and its evolution—which could theoretically allow consumers to use Internet functions and applications to replace subscriptions to traditional wireline and tele-distribution services—oddly, they continue to spend for grouped services. According to the CRTC, the average spending of Canadian households for all annual communication services exceeded $185 per month over the last year,[4] and the bill keeps rising. While replacing traditional services with the Internet is seen as a trend, there are in fact not that many "cord cutters"[5] , despite the numerous predictions that traditional communication services would die out.[6]

At the same time, according to the OECD, Canada is one of the countries where usage limits for consumers are most often imposed. Most services—up to 90% of Internet access offered in Canada—have explicit monthly bandwidth limits,[7] most often called download limits.[8] In some Canadian regions, these restrictions are standard practice. Differentiated offers are so limited that consumers often have very few alternative choices; they often must live with the systematic

[1] See in particular: THOMPSON, Hugh. "With Fibre Internet, the future is here, but not for most Canadians". *Globe and Mail*, Toronto, Canada, October 5, 2011 [Online] http://www.theglobeandmail.com/technology/gadgets-and-gear/with-fibre-internet-the-future-is-here-but-not-for-most-canadians/article4255358/ (page visited on April 25, 2014) & CTV News. "Americans would give up TV before Internet: survey". CTV, Toronto, Canada, February 28, 2014 [Online] http://www.ctvnews.ca/sci-tech/americans-would-give-up-tvbefore-internet-survey-1.1708020 (page visited on April 25, 2014).

[2] ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD). *OECD Broadband Portal*, "Historical G7 penetration rate". January 9, 2014. [Online] http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm (page visited on April 25, 2014)

[3] In most provinces, the penetration rate is close to 80%. CANADIAN RADIO-TELEVISION AND TELECOMMUNICATIONS COMMISSION (CRTC) *Communications Monitoring Report* (2013), Figure 6.1.3, Ottawa, Canada, 268 pages [Online] http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr2013.pdf (document consulted on May 22, 2014).

[4] Ibid, Chairman's message.

[5] The term comes from the idea of giving up cable as a mode of tele-distribution service and is now commonly used to designate all replacements of traditional services offered by copper wire, cable, or satellite by equivalent services offered on the Internet, with or without subscription.

[6] BRADSHAW, James. "More Canadians cutting the cord? TV subscriber numbers fall for first time". *Globe and Mail*, Toronto, Canada, May 15, 2014 [Online] http://www.theglobeandmail.com/report-on-business/more-canadians-cutting-the-cord-tv-subscriber-numbers-fall-for-first-time/article18685129/ (page visited on April 25, 2014).

[7] Op. cit. note 2 OECD, *OECD Broadband Portal,* Prevalence of the usage explicit ceiling (in bytes or transferred data) in offers considered in the survey.

[8] Even though data transfer limits take into account uploading as well as downloading, throughout the report we use the generic term "download limits" to designate all monthly usage limits of the bandwidth downstream and upstream, except when otherwise stated.

addition of user fees when they go over their monthly usage limit.

One quickly understands why so many consumers keep their subscriptions to traditional communication services. Given the download limits imposed by service suppliers, the significant use of streaming applications, peer-to-peer downloading, and video calls may generate unwelcome additional charges. In fact, if consumers watched television as long on the Internet as they are watching, on average, with their tele-distribution service, which is 28.2 hours per week,[9] they would use—for the same purpose alone—338 gigabytes per month[10] (with the condition, of course, that all members of the household view the same content). At the time of our study, there were limits as low as 15 gigabytes in some regions of the country.

In most OECD countries, such usage limits imposed by service providers are rare, even non-existent. Why is the situation different in Canada? Is this business model the same for all providers in the country? How does Canada compare globally in Internet access? Can we do better? How can the massive imposition of download limits be explained by Canadian Internet access providers when most foreign providers offer services using comparable technology without this type of ceiling?

We focused on two crucial questions in our research; they set the framework for this report. Are download limits imposed by Internet service providers truly network management techniques to avoid or correct congestion problems? Do these alleged Internet traffic management practices and download limits threaten the Net's neutrality?

The first chapter of this report addresses the use of Internet access services by consumers and their perception of those services, particularly download limits.

The second chapter presents a detailed study of Internet access services offered in Canada and abroad. We compare the features of the main services offered, examining monthly fees and the frequency and level of download limits imposed on consumers. We compare Canadian services by types of provider and by region. From these comparisons, we draw conclusions on the state of services offered in Canada.

[9] CRTC. "CRTC issues annual report on the state of the Canadian communication system", Ottawa-Gatineau, Canada, September 26, 2013. [Online] http://www.crtc.gc.ca/eng/com100/2013/r130926.htm (page visited on May 1, 2014).

[10] The calculation is based on the indication that streaming in high definition of Netflix would consume about three gigabytes per hour. NETFLIX. "How can I control how much data Netflix uses?" [Online] https://helpagenetflix.com/en/node/87 (page visited on May 1, 2014).

In the third chapter, we describe the justifications used for imposing download limits on Canadian consumers. To do so, we briefly examine relevant debates that have influenced regulation and the way providers may offer Internet access services. We then report on the highlights of our exchanges with various industry stakeholders and consumer advocacy groups and with experts on the subject across Canada who provided insight into the Canadian situation. We end with various factual elements from our literature review.

In the fourth chapter, we provide an overview of the regulatory situation in foreign countries to better understand the influence that regulation can have on Internet access services. More specifically, we describe some regulatory trends regarding Net neutrality and the state of competition in the telecommunication sector. The imposition of download limits and certain Internet traffic management practices that limit available flows have been debated abroad and led to the development of recommendations by policy makers, regulatory authorities, and consumer groups to find better ways of monitoring commercial practices that can jeopardize Net neutrality. We examine these debates to draw out aspects of interest to Canada.

In the last chapter, we use our findings to assess whether or not the current Canadian approach best protects consumer interests. Based on this assessment, we offer recommendations for Canadian authorities to improve the situation in Canada.

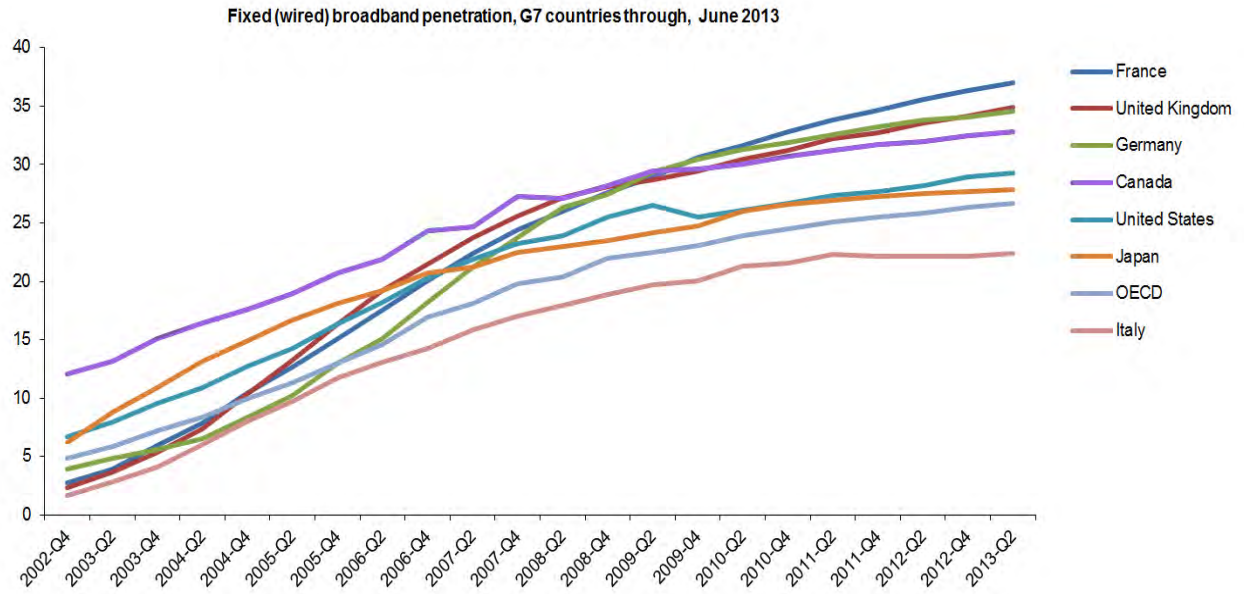
1. Literature review

1.1 Internet use by consumers

According to the CRTC's *Communications Monitoring Report*, close to 80% of households subscribe to Internet access services.[11] This means that the adoption of wire Internet access is almost as popular as traditional telephone and tele-distribution services.

Canadian Internet users are among those who spend the most time online in the world.[12] Historically, Canadians were those who started using the Internet the earliest, and in 2002, Canada took on a pioneering role with its Internet penetration rate. Since then, other members of the G7 have largely caught up, in particular France, the United Kingdom, and Germany.[13]

Figure 1



[11] According to the CRTC, the average number of connections to the Internet by household is therefore 0.8. CRTC. Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), section 2.2.

[12] See various studies from ComScore on the subject. According to the 2014 Report, only Internet users in the United Kingdom and the United States, among all countries studied, spend more time online than Canadians. FRASER, Jeff. "Canadian consumers lead world in online engagement: ComScore". *Marketing Advantage*, Toronto, Canada, April 1, 2014. [Online] http://www.marketingmag.ca/news/advantage/canadian-consumers-lead-world-in-online-engagement-comscore-106165 (page visited on May 22, 2014).

[13] Note that the penetration rates measured by the OECD are calculated according to the number of subscriptions per 100 inhabitants, instead of according to the number of households—which is the same approach used in the CRTC data. Op. cit. note 2 OECD, *OECD Broadband Portal,* "Historic penetration rate, G7".

Moreover, certain segments of the population that subscribed less to Internet access services progressively got closer to the mass: we noted an 8% increase in the number of Internet users aged 65 and up between 2010 and 2012 (the penetration rate for that demographic group went from 40% to 48%[14]). The penetration rate is not even across the country: western provinces, in particular British Columbia and Alberta, had the highest proportion of Internet users, compared to the Maritimes, which had the lowest. Lower-income consumers are unfortunately still behind: only 62% of those households have residential access to the Internet compared to 95% in the highest revenue quintiles.[15]

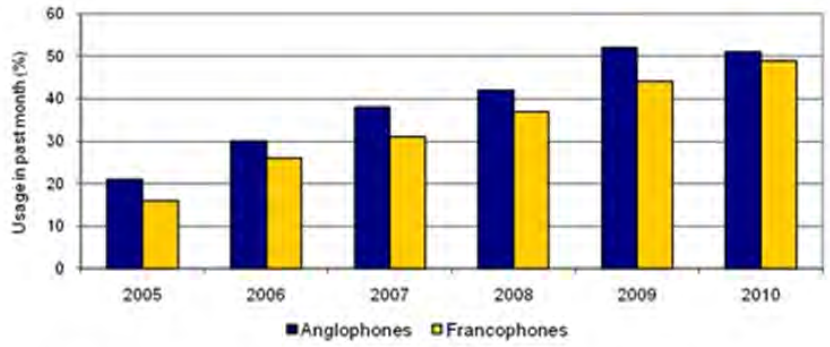
Canadian consumers use the Internet mainly for consulting e-mails, looking up information on goods and services, banking, reading or listening to the news, and participating in social networks.[16] At least half of Canadian Internet users download or watch movies or bought online music in 2012—activities that have been increasing since 2010.[17] This trend by Canadians to consume more and more online videos is not new, as demonstrated by various statistics from the CRTC.[18] Recently, a growing quantity of Internet users has also started to make audio and video calls: the percentage almost doubled between 2010 and 2012 (climbing from 24% to 43%[19]).

It is worth noting that some of the most popular uses are also part of those requiring the most bandwidth,[20] and are thus more likely to lead to usage limit overruns and additional charges.

The following graphs demonstrate the consumption of Internet video content, including full television programs—30 or 60 minutes long—(by percentage of users) and the number of hours spent watching television on the Internet.

[14] STATISTICS CANADA. "Individual Internet use and e-commerce, 2012", *Le Quotidien*, October 28, 2013. [Online] http://www.statcan.gc.ca/daily-quotidien/131028/dq131028a-eng.htm (page visited on April 25, 2014).
[15] Ibid.
[16] Each use is made by less than 67% of Internet users surveyed. Op. cit. note 14 STATISTICS CANADA, "Individual Internet use and e-commerce, 2012", Table 3: "Activities on-line made from any location, 2012".
[17] STATISTICS CANADA, Op. cit. note 14 STATISTICS CANADA, "Individual Internet use and e-commerce, 2012".
[18] CRTC. *Report on broadband*, graph 2.3.3. and Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), Graph 6.2.7. November 2011. [Online] http://www.crtc.gc.ca/eng/publications/reports/broadband/bbreport1111.htm#f2.3.3 (page visited on April 25, 2014).
[19] Op. cit. note 14 STATISTICS CANADA, "Individual Internet use and e-commerce, 2012".
[20] See in particular: KAZMEYER. Milton. "Things That Use a Lot of Bandwidth". *Global Post*, Boston, United States, no date. [Online] http://everydaylife.globalpost.com/things-use-lot-bandwidth-20672.html (page visited on April 25, 2014).

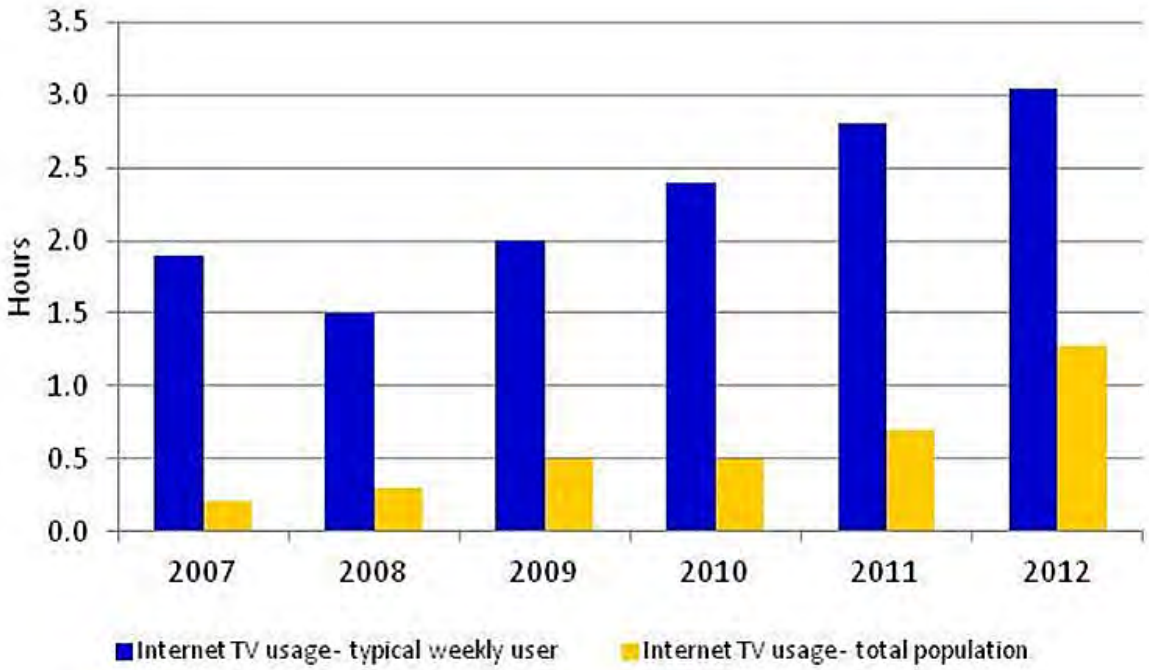
Figure 2
Canadian Internet video viewing, by language[21]



- Watched video available on the Internet such as TV program, newscast or amateur video clip in the past month.

Source: MTM 2010-2011 (Respondents: All 18+)

Figure 3
Average weekly hours spent watching Internet TV[22]



Source: MTM 2012 (Respondents: Canadians 18+)

[21] Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), Graph 2.3.3.
[22] Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), Graph 6.2.7.

a) Profile of consumer needs

According to the Sandvine Report, subscribers to North American Internet access services use an average of 44.5 gigabytes per month, with a relatively stable annual increase of 20% to 30%. A major part of the traffic is due to streaming (67.4% upstream). Netflix itself is responsible for about 30% of upstream traffic during peak hours on the global fixed network of American providers; YouTube is responsible for 18.7%.[23]

Canadians are among the most persistent Internet users in the world, with an average of 34 hours per month online. Only the United States and Great Britain surpass Canada in this regard (slightly, with an average of 36 hours), according to the most recent specialized ComScore study on the subject.[24]

Consumers most often turn to services offering low speeds, on average. Since the limits imposed on downloading are often paired with access speed (low speed = low ceiling), it is probable that a majority of consumers use services with low limits since consumers most often choose services with speeds of between 5 and 9 Mbps according to the CRTC. As shown in the table below, this is indeed the most popular subscription segment: between 40% and 50% of subscribers chose this speed in the last five years. However, subscribers gradually chose increasingly higher speeds. If in 2008 more than 90% of Canadians were subscribing to services with a maximum speed of 9 Mbps and less, that proportion is now about 60%.

[23] SANDVINE. *Global Internet Phenomena Report, 2013*, Waterloo, Canada, November 8, 2014, page 5-6 [Online] https://www.sandvine.com/downloads/general/global-internet-phenomena/2013/2h-2013-global-internet-phenomena-report.pdf (document consulted on May 1, 2014).

[24] KRASHINSKY, Susan. "How Canadians are using the Internet differently". *Globe and Mail*, Toronto, Canada, April 1, 2014, [Online] http://www.theglobeandmail.com/report-on-business/industry-news/marketing/canada-shifts-to-mobile-screens/article17762060/ (page visited on April 24, 2014).

Figure 4
CRTC: Residential Internet speeds and pricing[25]

Downstream Speed	2008	2009	2010	2011	2012
	One-month revenue (%)				
Lite and wideband up to 256 Kbps	2.9	0.6	0.2	0.3	0.3
Wideband 300 to 1400 Kbps	15.1	8.6	4.3	3.6	1.9
Broadband					
1.5 to 4 Mbps	17.3	20.9	20.9	20.3	16.7
5 to 9 Mbps	53.6	46.5	49.1	47.0	42.0
10 to 15 Mbps	10.8	22.4	22.8	16.5	9.4
16 Mbps and higher	0.3	1.0	2.7	12.3	29.7
16 to 49 Mbps	-	-	2.4	11.8	24.6
50 Mbps and higher	-	-	0.3	0.6	5.1
Total sample	306.4	320.7	350.0	375.7	418.0
	Subscribers (%)				
Lite and wideband up to 256 Kbps	4.3	1.1	0.3	0.4	0.3
Wideband 300 to 1400 Kbps	19.8	12.2	5.8	4.3	2.6
Broadband					
1.5 to 4 Mbps	17.0	24.5	24.2	24.6	17.7
5 to 9 Mbps	50.1	42.6	45.3	45.6	41.6
10 to 15 Mbps	8.6	19.0	22.4	15.6	10.2
16 Mbps and higher	0.2	0.6	2.0	9.5	27.6
16 to 49 Mbps	-	-	1.8	9.2	23.9
50 Mbps and higher	-	-	0.2	0.3	3.7
Total sample	8,184.4	8,516.8	8,983.1	9,440.3	9,618.4
	ARPU				
Lite and wideband up to 256 Kbps	$24.86	$19.55	$25.18	$33.86	$35.97
Wideband 300 to 1400 Kbps	$28.57	$26.84	$28.87	$33.03	$30.96
Broadband					
1.5 to 4 Mbps	$38.22	$32.46	$33.57	$32.87	$40.78
5 to 9 Mbps	$40.00	$41.14	$42.23	$40.97	$43.97
10 to 15 Mbps	$47.06	$44.43	$39.67	$42.11	$40.34
16 Mbps and higher	$63.06	$65.08	$53.71	$51.63	$46.83
16 to 49 Mbps	-	-	$51.66	$50.76	$44.85
50 Mbps and higher	-	-	$75.80	$78.06	$59.69
Total sample	$37.44	$37.80	$38.96	$39.80	$43.46

[25] Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), Table 5.3.4 (part 1).

It is interesting to note that for several years the average levels of download limits by speed decreased, except for services with the highest speeds (which are less popular given that they are often considerably more expensive). However, limits started to increase in 2011.

Figure 5
Residential Internet speeds and pricing[26]

Downstream speed	2008	2009	2010	2011	2012
	Weighted-average upload speed (Kbps)				
Lite and wideband up to 256 Kbps	131	152	209	178	168
Wideband 300 to 1400 Kbps	286	267	352	314	303
Broadband					
1.5 to 4 Mbps	809	656	584	666	652
5 to 9 Mbps	744	723	870	855	1,122
10 to 15 Mbps	862	751	797	876	2,527
16 Mbps and higher	1,120	1,085	1,735	2,693	4,291
16 to 49 Mbps	-	-	1,661	2,662	2,912
50 Mbps and higher	-	-	2,329	3,667	13,199
Total sample	649	652	769	961	2,031
Weighted-average download speed	4,928	5,945	7,060	8,238	12,796
	Weighted-average upload/download limit (GB)				
Lite and wideband up to 256 Kbps	8.50	11.75	-	-	-
Wideband 300 to 1400 Kbps	8.75	3.04	7.20	14.9	17.75
Broadband					
1.5 to 4 Mbps	43.25	32.20	22.13	69.06	98.34
5 to 9 Mbps	54.18	42.80	45.27	80.81	77.33
10 to 15 Mbps	80.81	69.53	74.28	74.22	107.18
16 Mbps and higher	101.91	104.14	112.94	179.58	160.23
16 to 49 Mbps	-	-	108.25	176.98	131.50
50 Mbps and higher	-	-	163.22	236.54	364.80
Total sample	42.34	40.32	45.04	81.11	104.90

1. Weighted-average download limits are calculated only for those plans that have limits.
2. All data excludes terminal rental revenues.
Source: CRTC data collection

Numerous available statistics tend to demonstrate that the use of the Internet by consumers is quite varied. Consumers go online to be informed about the news, products and services, and about the most varied subjects, from general to specialized; to communicate by e-mail, through social networks, and through audio and video calls; and to be entertained, simply by navigating the Web or by listening to music and watching videos, through streaming applications or by downloading files. Consumers increasingly use the Internet; and functions that require more bandwidth are increasingly popular. Speeds and network capacities have risen dramatically over the years. The number and size of content proposed to Internet users have done the same. One might fear that a craze for some of these functions, the large consumption of bandwidth, and the multiplication of devices connecting to the Internet would cause congestion problems on

[26] Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), Table 5.3.4 (part 2).

the networks.[27] What is the best solution if this occurs? Investing to develop network capacity so it can respond to the demand (and provide the service for which it is designed and for which access is sold to the consumer), or impose access and usage limits on consumers? Internet access providers have clearly chosen the latter. The data transfer ceilings imposed have been increasingly restrictive from 2008 to 2009, while the packages offered have guaranteed ever faster and better access.

b) What are consumers' concerns and problems?

Among all telecommunication services, Internet access has received the most consumer complaints after the introduction of wireless service. Problematic invoicing is the most common followed by service delivery problems, according to the Commissioner for Complaints for Telecommunications Services (CCTS).[28] In all, 20% of the problems brought to the attention of the Commissioner were about Internet access services.

Figure 6
Summary of complaints received at the CCTS, Fiscal Year 2012-13

This table highlights the most common issues that we saw in this year's complaints, accounting for 70% of the complaint issues we recorded.

Issue	Number of times Issue is mentioned in a Complaint	Percent of all Complaint Issues
Billing errors regarding a customer's monthly price plan	2,224	11.5%
Loss of service and repair issues	2,080	10.8%
30-day notice for cancellation	1,835	9.5%
Early termination/Cancellation fees	1,490	7.7%
Non-disclosure of Terms/Misleading information about terms	967	5.0%
Customer- Initiated service cancellations (including porting issues)	915	4.7%
Compliance with Terms of Service/Contract	837	4.3%
Roaming charges	721	3.7%
Credit reporting	611	3.2%
Data charges	539	2.8%
Credit/refund not received	516	2.7%
Consent to contracts (no consent or non-disclosure)	514	2.7%
Long distance disputes (Chargeable messages)	405	2.1%

[27] Op. cit. note 1 THOMPSON, "With Fibre Internet, the future is here, but not for most Canadians".
[28] COMMISSIONER FOR COMPLAINTS FOR TELECOMMUNICATIONS SERVICES. *Annual Report 2012-13,* Ottawa, Canada, undated, 51 pages, page 11. [Online] http://www.ccts-cprst.ca/wp-content/uploads/pdfs/en/2012-2013/CCTS-Annual-Report-2012-2013.pdf (document consulted on April 25, 2014). Unfortunately, the complaint categories don't allow us to determine which complaints were related to downloading; such information may be in each of the three first categories.

Canadian consumers are very conscious of the download limits in their package. Results of a survey published in a report by the Public Interest Advocacy Centre (PIAC) on residential Internet access speeds stated that 58% of respondents were quite familiar with the concept of download limits, and 74% indicated that it was an important element in their choice of Internet access service provider.[29] Another report from the PIAC on Net neutrality stated that consumers who were asked about download limits and usage-based pricing considered they could accept these pricing models if they had access to the Web without any other form of restriction, while they also stressed that those who download the most should not pay more for their usage if there was no real need to control network traffic. Surveyed individuals said it was important that applicable fees be disclosed properly and that the imposition of download limits should result in the absence of a smoothing practice by service providers.[30]

Download limits are the source of a lot of frustration among Canadian consumers. The CCTS mentioned this in its 2013 Annual Report and stated in the highlights of the past year that the imposition of additional usage fees leading to surprise invoices were a growing subject of complaint.

> *This year, we recorded 128% more issues about wireless data, roaming and Internet bandwidth charges than last year. It remains one of the most-complained about issues. The billing of wireless data and roaming charges, together with Internet bandwidth charges, was raised by customers over 1,500 times.* [31]

More precisely, the Commissioner reports that numerous consumers dispute the reliability of the tools that measure data usage and bandwidth, and advises providers to reinforce public confidence in their usage monitoring tools.[32] The Commissioner had already reported the same problem in his 2010-2011 Annual Report.[33]

The CCTS is not the only body reporting frustration among consumers over the monitoring of bandwidth usage. A foreign study reveals that one of the main concerns of households managing Internet access with usage limits is the difficulty of monitoring real-time usage, particularly if the provider doesn't offer user-friendly tools to that effect. Consumers sometimes also have difficulty understanding speed units (Mbps) and usage units (MB) and what quantity of bandwidth is consumed by usage. Even if they have a general idea that videos are more bandwidth-thirsty than Web navigation, they don't know what quantity of bandwidth is necessary for specific usage. In all cases, reaching the usage limit generated a negative consumer reaction. The study even suggests that it may be less complicated for consumers to monitor

[29] MESHADIYEVA, Laman & Janet LO. *Transparency in Broadband Advertising to Canadian Consumers*. Public Interest Advocacy Centre, Ottawa, Canada, January 2013, 50 pages, page 15. [Online] http://www.piac.ca/telecom/canadian_consumers_need_better_disclosure_about_internet_speed_and_performance_claims/ (page visited on April 25, 2014).
[30] LAWFORD, John et al. *Staying Neutral: Canadian Consumers and the Fight for Net Neutrality,* Public Interest Advocacy Centre, Ottawa, Canada, November 2009, 132 pages, page 80. [Online]. http://piac.ca/downloads/NN_Report_MASTER_FINAL_website.pdf (document consulted on April 21, 2014)
[31] Op. cit. note 28 CPRST, *Annual Report 2012-13,* page 17.
[32] Op. cit. note 28 CPRST, *Annual Report 2012-13,* pages 17-18.
[33] CCTS. *2010-11 Annual Report*, Ottawa, Canada, 45 pages, page 25-28. [Online] http://www.ccts-cprst.ca/wp-content/uploads/pdfs/en/CCTS-Annual-Report-2011.pdf (document consulted on April 25, 2014).

their mobile use since Internet access on cellular phones is generally less heavy in bandwidth. Consumers prefer to use their portable phone to surf the Web over using it to watch videos.[34]

Download limits may have the effect of inducing consumers to limit their bandwidth consumption; by doing so, they keep them from fully enjoying the innovative opportunities of the Internet—streaming services in particular, which could increase their consumption of televisual content without, however, allowing them to discard their traditional subscription.[35] Moreover, restrictive usage limits may encourage households to wait until the end of the month to realize they have available free surplus to consume more bandwidth. Otherwise, the same members of a family may have to impose bandwidth usage rules prioritizing, for example, the use of the Internet for school or work. Some parents may ask their children not to play online games, whereas others bluntly block certain sites like YouTube and Facebook. Some people avoid attachments and give preference to physical support (such as CDs, USB keys, etc.).[36]

Usage limits on Internet access have already raised vigorous debate in the Canadian public sphere. In particular, it is worth mentioning the public reaction to the precedent-setting decision of the CRTC on usage-based invoicing, which had the effect of reducing the offer of Internet access services without download limits. This, in fact, approved a business model that made it more difficult for independent providers to seize the opportunity to diversify available services. If this decision—resulting from a request by Bell Canada, which it was granted—raised a storm of protest across Canada, it also forced independent providers to impose bandwidth transfer limits as well. Service offers without usage limits were at that time one of the features that set them apart from their competitors.[37] An online petition opposing the usage-based billing model allowed by the CRTC from Open Media, an organization mobilizing people around digital issues, collected more than half a million signatures.[38] Facing the winds of change, the CRTC Chairman, Konrad von Finkenstein, announced to the Standing Committee on Industry, which was questioning the CRTC over its decision, that the organization had decided to review its decision—this as the government seemed ready to decree that the decision be reversed.[39] The CRTC then effectively adopted a billing model based on capacity, thus returning some balance to the equation. We will address this further when we examine the Canadian regulatory context.[40]

[34] CHETTY, Marshini et al. *You're Capped!" Understanding the Effects of Bandwidth Caps on Broadband Use in the Home*. Austin, United States, 2012, 10 pages [Online] http://www.academia.edu/2398329/Youre_capped_understanding_the_effects_of_bandwidth_caps_on_broadband_use_in_the_home (page visited on April 25, 2014).
[35] MINNE, Jacob. *Data Caps: How ISPs are stunting the Growth of Online Video Distributors and What Regulators Can Do About It*, Santa Clara, United States, May 1, 2012, 33 pages, paragraph 1. [Online] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2049174 (page visited on April 25, 2014).
[36] Op. note 34 CHETTY, M. et al. *You're Capped!" Understanding the Effects of Bandwidth Caps on Broadband Use in the Home.*
[37] CBC. "Usage-based internet billing: The ins and outs of limiting bandwidth in Canada". January 31, 2011. [Online] http://www.cbc.ca/news/technology/usage-based-internet-billing-1.995790 (page visited on May 22, 2014).
[38] OPENMEDIA, *Stop the Meter, November 26,* 2012 [Online] http://pages.cmns.sfu.ca/timeline/2012/11/26/openmedia-ca/ (page visited on May 22, 2014).
[39] CBC. "CRTC to Review Internet Billing Decision". February 3, 2011. [Online] http://www.cbc.ca/news/canada/crtc-to-review-internet-billing-decision-1.985099 (page consulted on May 14, 2014).
[40] See regulatory summary at the beginning of Chapter 3 of the present report.

1.2 A few statistics on accessibility

a) Current situation in Canada

The next chapter examines Internet access services in detail, as offered in Canada and abroad. We will therefore first describe the results of large comparative studies of features that we consider in our own analysis.

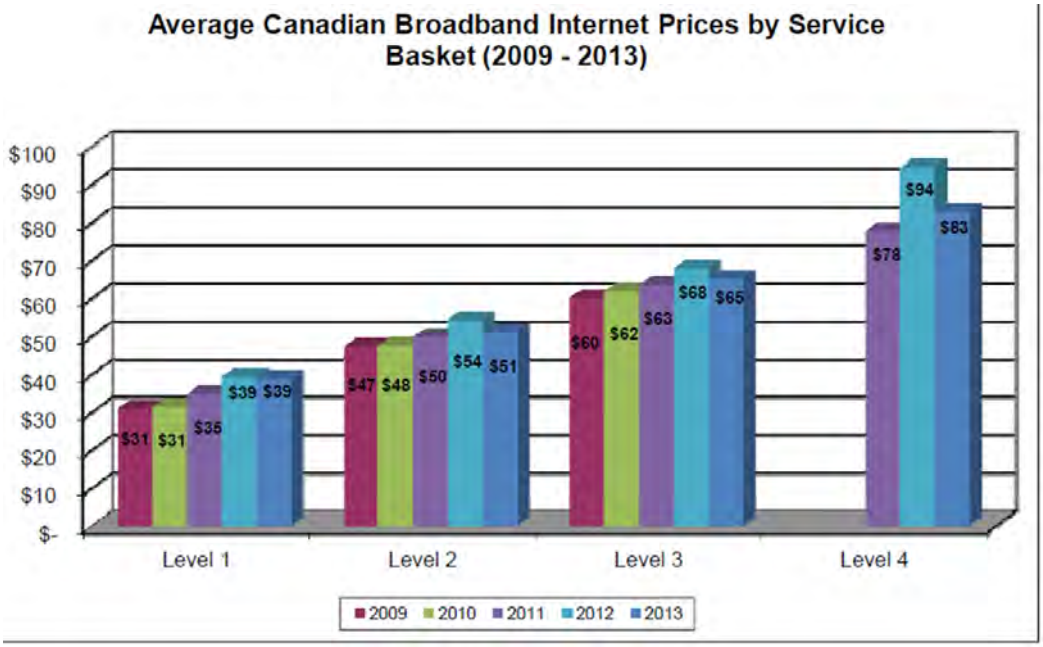
The main comparative studies we analyzed don't allow for differences that exist in all Internet access services across Canada. We address this in detail in the next chapter. Internet access services in Canada vary from one region to the other, especially in terms of average fees and the levels and frequency of download limits imposed by service providers. Generally, residents of the most populated provinces—Ontario and Quebec—pay more often and more expensively for bandwidth, because of the omnipresence of download limits in the available offers. Service offers without download limits are more common in Eastern Canada, but monthly subscription fees may be higher, depending on the situation. Download limits are also rarer in Western Canada, where rates are, however, lower than those found in several regions of the country.[41] By contrast, according to the Wall Communications report ordered by the CRTC and Industry Canada, Internet access rates increased until 2012 then decreased slightly in 2013 (except for level 1[42]).

[41] FAIRLEY, Matt. "Why do Canadian broadband rates vary so much?" CBC, February 20, 2013 [Online] http://www.cbc.ca/news/business/why-do-canadian-broadband-rates-vary-so-much-1.1387144 (page visited on April 24, 2014).

[42] The four levels indicate various broadband service speed:

- Level 1: "Basic" Internet service – maximum speed advertised: 3 Mbps; monthly data usage: 5 GB
- Level 2: High-speed Internet "average in Canada" – maximum speed advertised: from 4 to 15 Mbps; monthly data usage: 20 GB
- Level 3: maximum speed advertised: from 16 to 40 Mbps; monthly usage of data: 50 GB
- Level 4: maximum speed advertised: above 40 Mbps (targeted speed of 41 to 100 Mbps); monthly data usage: 75 GB.

Figure 7
Wall Communications: Price trends in Internet access services[43]

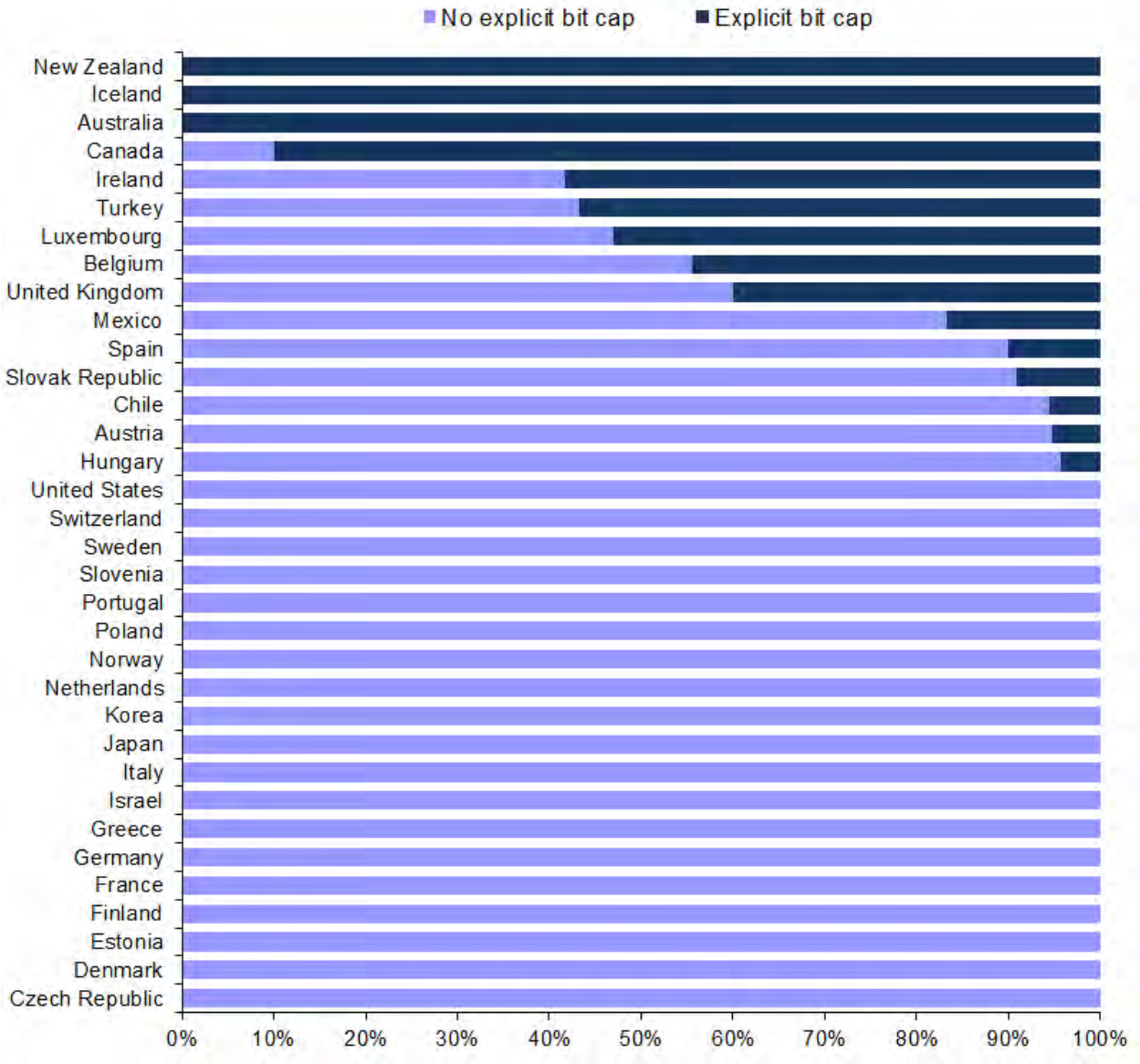


b) Canada compared…

According to the OECD, Canada is one of the few countries where download limits are often imposed for Internet access services. Among the 34 countries that participated in the study, only three had download limits imposed more often than Canada: New Zealand, Iceland, and Australia. Only 10% of available services in Canada are offered without explicit usage limits.[44] It should be noted that the Wall report describes a proportion of more like 50%. In both cases, the proportions mentioned are different from the results we obtained during our field study, which we describe below.

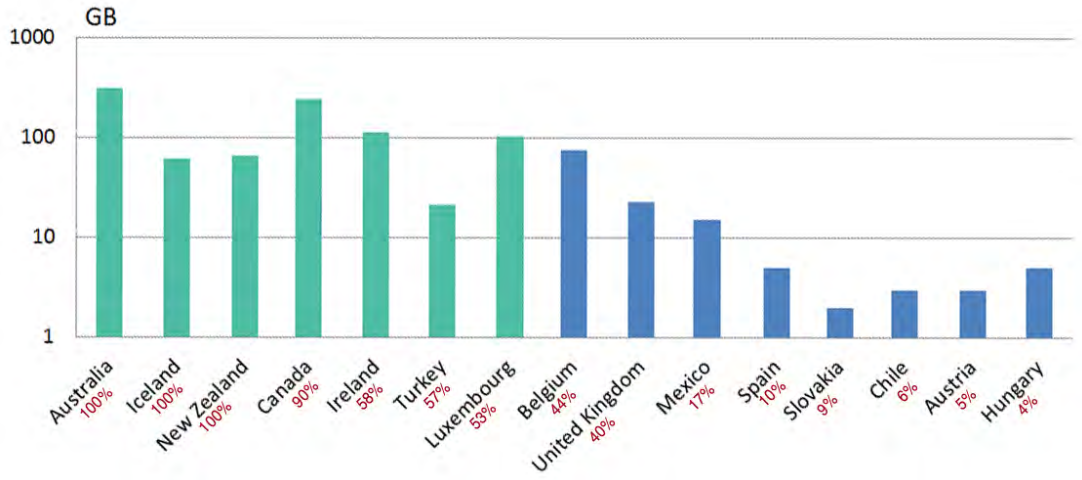
[43] WALL COMMUNICATIONS INC. *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions*, Table 5, Ottawa, Canada, 2013. [Online] http://www.crtc.gc.ca/eng/publications/reports/rp130422.htm (page visited on April 24, 2014).
[44] Op. cit. note 2 OECD, *OECD Broadband Portal*, "Prevalence of explicit bit/data caps among surveyed offers, by country, September 2012.

Figure 8
OECD: Frequency of explicit download limits: Canada in 4th position



In addition to the frequency of download limits, the level of the imposed limits to subscribers is also an interesting variable. Australia and Canada are the countries where providers set the most severe limits (averages of 310 and 244 gigabytes respectively). This is relative, however, keeping in mind that 19 countries in the study have no limits and that in six others 80% of the services available similarly have no limits.

Figure 9
OECD: Average level of download limit[45]

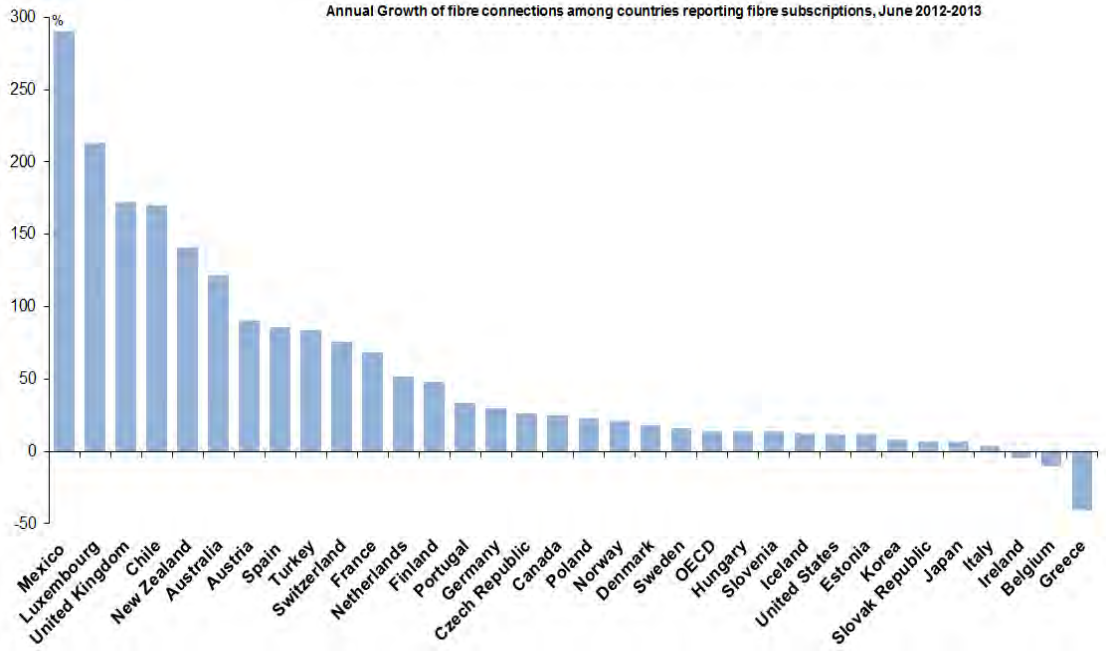


In this regard, there seems to be a link between the prevalence of download limits in a given country and the average level of the limits imposed. The highest levels are generally found in countries where there are fewer unlimited service offers. Providers from countries where limits are most often if not always imposed as a mandatory service condition have generally higher thresholds than those from countries where the imposition of limits is scarce. One could presume that the limited services offered in the latter countries, which are less frequent, exist to provide consumers with a range of basic services and to encourage them to upgrade to subscriptions without usage limits. These are a bit more costly than service with very low usage limits but may avoid the consequences of surpassing the low usage limits, which are additional fees.

Download limits—their prevalence and their levels—are only one factor among many that must be considered in assessing the state of Internet access services. For example, it is impossible not to consider price—one of the most important obstacles to the adoption of broadband—which is exacerbated by a lack of competition.[46] Most studies that try to compare various services take into account monthly rates, access speeds, and network performance. In this respect, while Canada's record is less disastrous than for download limits, the bottom line is that the country is not a leader, as demonstrated by the data on these additional factors collected by the OECD. As for the expansion of new-generation networks—for example, the adoption of services via fibre optic—this is occurring in Canada but the phenomenon is less prevalent than elsewhere, despite recent investments by some Canadian providers to deploy such networks.

[45] Data extracted from: Op. cit. note 2 OECD, *OECD Broadband Portal,* "Average data caps by country (GB)," September 2012.
[46] MALCOLM, Jeremy. *Holding broadband consumers to account*. Consumer International. Kuala Lumpur, Malaysia, 2012, 88 pages, page 42. [Online] http://www.consumersinternational.org/media/1037213/broadband-manual-en-final.pdf (page visited on April 25, 2014).

Figure 10
OECD: Annual growth of fibre connections among countries reporting fibre subscriptions, June 2012-2013[47]



Although we have reservations about the OECD's methodologies in comparing different consumption baskets, services in Canada remain more expensive than the norm. The following tables show trends in the different levels of consumer usage of broadband services: low, intermediate, and high consumption levels. Canada ranks better for the lowest consumption basket (where it is still in 15th position for the most expensive services) than for the others (where it places 8th and 9th).

[47] Op. cit. note 2 OECD, *OECD Broadband Portal*, "Growth of fibre subscriptions (June 2013)"

Figures 11 to 13
Broadband service consumption baskets, as at September 2012[48]

Figure 7.8: 2.5 Mbps and more, with a limit of 6 gigabytes

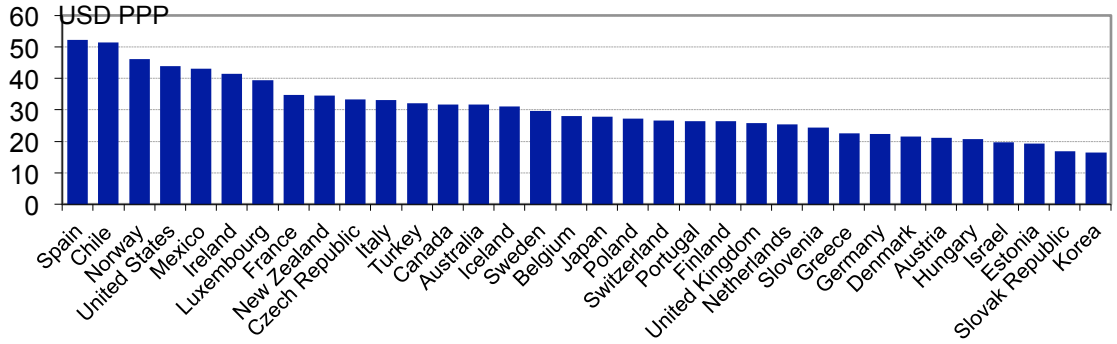


Figure 12
Figure 7.12 30 Mbps and more, with a limit of 14 gigabytes

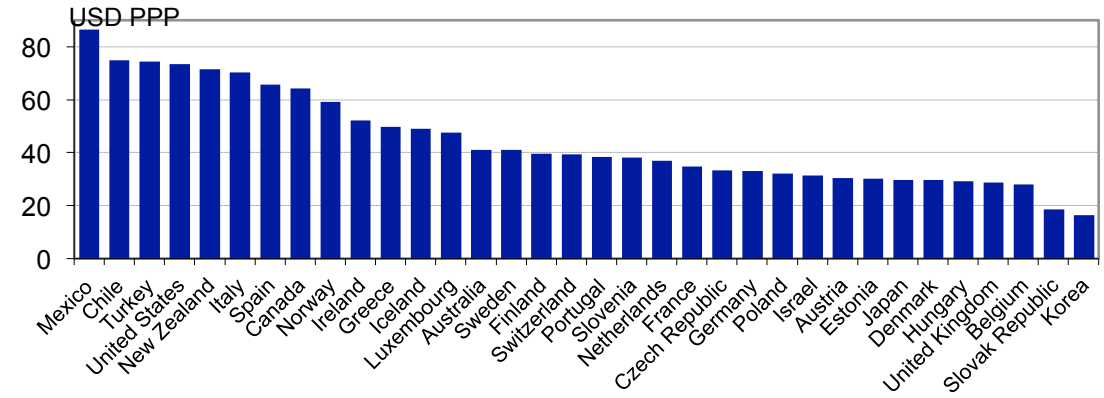
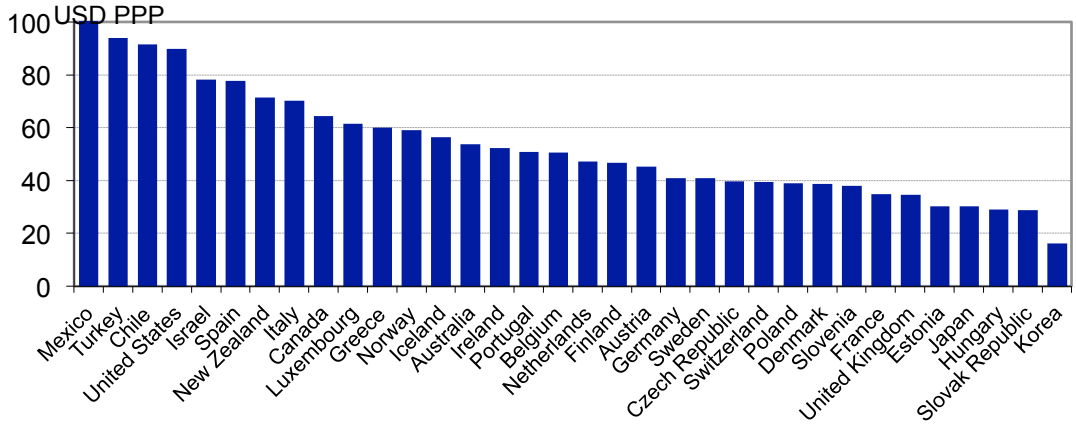


Figure 13
Figure 7.15: 45 Mbps and more, with a limit of 54 gigabytes



[48] Op. cit. note 2 OECD, *OECD Broadband Portal*, "Prices, September 2012."

As interesting as the comparison and classification attempts may be between the various services offered in different countries, our research found that comparisons between services with download limits may be biased, because the consumption baskets selected imposed particularly low download limits and don't reflect the general situation related to all services offered. In fact, as we previously stated, in countries where download limits are not the standard, ceilings may be lower than in countries where limits are customary.

OECD statistics indicate that download limits in Australia and Canada average 200 to 300 gigabytes. The consumption baskets favoured by the OECD and the Wall Report for comparisons, however, have only services with usage limits that are very low, even for higher consumption scenarios that include higher speed services.[49] As we will see, our field study clearly indicates that Internet access services with speeds somewhat higher than the average, when they include download limits, usually set limits at a higher level than those selected for this study, and many of the services have no download limits at all.

Speeds selected for the consumption baskets used in the comparative studies mentioned here all tend to be somewhat lower. According to the *Ookla net Index*, the average speed of users who have done the test in Canada is 21 Mbps; the average speed in the United States is 23.6 Mbps, 34.3 Mbps in France, and 27.1 Mbps in the United Kingdom.[50] Statistics from the CRTC mentioned earlier indicate that the use of low-speed connections was already marginal in 2009, with a majority of consumers by then opting for speeds higher than 5 Mbps. Similarly, service at 1 Mbps is no longer offered by some providers. One may then ask why comparative studies and market profiles have chosen standards inferior to the thresholds that are viewed as determining high speed. Part of the explanation lies in the difficulty of choosing comparison criteria that are applicable and relevant to all countries studied in such exercises. Internet access services vary considerably around the world; the challenge of setting common criteria makes their comparison painstaking.

That being said, the trends observed by the authors of the last Wall Communications report are presented below, commissioned by the CRTC and Industry Canada, which compared telecommunications fees around the world. Considering the chosen criteria, results related to Internet access services are unfortunately partial. The Wall Communications report includes incomplete results for the lowest consumption baskets in certain countries like France, the United Kingdom, and Australia, which prevents us from obtaining detailed information to locate Canada in terms of basic Internet access services. However, we note that Canada and the United States impose, on higher category consumption baskets, monthly rates that are generally high compared to those in Japan, Great Britain, and France. Australia also enjoys more economical services than in Canada and the United States for high-end services.

[49] The maximum scenarios retained regarding the download limits are offers that include limits around 50-75 GB. We will see further on that for countries like Canada and Australia similar ceilings can be found in economical services, whereas no offers are made to consumers in these two Commonwealth countries for services where download limits are set at the lowest levels studied by the OECD and Wall. On the other hand, some United Kingdom suppliers always offer very low usage limits for cheap services, but as soon as consumers opt for something other than the first or second most economical offer, all other services are unlimited. One can see here the scale of the difficulty of comparing services or a specific service model across markets that are fundamentally different.

[50] OOKLA. *Net Index*. 2014. [Online] http://www.netindex.com/ (page visited on April 25, 2014).

Figure 14
Wall Communications: Price comparison of telecommunication services[51]

Summary of International Price Comparisons

Average Monthly Prices in PPP-adjusted $CDN

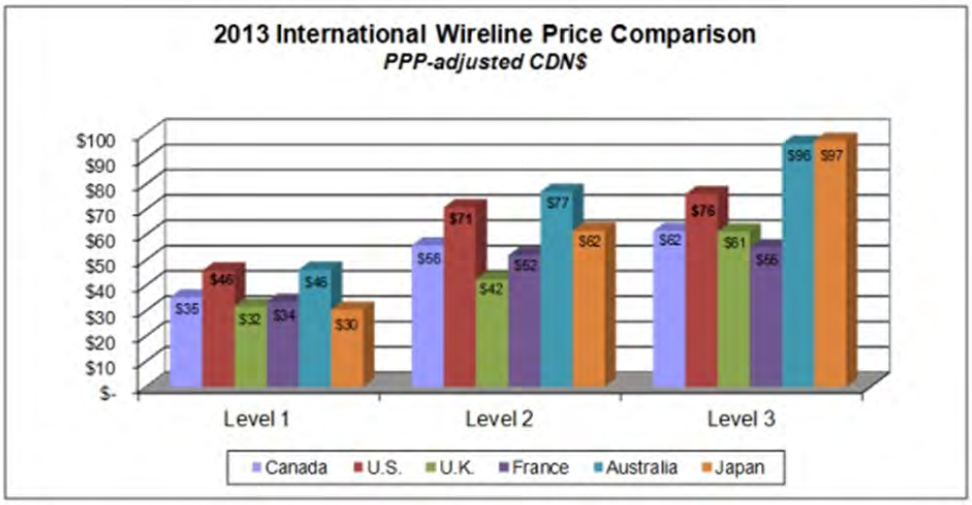
	Canada	U.S.	U.K.	France	Australia	Japan
Wireline Service						
Level 1 (low-volume use)	$ 35.33	$ 45.88	$ 31.68	$ 33.53	$ 46.30	$ 30.45
Level 2 (average use)	$ 55.77	$ 70.85	$ 42.35	$ 51.93	$ 77.05	$ 61.70
Level 3 (high-volume use)	$ 61.53	$ 76.08	$ 61.35	$ 55.03	$ 96.00	$ 97.17
Wireless Service						
Level 1 (low-volume use)	$ 30.71	$ 33.08	$ 21.97	$ 20.24	$ 21.82	$ 28.09
Level 2 (average use)	$ 44.86	$ 76.14	$ 38.85	$ 44.08	$ 35.04	$ 44.36
Level 3 (high-volume use)	$ 93.59	$ 145.79	$ 63.52	$ 58.90	$ 49.54	$ 125.24
Broadband (Fixed access)						
Level 1 (≤ 3 Mbps, 5 GB/month)	$ 38.91	$ 52.38	*na*	*na*	*na*	$ 45.55
Level 2 (4 -15 Mbps, 20 GB/month)	$ 51.20	$ 81.42	$ 32.85	*na*	$ 58.15	$ 52.53
Level 3 (16 - 40Mbps, 50 GB/month)	$ 65.18	$ 99.10	$ 43.01	$ 49.34	$ 57.10	$ 61.52
Level 4 (≥ 40 Mbps, 75 GB/month)	$ 82.88	$ 123.27	$ 53.31	$ 54.58	$ 72.69	$ 64.89
Mobile Internet (≥ 3G Technology)						
Level 1 (2 GB/month)	$ 44.55	$ 54.61	$ 23.71	$ 34.98	$ 28.80	$ 57.54
Level 2 (5 GB/month)	$ 64.67	$ 59.82	$ 62.01	$ 44.65	$ 35.13	$ 58.24
Bundled Services						
1) Wireline-Broadband-Wireless	$ 139.15	$ 185.00	$ 111.39	$ 95.62	$ 146.45	$ 149.63
2) Wireline-Broadband-DTV	$ 134.19	$ 167.92	$ 98.14	$ 69.17	$ 145.27	$ 137.23
3) Wireline-Broadband-Wireless-DTV	$ 176.80	$ 224.09	$ 140.56	$ 101.35	$ 178.24	$ 182.62

Latest available OECD Purchasing Power Parity (PPP) indexes were used to calculate PPP-adjusted exchange rates. Average market exchange rates for the month corresponding to the OECD PPPs were used to convert foreign prices into Canadian dollars.

Wall Communications Inc. 2013

[51] Op. cit. note 43 WALL COMMUNICATIONS INC, page 19.

Figure 15
Price comparison of Internet access services only



Wall Communications Inc. 2013

Finally, comparative studies show another interesting trend: the link between the technology used to offer access to the Internet and the frequency of download limits is at least partially disappearing with time. OECD statistics on the subject clearly identified that link a few years ago. For example, in 2007 and 2008, fibre services had a lot less download limits than cable. Now, cable services impose less and less download limits (three times less in 2011 than 2007), while ceilings are multiplying in fibre services (four times as much), and DSL services are remaining more or less stable. Since there are no statistics breaking down this trend by country, it is difficult to determine the reasons for these fluctuations. However, we can say generally that the frequency of download limits appears to be decreasing for all wireline technology categories combined. Indeed, limits on fibre services were constantly increasing until 2010, but a major decrease in 2011 may suggest greater balance is returning to the equation.

Figure 16
Percentage of services imposing download limits[52]

Technology/Year	2007	2008	2009	2010	2011
DSL	36	40	27	32	33
Cable	48	31	26	20	16
Fibre	5	8	24	27	21
Wireless	75	63	-	-	-

[52] Statistics extracted from the OECD Broadband Portal, years 2007 to 2011: *OECD Broadband Portal, "Prevalence of explicit bit/data caps among surveyed offers, by technology".* Issus de statistiques du portail de l'OCDE sur le haut débit, années 2007 à 2011 : OCDE, *OECD Broadband Portal, «Prevalence of explicit bit/data caps among surveyed offers, by technology. »* Since 2012, OECD does not publish data on capping.

2. Comparative study

To qualify Internet access services in Canada, we will start with a few observations on the state of the market (retail and wholesale), based on a brief literature review, and then continue with our field study. We will provide a few details on the methodology used and then describe the highlights of our analysis on services offered in Canada. Finally, we compare Canadian services with those offered by a selection of foreign providers.

2.1 Internet access services: competition issues and technical challenges

Despite the significant number of competitors across the country, almost none offers wired Internet access services across the entire territory. In most regions, the market is composed of a duopoly, including a former telephone monopoly and a cable distributor, which varies according to the region and where the largest market share is held by the two providers.

Independent providers may compete for business in one or several provinces or in one or several regions, using especially the infrastructure of former monopolies or cable distributors (this is the case for 54% of providers[53]). There are several hundred Internet access providers in Canada.[54] In 2009, a study on Canadian market competitiveness reported that former monopolies (incumbent TSPs) and cable distributors (EDR by cable) held 94.5% of the market share in residential high-speed Internet service (39.5% and 55%, respectively[55]). The CRTC reports that the market share held by independent providers is today at 8% and that cable distributors continue to increase their control of the residential market.

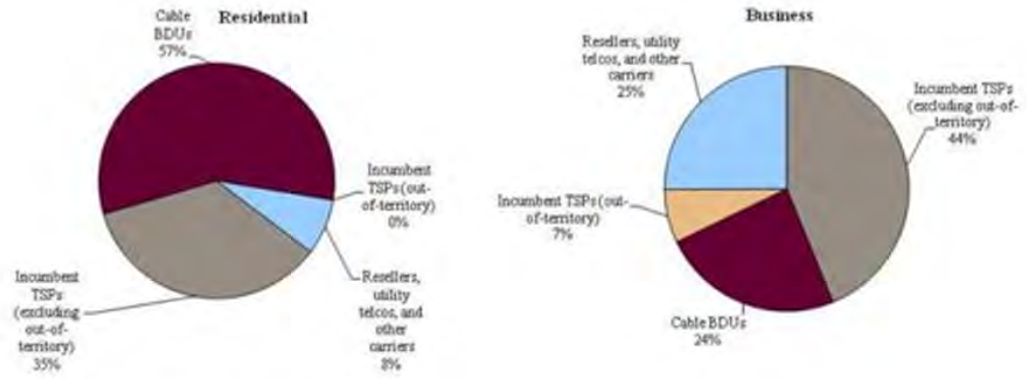
The obligation for former monopolies (telephone and cable) to give new competitors access to their networks was based on the benefits they enjoyed from a monopoly to build their network. Will they have the same obligation to give present and future resellers access to fibre networks to a subscriber's home that will not have been built, according to the companies, on the basis of a monopolistic benefit? Only time will tell.

[53] MIDDLETON, Catherine & Annemijn VAN GORPAGE *How Competitive is the Canadian Residential Broadband Market? A Study of Canadian Internet Service Providers and Their Regulatory Environment*, Ryerson University, Toronto, Canada, August 15, 2009, 36 pages, page 6. [Online]. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2000261 (page visited on May 23, 2014).

[54] We based this on the number of providers counted by the site CANADIAN ISP and the fact that this directory includes a third of Canadian suppliers. CANADIAN. *Find an ISP.* 2013. [Online]. http://www.canadianisp.ca/index.php The directory currently lists more than 220 providers (page consulted on April 28, 2014). In addition, according to the CRTC, "In 2012, Canadians had access to more than 500 Internet service providers." Op. cit., note 3 CRTC, *Communications Monitoring Report* (2013).

[55] Op. cit. note 53 MIDDLETON, C. & A. VAN GORPAGE, *How Competitive is the Canadian Residential Broadband Market? A Study of Canadian Internet Service Providers and Their Regulatory Environment*, p. 6.

Figure 17
Communications Monitoring Report 2013:
Internet access revenue shares by type of ISP[56]



Source: CRTC data collection

a) David and Goliath: the power relationship balance

Of course, former telephone and cable distributor monopolies enjoy many benefits. Being the owners of telecommunication networks, they may have to maintain them but they don't have to pay to access them, as is the case for independent providers. In fact, even though they have an obligation—by decision of the CRTC—to offer wholesale services to independent providers, they are largely compensated financially for providing that access. Wholesale access brought them over $348 million in 2012, a 9.3% increase compared to the previous year[57] (all that to allow competitors a market share that is presently at 8%).

In addition to having a network, providers must also ensure access to content—to the entire Web. Indeed, ISP "pipelines" would be of limited use without access to available online content across the World Wide Web.[58] Facilities-based providers have different beneficial ways of accessing the bandwidth to give their customers access to the Web: peering, in particular, which involves exchange agreements for comparable levels of bandwidth between two parties at minimal cost.[59] It is difficult to know the details of the ISP cost structures, but some providers would not be able to rely on peering agreements alone and must to some extent pay for bandwidth access. The general cost of the process, commonly known as IP transit, has however decreased over the past few years. In the United States, the cost of transfer of one megabyte per second has decreased from $1200 in 1998 to just $5 in 2010, and is expected to

[56] Op. cit. note 3 CRTC, *Communications Monitoring Report* (2013), Graph 5.3.3.
[57] *Ibid*., Figure 5.3.1: Internet access revenue shares by type of ISPAGE
[58] Access to the part of the network commonly called backbone, which is the main Web arborescence. See, in particular, JANSSEN , Cory. ''Internet Backbone''. *TECHOPEDIA*. [Online] http://www.techopedia.com/definition/20115/internet-backbone (page visited on June 12, 2014).
[59] Although smaller providers may also, theoretically, conclude such agreements, the larger providers would tend to use that type of agreement, their conditions being easily more beneficial for the facilities-based providers that benefit from a larger network allowing better broadband exchanges.
Op. cit. note 35 MINNE, J., *Data Caps: How ISPs are stunting the Growth of Online Video Distributors and What Regulators Can Do About It*.

continue decreasing. Some providers have also signed agreements to earn income from access to their network by online content providers, which constitutes a new source of revenue.[60]

Of course, independent providers can also count on IP transit agreements to access the Web. To do so, they rely on a selection of providers, including international companies. However, facilities-based providers also have access to more beneficial rates.[61]

As mentioned earlier, independent providers also require, in addition to access to the Web, access to the so-called pipeline owned by former monopolies and cable distributors. Access to this infrastructure is particularly important for reaching the subscriber's house (the last mile).[62] Reproducing it would be futile and bulky and heavy technically (which had, among other things, justified the establishment of monopolies for their development). This would be even more the case for companies with a small market share. This is particularly why the CRTC regulates agreements and access by independent providers to the infrastructure owned by large providers.

It should be noted, however, that even though the CRTC has adopted regulations to facilitate access to wholesale services, independent providers complain about conflict relationships with wholesale providers, who in some cases don't facilitate access to their infrastructure and even try to prohibit it as much as possible. A lack of cooperation from owners, the technical difficulty of using their facilities, and a lack of resources to promote their point of view at regulatory proceedings are among the aspects that create a power relationship of major benefit to facilities-based providers[63] and obstacles to the effective application of regulations.

Finally, even though most of the independent providers are often called resellers, it is not always in their interest to resell access to the Internet from ISP owners. It can be more beneficial to invest in infrastructure and equipment to reduce as much as possible their dependency on facilities-based providers and give them more flexibility in the service they offer.[64] Therefore, while having to ensure their access to the Web and to part of the facilities-based providers' infrastructure, they are not free of spending linked to their own network.

A last element should be mentioned that has a significant role and effect on the state of competitiveness regarding the Internet in Canada: several large providers that form part of the duopolies—whether former telephone or cable distributor monopolies—have become vertically integrated empires. They can at the same time be, in some cases, phone service providers (wire and wireless) and Internet access providers (wholesale or retail) as well as tele-distributors (and even owners of TV channels, radio stations, and news agencies). Their size and structure therefore enables them to offer to their existing and potential customers several services

[60] Op. cit. note 35 MINNE, J., *Data Caps: How ISPs are stunting the Growth of Online Video Distributors and What Regulators Can Do About It*, pages 8-9.
[61] According to Michael Geist's assessment, independent providers would pay about 1.58 cents per gigabyte, while the cost for the main providers would be less than one cent. GEIST, Michael. *Canada's Usage Based Billing Controversy: How to Address the Wholesale and Retail Issues*, Queens University Law Journal, volume 37, Kingston, Canada, fall 2011, 36 pages. [Online]. http://queensu.ca/lawjournal/issues/pastissues/Volume37a/6-Geist.pdf page 237-238 (document visited on May 23, 2014).
[62] Op. cit. note 37 CRTC, "Usage-based internet billing: The ins and outs of limiting bandwidth in Canada".
[63] Op. cit. note 53 MIDDLETON, C. & A. VAN GORPAGE, *How Competitive is the Canadian Residential Broadband Market? A Study of Canadian Internet Service Providers and Their Regulatory Environment*, p. 15, 23.
[64] Op. cit. note 53 MIDDLETON, C. & A. VAN GORPAGE, *How Competitive is the Canadian Residential Broadband Market? A Study of Canadian Internet Service Providers and Their Regulatory Environment*, p. 15-17.

assembled in the same package (known as grouped services or combined services) and accompany these with attractive discounts. In 2012, more than 10 million Canadian consumers chose such grouped services,[65] a good sign of the popularity of this approach—and the discounts that come with such groupings. While some independent providers are starting to offer grouped services, in particular using IP protocol, the market is still dominated by facilities-based providers: financial barriers prevent independent providers from easily developing service combinations and therefore grouped service packages.[66] The fact that it is difficult to offer grouped services similarly prevents them from offering discounts while increasing their revenues per user, as facilities-based providers do. This is a vicious cycle since the absence of additional revenues can prevent them from having enough flexibility to put in place such discounted services.

2.2 Field study: methodology

Our study examined the services of 45 Internet access providers in six countries as well as the promotional materials of Internet access providers offering retail services. We also examined service conditions when necessary to have all the available information on the service under study.

The Canadian market study was done using 13 providers offering services in four provinces.[67] The Canadian suppliers were spread in two categories: providers who own infrastructure (facilities-based providers) and independent providers.[68]

Abroad, the services offered in the United States, Australia, France, Great Britain, and Japan were studied using a sample of seven providers per country.[69] For foreign providers, we also tried to choose from among the various categories (owners and resellers), but since some foreign markets are structured very differently, our main focus was to select several providers among those who hold the most important market shares in their respective countries, to get an overall idea of their main consumer offers.

In all, some 500 packages were studied, 159 of them in Canada. We examined all services offered by a provider as opposed to samples based on consumption patterns.

a) A few limitations

[65] CRTC. Communications Monitoring Report (2013), Ottawa, Canada, [Online summary]. http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr.htm (page visited on May 1, 2014).
[66] Op. cit. note 53 MIDDLETON, C. & A. VAN GORPAGE, *How Competitive is the Canadian Residential Broadband Market? A Study of Canadian Internet Service Providers and Their Regulatory Environment*, p. 17.
[67] We paid particular attention to services offered in Quebec, New Brunswick, Manitoba, and British Columbia to have access to a sample of services that takes into account regional differences across Canada. For each province, we identified the main incumbent providers and cable distributors to include them in our sample.
[68] Wherever they may be, independent providers are considered those who resell, i.e. who don't own the main telephone or cable networks across the country.
[69] Only four service providers from Japan were studied due to the language barrier. The four studied were chosen for their available documentation in English.

The information used for our comparative analyses was collected from what was available online, by reading promotional documents on providers' Web sites and the various service conditions and contract summaries. We contacted the providers' customer service departments when needed, i.e. when key information was not included on their Web sites. Thus, our study does not necessarily consider, for example, certain markets or promotions that would be offered to consumers who may communicate with the company by telephone or in person.

Our study took place partly in 2013 and partly in 2014, so that major changes in provider offers or in new products that may have been added could be considered, and to ensure that the information available on all suppliers is comprehensive. In some cases, more recent information allowed us to consider new products and validate and complete all the data collected.

Our research occurred in several collection and analysis phases for the information available on the Web sites of the providers we studied. Several hundred Web pages served to collect the information necessary for our comparative analysis. Despite our best efforts, some features of the promotional information from providers prevented us from obtaining a fully comprehensive picture of the services offered. For example, for some providers, services available in one region only were studied because we were forced to choose either a region or a specific postal code to get access to the information on services and rates. The data collected are thus not necessarily representative of all the offers for each region covered by each provider. However, we took care to spread the studied pages between various regions chosen for our study and also that the regions chosen would be representative of the main regions covered by the providers. For example, for a national provider such as Telus, which offers Internet access in various provinces, we studied its services in British Columbia instead of Quebec where its Internet wire access clientele is a lot smaller due to market dominance in that province by other providers, such as Bell Canada and Vidéotron.

Most providers, in Canada and abroad, ensure that the cost first displayed to consumers shows the lowest possible price; if a discount is available, however temporary, it is of course the reduced price that will be posted (followed by an asterisk or small informative print on the duration of the reduction, but not always on the price that will be applied at the end of the promotional period). It is thus complicated to obtain a value representing the total price the consumer will have to pay. We nonetheless collected data on these discounts to have a more representative idea of the real price paid by consumers.

In all cases, when we surfed we adopted the position of a consumer who wants only a single subscription to an Internet access service. We did not consult the sections reserved for grouped services for all the discounts offered to those who also want a subscription to phone or tele-distribution services with the same provider. If the reduced price for Internet access within subscriptions to grouped services was indicated, we made note of it.

In brief, to obtain data as precise as possible on monthly prices, we noted the reduced prices of each package (temporary promotional discount, discount for grouped services, and others), but we also noted their regular prices.

Some providers using ADSL lines don't include in the monthly price displayed for their services the cost of the monthly rental of the dry line which is essential to have access to that service. In these particular cases, it was relatively easy to consult the monthly price by adding the one for the dry line when it was mandatory. For recalculation of the monthly price, we didn't consider

certain occasional charges: activation, installation, and modem purchases. We did, however, consider the modem rental fees when mandatory.

b) Analysis criteria

Despite major differences in the types of services offered and in the pricing display methods and conditions of service, we were able to collect enough data to provide for a comparative analysis that correctly summarizes the services offered in all countries targeted by our study. Considering the large volume of data to analyze and the difficulty of obtaining detailed data on all packages offered by all providers included in our study, we gave priority to the collection of certain precise information that on the one hand allowed comparisons and on the other provided an overall picture. We of course focused on data related to download limits, while considering the types of services offered and their prices.

In our data collection and analyses, we gave priority to the research and analysis of the following elements, according to the criteria described, for each provider for all Internet access services:

1. ***Minimum and maximum monthly prices for all services***[70]
2. ***Download speed: minimum and maximum speeds advertised by the provider for all its Internet access services***
3. ***Download limits:***
   - *Limit frequencies: for all services offered by the provider;*
   - *Limit ranges: indication of the smallest and largest available limit for each provider;*
   - *Additional usage fees: prices or price ranges per gigabyte that may be imposed;*
   - *Additional usage block: prices or price ranges per lot of additional gigabyte, if applicable.*

Limit frequencies on all services offered by a given provider were noted as follows: mandatory limit (all services have limits), very frequent (only one or two possibilities to obtain unlimited services), frequent (most services [more than half] come with download limits), occasional (some services [half or less] come with download limits), seldom (only one or two services come with limits), and non-existent (no download limit on any of the services).

We also noted some additional elements that could provide us with greater detail on the services offered and enable us to make qualitative comments to elaborate on our analysis:[71]

[70] Following an overview of the data collected, we found it useless to distinguish the services by type of technology. In fact, the state of the market in a given country and the service prices are the main elements that influence the frequency and the level of limits, while many providers don't clearly indicate the technology used to offer their services (the differentiation between the services offered using hybrid or FTTH networks is particularly difficult for many providers, even impossible with only a study of the online documentation).

[71] Especially to recalculate the entire price of packages with the monthly price of the dry line rental, or to take into account the various discounts.

1. ***Economic incentives:***
   - *Value of monthly or single discounts*
   - *Justification of discounts: temporary promotional discount, grouped services, reduction on installation fees, refund or reduction on the termination of the former provider's contract, etc.;*
   - *Duration of discounts: single discount or note on the duration in months.*
2. ***Associated cost:***
   - *Modem fee: type of fee (purchase or rental, if applicable) and amount of fees;*
   - *Other fees: type (e.g. dry line rental, etc.), amount, and justification.*
3. ***Other service conditions:***
   - *Any policies on acceptable usage;*
   - *Any mentions of Internet traffic management practices and characteristics of those practices.*

c) Highlights of the Canadian analysis

Following our analysis of Canadian providers' services,[72] including most Canadian providers who own their infrastructure as well as some independent providers, we made two central observations. First, it seems evident that the business model of providers who own telephone and cable distribution infrastructure is different from the independent service providers. Second, it also appears that the consumer experience across the country is different from one region to another. While services in Manitoba and British Columbia may be similar, the bottom line is that services offered in Western Canada, those in Quebec, and those in New Brunswick are very different.

Let's start with a few national findings. For all provinces combined, download limits in Canada are frequent. However, a variety of limits is offered, going from about 82 to 597 gigabytes per month. The technology used to deliver access to the Internet doesn't influence the frequency of download limits. Those who adopt the practice do so regardless of whether their services are offered on DSL, cable, or fibre. However, there seems to be a link between the price of the subscription and the frequency and level of download limits. For most providers, the services offered with higher download limits or without any limits at all are provided at a higher monthly cost. The frequency and the types of limits also vary according to the province. We will consider this subject in further detail below.

The available download speeds in Canada are extremely variable, going from an average of 6.8 to 145.3 Mbps.

Consumers can expect to pay on average $29.43 to $144.96 per month for their access services and essential accessories, excluding installation, activation, and modem purchase fees,[73] but including certain common discounts. Canada is the Promised Land of monthly discounts! A multitude of monthly reduction fees is offered to consumers on a new subscription—but too bad for faithful clients—reductions apply for periods most often around six

[72] See Appendix 1 for details on the providers and the analysis.
[73] But the monthly price takes into account modem rental fees, when mandatory, and rental fees for the dry line when they are not included in the monthly rate.

months. Of course, monthly price reductions are proposed to those who agree to group services from the same provider.

To obtain a better sense of prices paid by consumers, we calculated the minimum and maximum prices that consumers can expect to pay if they don't get any discounts. The bill then increases rapidly: average prices are between $42.97 and $157.89, increasing by about $13 a month, which represents a difference of about $156 per year. The gap between these average monthly prices is particularly high for some providers. In certain cases, a monthly invoice can increase more than $40 a month, once the monthly discount ends. Minimum monthly rates may double, even triple in the case of Cogeco. Generally, the proportion of reductions is a lot less for more expensive services.

Figure 18
Minimum monthly fees from Canadian providers: with and without discount

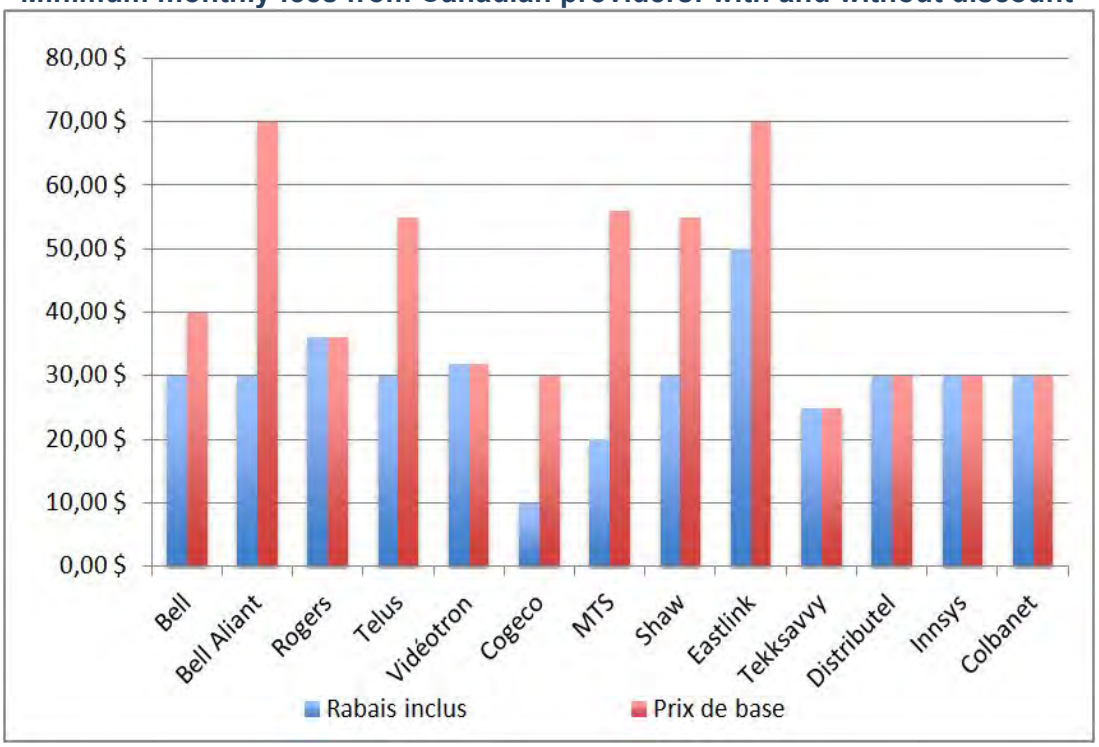
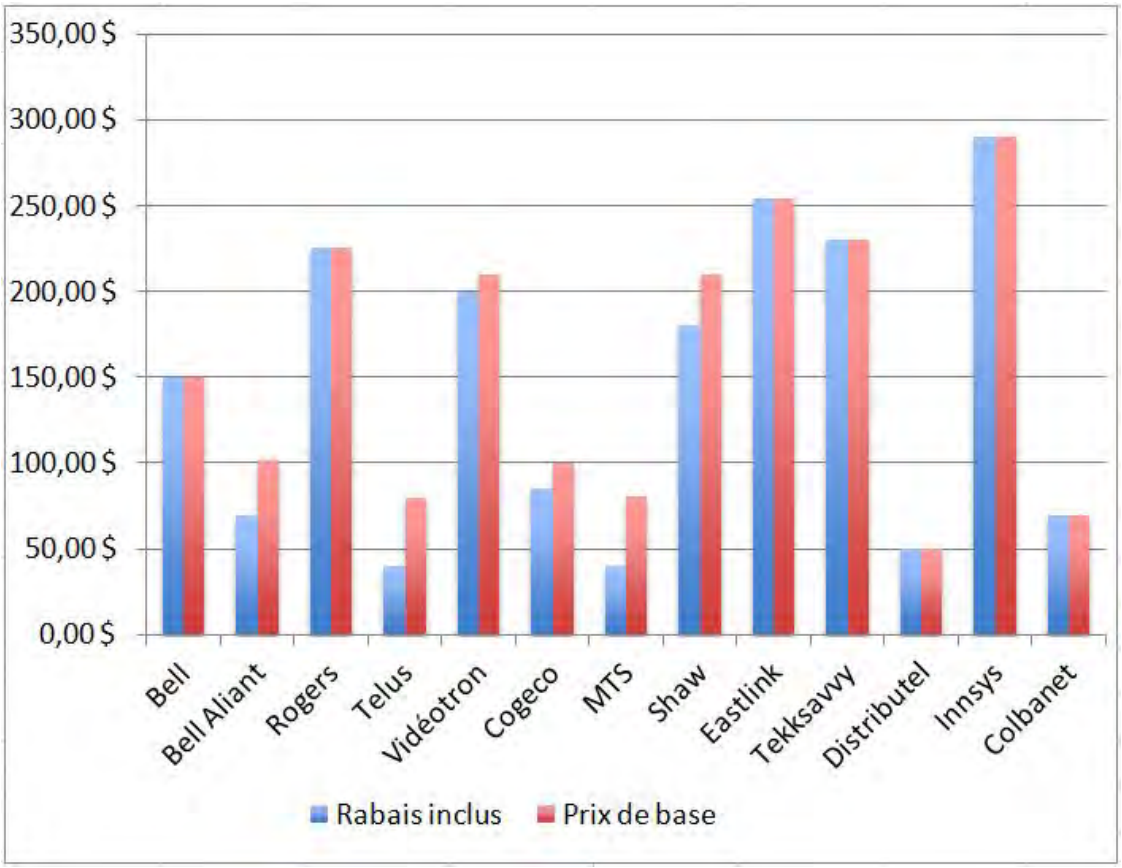


Figure 19
Maximum monthly rates from Canadian providers: with and without discount



We note with interest that the few independent providers that were part of the sample rarely offer such discounts: none of the packages offered by those providers, minimum or maximum, were advertised at the time of our data collection. While the independent providers' prices did not differ substantially from those offered by the facilities-based providers when promotional discounts were taken into account, the gap increased when comparing regular prices, which apply after the discount period. The table below gives an approximate idea of this trend—on average, the prices from the independent providers studied were between $28.70 and $159.95. When promotional discounts are taken into account, the prices from facilities-based providers were between $29.75 and $138.30. When promotional discounts are excluded, the facilities-based providers' prices were between $49.31 and $156.97.

A comparative table quickly identifies two findings: 1) even when the facilities-based providers apply discounts to the price of their less expensive services, these services remain on average a little more expensive than those of their independent competitors; 2) for economical services, independent providers offer savings of more than $20 per month over the facilities-based providers' regular prices. These averages suggest that the consumer who chooses the more expensive services could save a few dollars by opting for a facilities-based provider; however, our average is skewed by the fact that one independent provider on our list has the most expensive price.

Figure 20
Comparative minimum and maximum monthly fees: by type of provider

Type of provider	Independent	Owner
Minimum (with discount)	$28.70	$29.75
Maximum (with discount)	$159.95	$138.30
Minimum	$28.70	$49.31
Maximum	$159.95	$156.97

But the total price of a service is not all: the download limits and the price per gigabyte can make a big difference.

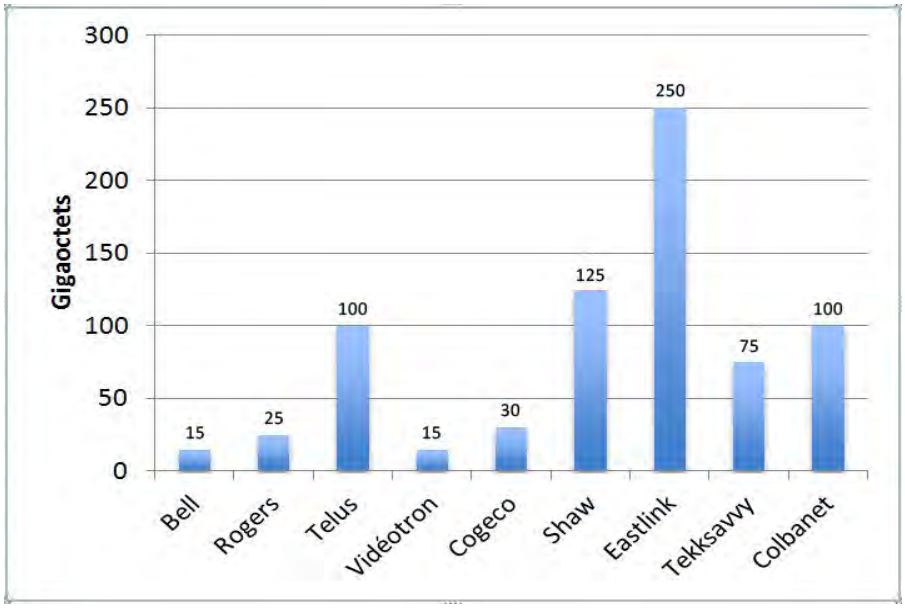
If the price of a given service is divided by the number of gigabytes included in the ceiling associated with this service, the prices per gigabyte from independent providers and facilities-based providers is comparable when taking discounts into account, but is quite different when comparing regular prices. Thus, the average price paid per gigabyte for the most economical services is on average twice as high for facilities-based providers than for independent providers ($0.62/GB vs. $0.33/GB).[74]

As for minimum download limits, four providers—Bell, Rogers, Vidéotron, and Cogeco—imposed, at the time of data collection, relatively low minimum limits, not exceeding 30 gigabytes. The limits imposed by Bell and Vidéotron were the same at 15 gigabytes.

When independent providers offer services that have usage limits, they are usually higher than those from facilities-based providers: the lowest proposed limit by an independent provider is 75 gigabytes, imposed by Teksavvy, which doesn't calculate, incidentally, the use of bandwidth between 2 and 8 a.m. The lowest limit from a facilities-based provider is 15 gigabytes. The independent providers' lowest limits[75] are similar or slightly lower than those from facilities-based providers offering services in Western Canada.

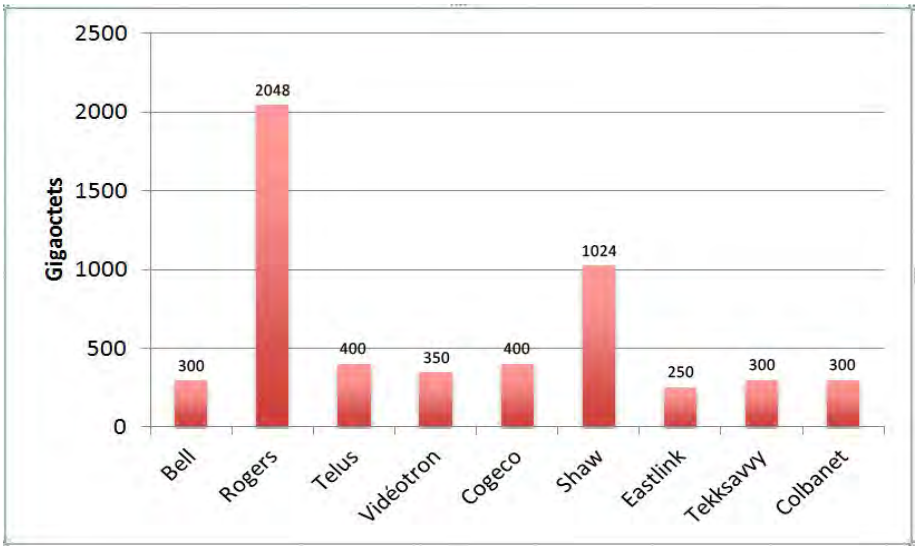
[74] Regular minimum average monthly rates/Minimum average limit.
[75] Studied in Quebec: in the rest of Canada, those studied didn't impose ceilings.

Figure 21
Minimum download limits[76]



As for maximum limits, those from Shaw and Rogers stand out with ceilings of one or two terabytes, but the limited offers from all providers are much the same, being around 300 or 400 gigabytes. However, it should be noted that for services imposing comparable limits, independent providers offer prices that are much lower; we will return to this later.

Figure 21
Maximum download limits



[76] We have of course excluded from this figure the four providers that don't impose limits.

Most Canadian providers impose download limits; only four among the studied providers had no limits.[77] However, most providers offer at least one option that allows access to unlimited services, but these options are often expensive and they often induce users to subscribe to grouped services to benefit from them at a lesser price. Subscriptions to unlimited services often cost an additional $30 per month. Shaw offered services without any usage limit, but at prices of at least $130 per month.

Some providers impose additional usage fees after exceeding the monthly limit. According to our calculation, the average price of the additional gigabyte for all providers combined totalled $2.52 at the time of the study. However, in several cases, these additional usage fees can have a maximum ceiling each month.[78] After reaching the ceiling, no additional fees are billed for additional usage. The amount of these ceilings varies between $25 and $100 per month. While these costs are less spectacular than what a consumer can suffer due to the use of a cell phone roaming internationally, for example, it remains that consumers are not immune to surprises.

Interestingly, Teksavvy, the only studied independent provider that announced in its documentation additional fees charged per gigabyte (while facilities-based providers do it systematically in Quebec (and in Ontario[79]), showed average costs about eight times lower than the average fees per gigabyte from primary suppliers ($0.38 per gigabyte, compared to $2.95 per gigabyte[80]).

Like two large suppliers, the independent provider Colbanet also offers to increase its ceiling by charging for an additional block of data; for example, an additional block of 300 gigabytes can be added to a 300-gigabyte ceiling for $10. This offer is seven times more economical than those of the largest providers.[81] The price charged by Colbanet is equivalent to $0.03 per gigabyte versus $0.22 on average charged by facilities-based providers for this type of option.[82]

Independent providers who impose usage limits do it less frequently than facilities-based providers—Teksavvy offers its customers, for all services, the opportunity to pay a supplement to remove usage limits (which varies considerably according to the speeds and limits chosen: between $4 and $102 extra per month); Colbanet offers a range of ADSL 2+ services without usage limits, but most of its packages have the relatively high usage limit of 300 gigabytes (which can be doubled for $10, as mentioned above). For their part, facilities-based providers, considering all companies combined, often impose limits, but their levels vary from one region to the next.

[77] Two regional facilities-based providers, Bell Alliant and MTS, and two independent providers (Innsys and Distributel).
[78] Such ceilings were displayed for services provided by Bell, Rogers, Vidéotron, Cogeco, and Teksavvy.
[79] Op. cit. note 41 FAIRLEY, M., "Why do Canadian broadband rates vary so much?"
[80] The average of excess fees per gigabyte posted on the Web site of Teksavvy, compared to the average excess fees charged by Bell, Rogers, Vidéotron, Cogeco, and Eastlink at the time of the study.
[81] Colbanet fees ($10 for 300 additional GB) compared to the average gigabyte price inside a block at other providers proposing additional usage options (Bell and Vidéotron).
[82] Independent providers charge additional usage fees less systematically. Colbanet told us that the additional usage block is only billed upon explicit demand from consumers, who are informed that they are about to overrun their limits. The notice below also seems to indicate that Teksavvy doesn't systematically invoice for additional use: O'ROURKE, Patrick "TekSavvy 'reminds' customers of bandwidth overage fees" *Canada.com*, Toronto, Canada, February 28, 2014. [Online] http://o.canada.com/technology/personal-tech/teksavvy-reminds-customers-of-bandwidth-overage-fees (page visited on April 25, 2014).

The main providers score better on access speed. Independent providers offer, in fact, access speeds generally lower than those offered by the large providers,[83] as shown in the following figure, which is based on the averages from each category of provider:

Figure 22
Comparison of Canadian provider conditions of service*

Service conditions	Facilities-based providers	Independent providers
Minimum monthly prices (without discount)	$49.31	$28.70
Maximum monthly prices (without discount)	$156.97	$159.95
Download limit frequency#	3,11/5	1,5/5
Minimum download limit	80 GB	87,5 GB
Maximum download limit	681,71 GB	300 GB
Price of a GB, economic package with rebate	$0.37	N/A
Price of a GB, economic package without rebate	$0.62	$0.33
Price of the additional GB	$2.95	$0.38
Price of a GB in a block	022	$0.03
Minimum speed	8,28 Mbps	3,5 Mbps
Maximum speed	174,44 Mbps	80 Mbps

******The data shown here represents an average for all providers in each category*
*0 = None, 1 = Seldom, 2 = Occasional, 3 = Frequent, 4 = Very frequent, 5 = Mandatory*

For another picture of the differences between facilities-based providers and independent providers, the following comparative table roughly illustrates the scenario of a consumer who is looking for a high usage limit—about 300 gigabytes—while inquiring about access to unlimited services. The table compares packages that are as close as possible to the chosen download limit, at the lowest price. We have therefore included the name of the package, the monthly price (without discount), the speed (in Mbps) upstream and downstream, the retail price of a gigabyte included in the package, and the price of an additional gigabyte and additional usage options, if applicable, with the cost of transition to an unlimited option.[84]

[83] The independent supplier that offers the fastest service advertises 150 Mbps (Unnys), while Shaw advertises 250 Mbps and Rogers 350 Mbps.
[84] All providers offering only packages without usage limits in the studied regions were excluded from this comparison, since there were no common benchmarks with other providers.

Figure 23
Comparison of packages with a limit of 300 gigabytes

	Teksavvy	Colbanet	Shaw	Telus	Cogeco	Vidéotron	Eastlink	Bell	Rogers
Package	Cable 5	ADSL 300	High Speed 25	I. 25	Ultimate 40	I. TGV 60	High Speed Evolution	I. Fibe 75	Superior
Limit	300 GB	300 GB	250 GB	250 GB	225 GB	250 GB	250 GB	300 GB	250 GB
Price	$33	$45	$60	$65	$70	$83	$88	$107	$123
Speed*	5/1	5/800Kbps	25/2.5	25/5	40/10	60/10	40/6	175/175	150/10
$ / GB	0.11	0.15	0.24	0.26	0.31	0.33	0.35	0.36	$0.49
Add. $ / GB	$0.5/GB	No	No	No	$1/GB	$1.50/GB	$1/GB	$2/GB	$2/GB
Block	No	$0.03/GB	No	No	No	$0.23/GB	No	$0.2/GB	No
Unlimited	$4/month	No[85]	$70/month[86]	No	No	$30/month	$35/month	$30/month	No[87]

Prices at .95 or .99 were rounded to a dollar.
** Download/upload*

In brief, the result of this part of our study shows that facilities-based providers impose download limits more often than independent providers, for all provinces combined.

The minimum limits imposed by facilities-based providers are slightly lower on average than those imposed by independent providers, but their maximum limits are slightly higher than those of independent providers for services that have such limits. We find, however, more services without download limits from independent providers, and the fees they impose to increase or remove limits are often lower than those asked by the large providers. For comparable services, those from independent providers tend to be a lot more economical than those of facilities-based providers.

The speeds advertised by facilities-based providers are superior to those of independent providers—which theoretically means that a usage limit would be reached more quickly.

[85] Colbanet has some unlimited services that are lower than the above package ($39.90 unlimited, 24/1 speed), but are only available in certain regions.
[86] Shaw has no options that allow the usage limit to be removed, but consumers can choose a package for $130 per month, unlimited, speed of 10Mbps/512 Kbps. The amount indicated in the table is the price difference between the package studied and the unlimited package at $130.
[87] At the time of the study, the option to remove the usage limit was not available in the studied region. We have observed, however, that Rogers has started to advertise this type of option, but only after the period of our study.

Regional gaps

The preceding section allowed us to understand the differences between the service offers from facilities-based providers across Canada, compared to those of independent providers.

Apart from the differences by types of provider, we found that offers from facilities-based providers[88] are very different from one region to the other in the country, including prices, download limits, and in the way these limits are applied. Here is a comparative table based on the averages of the large providers, followed by comments highlighting our main observations.

Figure 24
Regional comparison of facilities-based providers*

Provinces	Quebec	New Brunswick	Manitoba	British Columbia
Minimum price (with discount)	$23.95	$38.63	$25.00	$30.00
Maximum price (with discount)	$144.95	$183.30	$110.00	$110.00
Minimum price (without discount)	$33.95	$58.65	$55.50	$55.00
Maximum price (without discount)	$153.28	$193.96	$145.50	$145.00
Frequency of download limits #	4.33/5	2.33/5	1.5/5	4/5
Minimum limit	20 GB	137.5 GB	125 GB	112.5 GB
Maximum limit	350 GB	1149 GB	1024 GB	712 GB
Price per GB, economical package (with discount)	$1.20	$0.28	$0.20	$0.27
Price per GB, economical package (without discount)	$1.70	$0.43	$0.44	$0.49
Price per additional GB	$2.58	$3.50	N/A	N/A
Price per additional GB in a block	$0.22	N/A	N/A	N/A
Minimum speed	5 Mbps	8.17 Mbps	10 Mbps	12.5 Mbps
Maximum speed	165 Mbps	241.67 Mbps	150 Mbps	150 Mbps

** The data shown here represents an average for all providers*
\# 0 = None, 1 = Seldom, 2 = Occasional, 3 = Frequency, 4 = Very frequent, 5 = Mandatory

The frequency of download limits is not uniform across Canada. The facilities-based providers studied that offer services in Manitoba and New Brunswick impose download limits less often than in Quebec and British Columbia. In the latter province (and Manitoba), we did not find notices about the application of additional usage fees, even for packages that have download limits. When a usage limit is exceeded, the providers of these regions can contact the consumer to offer a package with a higher ceiling. Some providers specify that they reserve the right to apply traffic management practices, but the practices that may be implemented are not well explained in the service conditions other than the fact that they may include downtime as well as service interruption in the case of abuse. Quebec is by far the province where the application of additional usage fees seems the most systematic.

On average, prices paid in Quebec, with or without discount, are lower for the most economical services, but slightly higher for the more expensive services than they are in the West. Basic speeds are also lower on average in Quebec than elsewhere.

[88] We did not include offers from independent providers in this part of our analysis because the services offered are similar on several points, apart from one exception: independent providers that offer services in Quebec impose download limits more often, while those studied in other provinces impose few or none. The sample of independent providers is undoubtedly too small for a reliable comparison of their services by region.

Not only are usage limits and additional fees applied more systematically in Quebec than elsewhere, but the level of limits is extremely low compared to standards in the rest of Canada. The minimum limits are on average six times lower than elsewhere, and the maximum limits are two to three times lower than those imposed elsewhere (when providers elsewhere impose limits, of course, which is rarer than in Quebec, except for British Columbia,). Therefore, considering that monthly minimum rates are lower in Quebec, the price paid for each gigabyte is a lot higher than elsewhere (four to six times more). The Quebec consumer who chooses the most economical service may pay an average of $1.20 per gigabyte[89] if he or she has a discounted service. In the worst-case scenario, the Quebec consumer may pay $2.13 per gigabyte for a basic service and $4.50 for every additional gigabyte.[90]

In New Brunswick, the average price per gigabyte for the most economical services is $0.28/GB; in Manitoba it's $0.20/GB; in British Columbia $0.27/GB. Quebecers also pay more per gigabyte for the most expensive services, with an average price of $0.41/GB, compared to $0.16/GB in New Brunswick, $0.11/GB in Manitoba, and $0.15/GB in British Columbia. The price paid per gigabyte in all provinces increases significantly when the package is not part of a promotion or when the promotion is over. For the economical packages, for example, the increase varies from 42% to 120%.[91]

Do birds of a feather really flock together?

Within the same region, facilities-based providers tend to offer services that are very similar in several respects. The parallels between the service offers from Bell and Vidéotron in Quebec are hard to ignore. Their minimal services are exceptionally similar: the least expensive is offered for $29.95[92] at Bell and $31.95 at Vidéotron, both with download limits of 15 gigabytes and upstream download speeds of 5 Mpbs. Furthermore, at the time of our study, both providers offered identical options on unlimited services. Consumers could pay $30 a month to remove the usage limit on their package, but only $10 if they subscribed to grouped services. Cogeco's service is slightly different but with similarities nonetheless: the regular subscription price for the Internet, without discount, was $29.95 for 30 gigabytes.

There are no such striking similarities in New Brunswick, where Eastlink, Rogers, and Bell Alliant offered services quite different from one another. There were some similarities between Bell Alliant and Eastlink, however, which both offer only a few or no services with download limits. In addition, the monthly minimum prices without a promotion for both providers are the highest in Canada at $69.95 and $70 per month for unlimited services. In New Brunswick, Rogers offers services that are more like those in Quebec than its local competitors, with lower monthly prices (from $35.99) but with sometimes low download limits (starting at 25 GB).

In Manitoba and British Columbia, there were similarities between the basic regular monthly prices, $55 for Telus and Shaw, and $56 for MTS. Telus and Shaw impose mandatory or frequent usage limits that start at 100 and 125 gigabytes, but neither apply additional usage fees in British Columbia. MTS, like Bell Alliant, does not mention usage limits.

[89] Minimum price with discount / Average minimum limit (23.95/20 = $1.1975).
[90] Data calculated from the most economical Vidéotron package; at the time of data collection, it advertised a rate of $31.95 for 15 GB and $4.50/GB for additional usage.
[91] A 42% increase on the price of a gigabyte in Quebec, while the increase of 120% was observed in Manitoba.
[92] For six months only, in Bell's case; then the bill rises to $39.95.

It is difficult to determine trends for maximum services, but it is also hard to believe that all these similarities would be just trivial. It would seem that providers offering services in the same region are influenced directly by one another, except perhaps in New Brunswick where service diversity was more evident. In brief, providers in the same region are following one another without necessarily making substantial efforts to differentiate themselves.

Last point of interest…

Another interesting fact: for the majority or Canadian providers, Internet traffic management practices don't necessarily have a direct effect on download limits. While at the time of our data collection we found no "acceptable usage" policies in the documents of certain providers that suggested some Internet traffic management practices could be applied,[93] several providers have vague clauses in which they reserve the right to limit or interrupt Internet connections to protect the integrity of their networks or to comply with their policy on acceptable usage. However, several of these providers impose download limits on their services, suggesting that there is no clear causal link between the stated Internet traffic management practices and the imposition of download limits. Therefore, download limits are not automatically protecting Canadian consumers from sporadic slowdowns to avoid or control network congestion. We will elaborate on this subject in the next chapter on the links between download limits and Internet traffic management practices.

[93] This was the case at Bell and Vidéotron.

d) Highlights abroad

Following our analysis of Canadian services, we reviewed the packages of foreign providers from five countries,[94] to compare the situation in Canada with that abroad.

It should be noted that on several occasions it was practically impossible to collect data on totally comparable services, Internet access services being different in certain European markets than those offered in Canada. Common elements are too rare for a useful comparison. In France, for example, and sometimes in the United Kingdom, Internet access services are frequently offered with certain other services "included," in particular telephone and tele-distribution services, at prices sometimes lower as a whole than those charged in Canada for Internet only. With some providers, subscription to Internet access alone is impossible. When it wasn't possible to collect information on Internet access services without other combined services, we had to take note of the overall price since we could not break down the global price according to service.

Furthermore, in Japan, the information offered by providers that was available in English confirmed that one had to subscribe to distinct services to have access to the Internet: a network provider and an Internet access provider. In this particular case, we took note of the information regarding both subscriptions to reconstitute a value that represented as close as possible the real price paid for the Internet access. Some information, about network access providers in particular, wasn't available in a language other than Japanese. In addition, the multiplicity of discounts or fees that may apply to various situations made it particularly difficult to compare monthly prices between Canada and Japan. For example, when optic fibre is not already connected to the subscriber, significant installation fees may be billed, and amortization may be spread over several years. For Japan, we reconstituted an approximate value for the price of packages with discounts, but it was impossible on the sole basis of promotional documentation to have a reliable idea of the regular price of a service. For that reason, Japan is sometimes excluded from our comparative analyses, since we lacked the reliable reference points for comparing prices.

Analysis data was converted into Canadian dollars, and the conversion was done using the 2013 average annual exchange rate. Even though it is probably not the best method to compare the price of services across the various countries, since it doesn't necessarily consider income and the purchasing power of each country, this relatively simple conversion method does at least provide a useful overview of the value associated with the prices of various packages. Of course, this challenge does not affect the comparison of other non-monetary values, such as download limits and speeds.

[94] As previously stated, we chose the United States, Australia, the United Kingdom, France, and Japan as comparative countries, which are the same as the ones used for the annual comparative analysis prepared by Wall Communications.

A few details by country

United States: flexible limits

A few aspects of the American Internet access market are similar to the market in Canada. For example, the market is dominated by a handful of former telephone and cable distribution monopolies that compete with one another in the form of a duopoly. However, to our surprise, the services offered in the United States are among the most economical in all the countries we studied. In particular, during our study, Comcast offered a basic service for $19.99 a month, and Time Warner Cable offered a service at $14.99, apparently without any surprises.[95]

In terms of download limits, OECD statistics indicate that there are no explicit download limits in the United States. This is both true and false. During our preliminary study of services offered in the United States, we saw in the promotional documentation available from providers almost no mention of download limits. However, on second look, we observed that several American providers (but not all) impose certain limits. In fact, some major providers, including AT&T, Comcast, and Cox Communications, systematically impose download limits on their subscribers, with the information communicated surreptitiously in the service conditions, in the acceptable usage policies, or in the frequently asked questions, instead of explicitly in promotional documentation. Indeed, an overview of consumer forums in the United States found that several people were wondering about the ceilings applicable to their package since this type of information is so unclear.

The American market is different from Canada in its manner of imposing download limits. No American provider systematically imposes additional fees when download limits are reached. Instead of imposing additional usage fees, Cox Communications, like some Canadian providers, will instead contact consumers to let them know they have gone over their limit and encourage them to modify their package. For their part, Comcast and AT&T allow consumers to go over their monthly usage limit at least two or three times in a 12-month period before billing an additional block ($10 for 50 additional gigabytes). Time Warner Cable may impose additional usage fees systematically, but only to the few consumers who agreed to the option of a download limit in exchange for a monthly discount (services from Time Warner Cable only have limits for those who have this option). The provider indicated recently that this option is not popular and is chosen only by a few customers across the country.[96] We will see below that popular indignation regarding download limits seems to have encouraged American providers to be particularly flexible on application of the limits.

[95] An agent from the company we reached swore that it was not a promotional price that would double after three or six months, but rather a low-priced service to guarantee access to all types of consumers.

[96] EPSTEIN, Zach. “Time Warner Cable customers reject offer of cheaper service with data caps”. *BGR*, March 13, 2014. [Online] http://bgr.com/2014/03/13/time-warner-cable-data-caps-rejected/ (page visited on May 6, 2014).

Australia: a model among the most restrictive

According to our findings, the Australian market is in many respects the least advantageous for consumers of Internet access. Several providers systematically impose download limits, and very openly. For information on Internet access speeds, we often had to refer to frequently asked questions, personalized package summaries, or service conditions, but download limits are omnipresent in promotional documents, contrary to what we observed in the United States. The fact that companies have to pay to have access to fibre optic, which is considerably faster, and that the networks are supervised by the state may have something to do with the lack of promotion of very high speeds.[97]

As in the United States, in Australia there is no systematic application of additional usage fees after going over a download limit: all providers that we studied indicated in their documentation that when consumers reach their monthly usage limit, their download speed is instead reduced considerably,[98] until they buy an additional gigabyte block. Furthermore, some providers, in particular iinet, impose a double usage limit: a usage limit during peak hours and another one outside peak hours.

United Kingdom: a few limits, no obligations

The market in the United Kingdom is quite different from the one in Canada, and offers a particularly attractive model. In general, among the providers studied there, few applied download limits, with some offering unlimited services, whereas others offer several services with usage limits. Contrary to our findings in Australia and Canada, when limits are imposed they are particularly low, never exceeding 40 gigabytes. However, the average prices of services in that country are among the lowest in the world: one can find Internet access services at the ridiculously low price of £6 ($10 CAD). One company even offers a service at £1.20[99] ($2 CAD). We even found a free Internet access service for subscribers of a grouped service offer;[100] the service was minimal, however, with a ceiling of two gigabytes only. Thus, download limits seem to be used by United Kingdom providers as a way to offer Internet access services at very low prices. When consumers choose an average or high-end package, no usage limits are imposed.

What providers don't always advertise clearly, however, is the fact that a person who wants to subscribe only to an Internet access service will most often have to pay between £10 and £16 ($16.69 and $26.71 CAD) per month for the rental of the dry line, which increases significantly the amount of the monthly bill. However, even with this addition, services in the United Kingdom are among the most economical. Furthermore, nothing indicates that additional usage fees are not systematically applied, and additional usage fees can be high; also, there are no additional ceiling fees, as is the case for some Canadian providers. A British consumer who chooses a basic service may be unhappily surprised.

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[97] In Australia, all providers are resellers of fibre optic (and thus of the fastest service). The deployment and access to the fibre optic network are largely supervised by the state. The providers Internode, Optusnet, and Exetel all indicate that they own telecommunication networks, but are also resellers on other providers' networks. They all resell fibre optic services via the national network currently being installed across the country, since they can't deploy parallel fibre optic networks. Would the fact that some providers don't advertise access speeds be a way to encourage consumers to subscribe to ADSL and cable services that they can offer from their own networks without having to pay third-party access fees?

[98] A threshold between 72 and 1024 Kbps; the threshold most often applied was 256 Kbps.

[99] By the independent provider Primus Saver, advertised as a service less expensive than a cup of coffee!

[100] With the provider Sky.

France: an aggressive competition model

France made the news about two years ago when its wireless service market was revitalized with the arrival of a new competitor offering wireless services at aggressively low prices.[101] Once more, we have good reason to envy French consumers who seem to get the most value for their money when it comes to telecommunications (and tele-distribution). The French market is by far the one offering the most economical high-end services with maximum prices that never exceed $50[102] (regular price, without discount). To attract new customers, French providers are even ready to refund at least part of the termination fees that may be incurred by customers opting to change provider,[103] or to give them three or four months of free subscription.[104]

French companies are also the masters of grouped service offers. Even among the most economical services, several include access to many television channels or to mobile data services. Access speeds are also impressive at levels of up to 200 Mbps, even for economical services, and providers like SFR and Free offer services that can reach speeds of 1 Gbps. This is unheard of in North America. Furthermore, no service studied in France imposes a download limit.

Japan: land of the extreme

As noted earlier, the information we gathered and analyzed for Japan is fragmented in several respects. For example, we were able to collect data only for services advertised in English, which was the case for a few companies only, including resellers targeting foreign Anglophone customers. The fragmented data suggests that the prices of economical services are somewhat higher than average in the countries studied. Service performance is, however, the most impressive: while some providers still offer basic services at 1 Mbps, a high-end service usually promises speeds of 1 Gbps, occasionally symmetrical—a feature exclusive to the land of the rising sun.[105] There is a drawback, though: consumers must subscribe to both a service provider and a network provider. A service provider's infrastructure and equipment can therefore be inferior to those of a network provider, thus significantly limiting the effective speed (from 1 Gbps to 100 Mbps).

As in France, no download limits are explicitly imposed on consumers. However, we found a usage limit written in an acceptable usage policy describing a daily uploading limit of… 15 gigabytes![106]

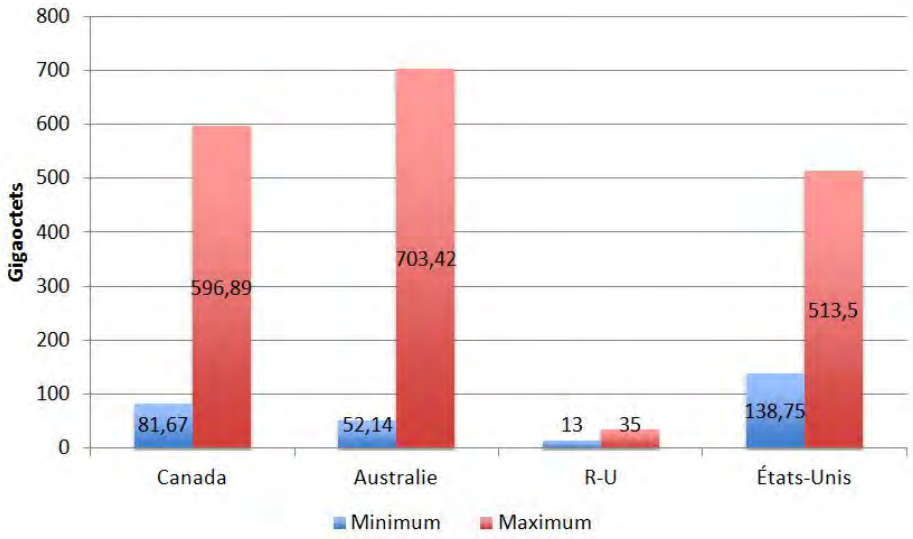
[101] See in particular *LE FIGARO*. "Mobiles : l'arrivée de Free a cassé les prix en 2012", Le Figaro.fr, Paris, France, May 23,2013. [Online] http://www.lefigaro.fr/conso/2013/05/23/05007-20130523ARTFIG00621-mobiles-l-arrivee-de-free-a-casse-les-prix-en-2012.php (page visited on May 6, 2014).
[102] Obviously, it may occur that grouped services are offered at higher prices, but only because the services include more channels, and not because Internet access is increased. These high-end grouped service offers were excluded from the study because, as mentioned previously, our goal was to collect data for a consumer looking for Internet access only.
[103] Promotions, in particular, from Bouygues Telecom, Orange, and Numericable.
[104] A promotion from Bouygues Telecom.
[105] Rare are the countries where symmetrical services are found. Some Canadian providers offer symmetrical services, but at prices that are roughly double those for equivalent Japanese services.
[106] Services from Assist Solutions.

e) International comparison

Now that these features offered in each country have been mentioned, we will compare Canadian services with those of the foreign countries.

First, Canada is one of the most restrictive countries in terms of download limits. After Australia, Canada ranks second for the frequency of download limits imposed by providers. Consequently, these two countries have higher download limits than in the United Kingdom,[107] and partly higher than in the United States. However, the imposed limits for the most economical services in the United States are still much higher than in the two Commonwealth countries.

Figure 25
Minimum and maximum download limits, per country[108]



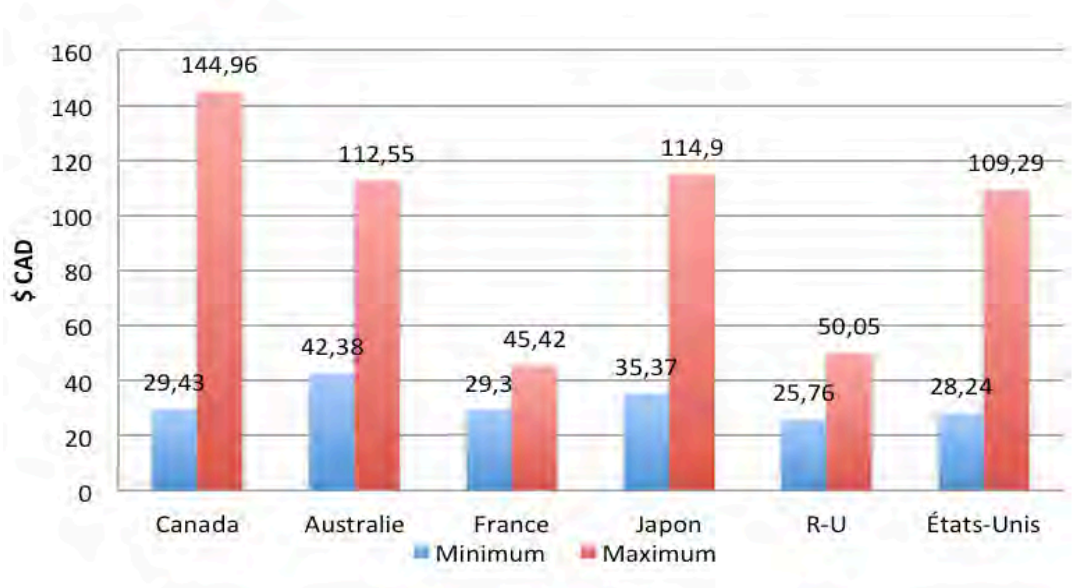
For the most economical services, monthly fees paid by consumers are surprisingly similar in most of the countries studied: they are, in most cases, around $30 per month, the average of all countries studied being at $31.02. Australia stands out with economical services at $42.38 per month, by far the highest prices. Prices in Japan are also higher than average, at $35.37 per month.[109] The minimum prices in the United Kingdom stand out, with a low $25.76 per month. Those in Canada are slightly below average at $29.43 per month, like those in France at $29.30 per month, and in the United States at $28.24.

[107] As mentioned on p. 49, while limits in the UK are very low, they apply only to the most basic services. When all UK services are considered, limits are rare, unlike in Canada where limits are frequent, in the US where limits are somewhat frequent, and in Australia where limits are very frequent.
[108] We obviously excluded France and Japan, where there are no limits.
[109] As mentioned, the non-comprehensive nature of the information gathered for Japan risks a considerable margin of error concerning the data on prices. For this reason, we did not include data from Japan for the calculation of the average monthly price.

Canada is, however, the country that imposes the highest monthly fees for its high-end services, at $144.96, while the average for other countries is $92.45. European high-end services are particularly economical, with monthly fees that don't go over an average of $45.42 in France and $50.05 in the United Kingdom.

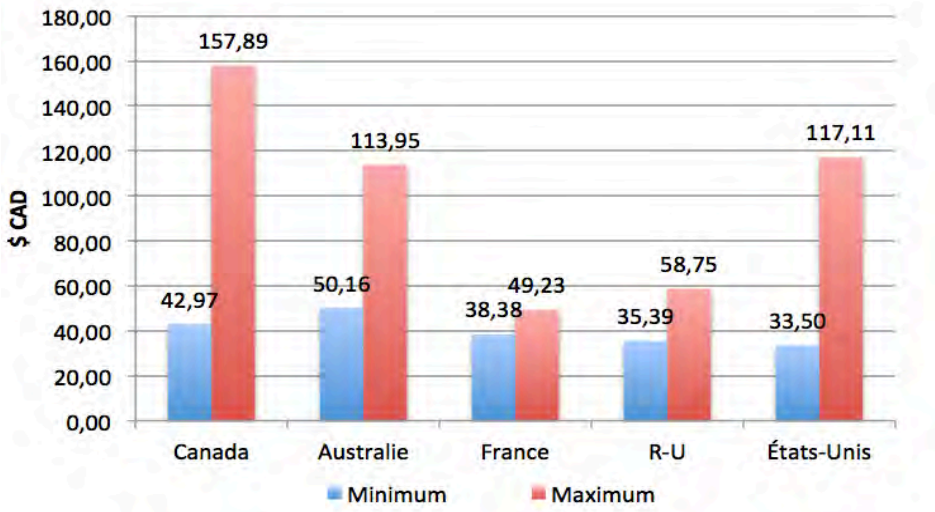
The situation degrades a little for prices in Canada, when we exclude temporary promotional and grouped service discounts from advertised prices. Taking into consideration the regular price, this increases the monthly invoice for the most economical services in Canada by about $13, while it increases only about $5 south of the border and $8 in Australia. The gap is, however, more significant in France and the United Kingdom, although not as large as in Canada: the price differences between services with and without discounts there range from $9 to $10.

Figure 26
Monthly average of subscription prices (with discount), per country



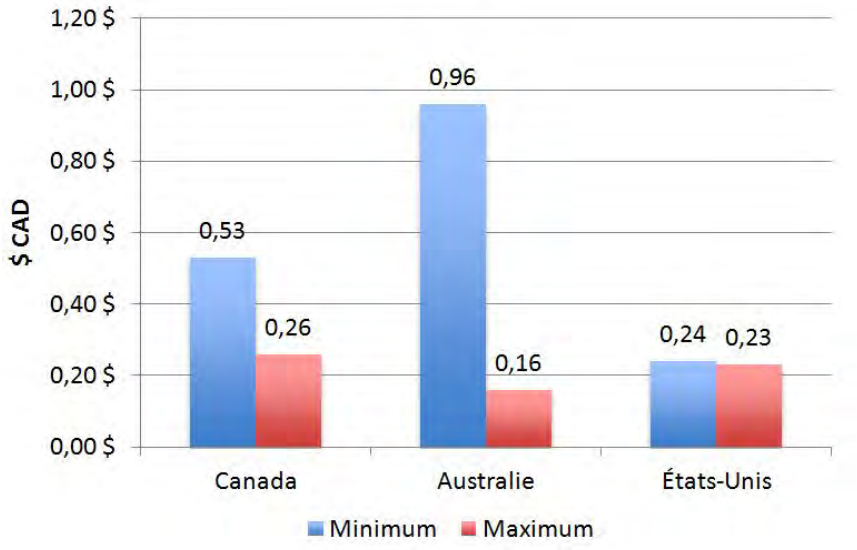
For the more expensive services, Canada maintains an equal gap between services with and without discounts, which is $13, while eliminating discounts increases the bill by only $4 in France, less than $2 in Australia, and respectively $8 and $10 in the United States and United Kingdom. Thus, for services offered at regular prices, rather than have basic services below the average of all countries studied, Canada now stands above the average of $40.08 per month; only Australia is worse with monthly fees of $50.16.

Figure 27
Average monthly subscription price (without discount)



While usage limits in the United Kingdom are the lowest in the world, most are in fact offered without download limits. The only services that have limits are those considered basic, designed for occasional users. For this reason, the table below does not include per gigabyte prices in the United Kingdom (or the average price of an additional gigabyte); its market is simply too difficult to compare to those in Canada, Australia, and the United States, which together have more similarities.

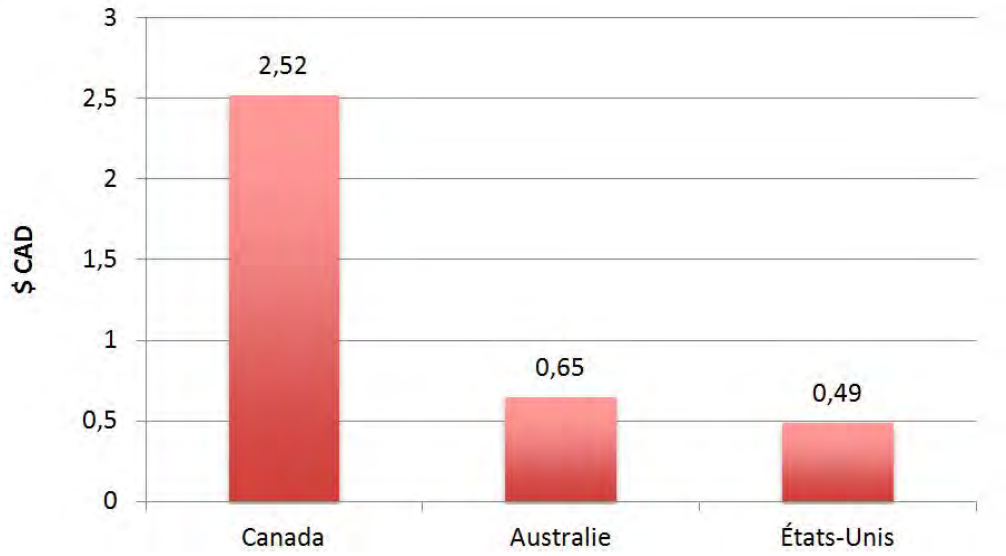
Figure 28
Price per gigabyte (included in the package)[110]



[110] Monthly price without discount / Average download limit.

The preceding table illustrates the price per gigabyte, determined by dividing the price of the service by the number of gigabytes that are included in the service. The price per gigabyte when consumers exceed their limit is given directly by the provider. Canadian providers who impose this type of fee are the most severe in the world, with an average billing of $2.52 per gigabyte.

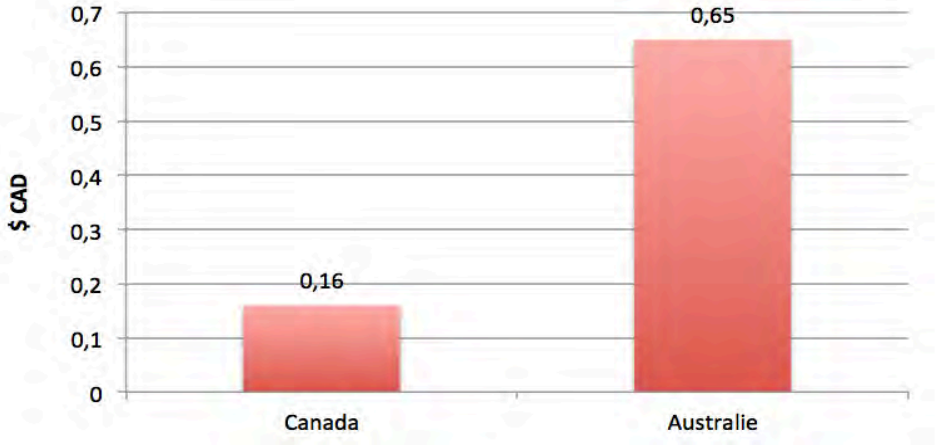
Figure 29
Average price of an additional gigabyte[111]



One must recognize, though, that Canadian providers offering additional usage blocks do so at much lower prices, corresponding to $0.16 per gigabyte.[112] However, except for one independent provider, Colbanet, no Canadian provider favours this billing method for consumers who exceed their usage limit. Canadian consumers must therefore be on their toes to avoid much higher additional usage fees when billed per additional gigabyte. In addition, in all cases, Canadian consumers must pay additional amounts if they reach their usage limit and wish to continue to use the Internet, while Australian consumers can simply decide not to pay for an additional usage block and instead drop down to slower Internet access until the end of their billing period.

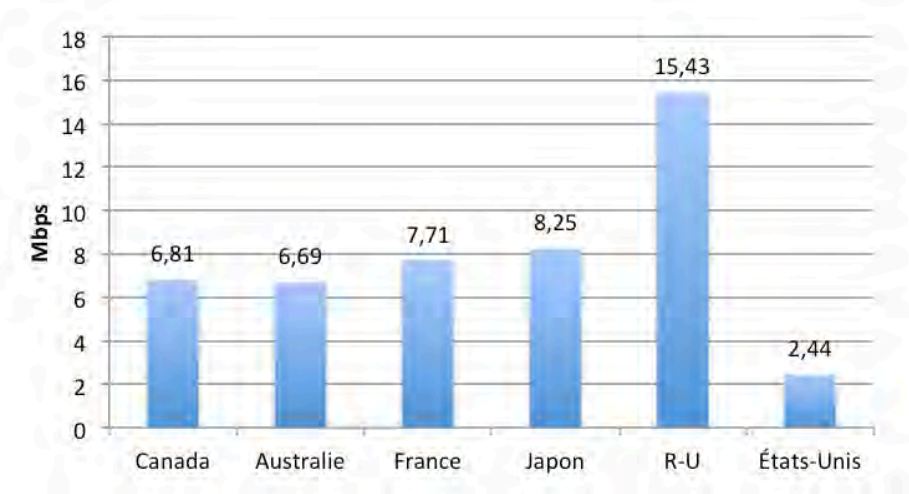
[111] Since Australian providers don't systematically impose additional usage fees after consumers exceed their usage limits, we have included the average price of a gigabyte in the additional usage block for our comparison of excess fees.
[112] Given the estimates of some experts, stating that the cost of providing a gigabyte is in fact less than one cent, profits are nevertheless significant. Op. cit. note 61 GEIST, M., *Canada's Usage Based Billing Controversy: How to Address the Wholesale and Retail Issues*, p. 237-238.

Figure 30
Average price of a gigabyte in an additional usage block



Over and above the question of download limits relative to monthly subscription prices, access speed is also important in evaluating the quality of services, and this criterion is most often used in various comparative analyses. Data on this aspect may potentially explain why some countries, in particular the United States, perform in such a surprising way on monthly subscription prices or the average price of a gigabyte. Indeed, south of the border, Internet access speeds are the lowest for economical services, with average speeds of 2.44 Mbps.[113] Canada, Australia, and France are slightly under the average of 7.89 Mbps, and the United Kingdom dominates with average minimum speeds of 15.43 Mbps.

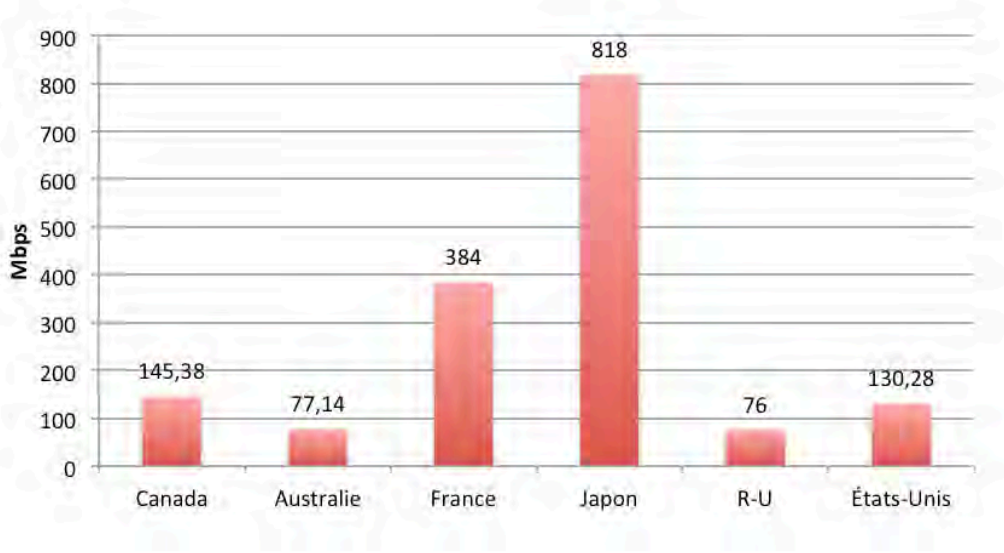
Figure 31
Minimum average speeds



[113] Since our research focuses on high-speed Internet access, for the comparative analysis of packages we excluded all services at speeds below 1 Mbps.

Surprisingly however, the United Kingdom has the lowest maximum speeds compared to the others, which suggests that the UK market prioritizes the quality of basic services rather than the quality of high-end services. For maximum speeds, Canada is once again under average, and easily overrun by Japan and France, where average maximum access speeds are outstanding.

Figure 32
Average maximum speeds



And a worldwide trend

As observed in Canada, no clear links appear to exist between the imposition of download limits and the presence of other Internet traffic management practices. Countries where download limits are imposed may also have Internet traffic management practices, and countries where no limits are imposed, such as France, don't seem preoccupied by Internet traffic management practices.

Conclusion

Canada comes out on top for its discounts on new subscriptions and discounts on one or more services when consumers agree to buy several services from the same provider and subscribe to a range of grouped services. Apart from independent providers, rare are those who don't offer discounts in exchange for combined services. This is one of the main competitive advantages of facilities-based providers. As mentioned above, rare are the independent providers that can perform like vertically and horizontally integrated companies to offer a range of services enabling them to compete with the giants.

The occasional unlimited discount service option for subscribers of grouped services also seems to serve this objective. Canada is dominated by several vertically integrated empires that have little interest in Web innovations that encourage consumers to leave behind traditional telephone and tele-distribution services. This would probably explain why several discounts and unlimited service options are available for subscribers of grouped services. Large Internet access providers seem to have no objection to their customers consuming tele-visual content on the Internet in large quantities… as long as they remain subscribers to their tele-distribution

services. As for temporary promotional discounts, in some cases the prices paid by subscribers double following expiry of these promotions, which consumers can't enjoy unless they sign a contract that will guarantee to the provider that many will pay the regular rate for a certain time. And with sluggishness helping, providers know that many subscribers will stay even after the end of their contract, thus continuing to pay the regular price. Among all countries, Canada has the largest gap between service prices including discounts and regular prices.

While Canada has a mediocre record when it comes to average per-gigabyte prices, some Canadian regions should receive special attention. If Quebec were a country, for example, it would score very poorly in the cost of gigabytes, exceeding $1 per gigabyte at the main providers.

Quebec is distinct from the rest of Canada (and the world) for the frequency and level of download limits—an unenviable record—compared to most of the other regions studied. Monthly service prices may, however, be lower than those observed in other provinces. In the latter, while providers are usually less restrictive in terms of download limits, monthly price offers don't compare favourably to those abroad. The main providers in New Brunswick, Manitoba, and British Columbia advertise prices of $55 or more for basic services without a discount, which is much higher than those advertised in the rest of the world, including Australia where the highest overall prices are found, according to our study.

Contrary to what can be observed in Canada, French providers tend to automatically include several additional services in their Internet access offers, at competitive prices. Access to television is often included automatically, for example, but contrary to what we see in Canada for combined services, the prices of these grouped services are in the same range of costs for Internet access only in the other countries studied. Even in France, the grouped services sometimes cost much the same as Internet access only (when offered).

The United Kingdom market offers a range of possibilities for consumers who want basic access: Internet access is sometimes offered with phone services, or basic services at extremely low prices are offered (with, however, extremely low download limits as well). Unlimited service options are numerous, and the basic access speeds are also a lot higher than elsewhere. The United Kingdom therefore offers very attractive choices for consumers who want economical access to quality service.

The United States offers services and proposes similar discounts in some respects to those in Canada, but monthly rates have a tendency to be lower and download limits are much less restrictive. Basic speeds are, however, lower than those in other countries studied.

Although prices in Japan are difficult to compare, access speeds and the absence of download limits (as in France) demonstrate that bandwidth restrictions don't have to be imposed on consumers, who often take advantage of a fixed rate for monthly access at highly favourable speeds—this despite the fact that theoretically the speed capacity could lead to much larger data transfers than in countries where volume limits are imposed.

Our profile shows that in two countries—France and Japan—download limits are not imposed; in Great Britain, they are rarely applied, only on a few basic services; and in the United States, the limits are very flexible with few penalties when limits are exceeded. In the last two countries, Canada and Australia, download limits are more severe and more systematically imposed: in one, additional fees are systematically charged to subscribers who exceed their limit, and in the

other speed reductions are applied. Canada can console itself at least by comparing to Australia and by considering the occasional alternatives available here for consumers. There are a few rare unlimited affordable service offers (proposed by independent suppliers) as well as data blocks that increase the imposed limit and options to totally remove the limit, which are still fairly expensive when offered by large suppliers.

The most alarming situation in Canada is certainly the fact that frequent and systematic additional usage fees are imposed and among the highest in our study. Even in Australia, which is one of the worst examples for its monthly prices and usage limits, additional fees are not systematically imposed, thus protecting consumers (at least partly) from unhappy surprises. It remains that such frequent limits in these two Commonwealth countries can inhibit consumer enthusiasm for the broadband or at least reduce their enjoyment of available services.

3. Download limits: what do Canadian stakeholders say?

3.1 Reminder of the regulatory context

In chapter one, we briefly saw that download limits and their consequences have been the subject of many complaints, even outrage, across Canada. Consumers are sometimes frustrated by the imposition of download limits and additional bandwidth usage fees.

Dissatisfaction over Internet access (and the associated barriers) is not new. Several debates on the subject have taken place, specifically through consultations held by the Canadian Radio-television and Telecommunications Commission (CRTC) on Internet traffic management practices (ITMPs) five years ago.[114] Some providers said that limits could reduce the risk of network congestion and allow for better control over "excessive use" of bandwidth by certain Internet users. In fact, some argued that download limits could be used as an Internet traffic management practice, which in some cases would save providers from having to impose any other form of traffic control.[115]

Several providers indicated, however, that it was necessary to use various methods at the same time to efficiently manage network traffic. Bell Canada indicated that the company was using three different methods to prevent congestion on the network: 1) investing in the capacity of its infrastructure, 2) imposing user fees, and 3) managing bandwidth, which may include downtime or controlling the access of users who fail to respect the acceptable use policies and managing traffic during peak hours by targeting peer-to-peer file applications and by slowing down the Internet connection when such applications are used.[116]

Bell insisted on the fact that investments alone don't remedy the risks of congestion since some applications are designed to adjust according to the available capacity. In this regard, Bell referred to a testimony from Rogers, quoting an anecdote: an investment in capacity to resolve a traffic tie-up actually solved the congestion problem for just 30 minutes. Bell also indicated that the use of a pricing model as the only traffic management practice was not an efficient way to control congestion, something that often occurs over a period of just a few seconds, while monthly limits have an impact on the hourly and monthly use of the Internet. The company had

[114] And more specifically during the CRTC 2008-19 telecommunication proceedings "*Review of the Internet traffic management practices of Internet service providers."* All relevant submissions are compressed and available at the following address: CRTC: *2008-11-20 - #: 8646-C12-200815400 - Public Notice 2008-19 - Review of the Internet traffic management practices of Internet service providers,* last update on May 18, 2012 [Online] http://www.crtc.gc.ca/PartVII/fra/2008/8646/c12_200815400.htm#a2b (documents consulted on May 14, 2014).

[115] Vidéotron in particular mentioned during the hearings that the company imposed no smoothing practices since the monthly download limits alone had an impact on overall consumption. Vidéotron indicated that upload transfer limits had an effect on consumer uploading. Several stakeholders during the hearings therefore argued that peer-to-peer file transfer applications were responsible for network congestion, which required the application of smoothing (which is a voluntary and systematic slowdown of the connection when specific targeted software is used.) Op. cit. note 114, CRTC, "*Review of the Internet traffic management practices of Internet service providers."* p. 5.

[116] At the time, Bell talked about the "greed" of this type of application that was considered as "non-critical delay apps" (i.e. the slowdown doesn't create a detectable degradation of the downloaded content.) Certainly, the proportion of bandwidth now taken by video apps, which should be classified as a "critical delay app," force them to justify differently this type of practice. Op. cit. note 114, CRTC, "*Review of the Internet traffic management practices of Internet service providers."* p. 58.

also decried the fact that over the years the increase of its average revenue per user for its wired services was not proportional to the increase of the available bandwidth.[117]

That remark would seem to be beside the point because it doesn't consider either the fact that the company has the responsibility to ensure that the capacity of its network keeps up with demand (despite the bandwidth), rather than having increased demand alone generate increased revenues, or the fact that by increasing its network capacity the company is constantly providing its customers with increasingly rapid access speeds, which are theoretically more demanding for the network (which can in turn lead to greater bandwidth consumption). But, this is not our point.

Throughout the CRTC hearings, several stakeholders[118] stated that the best way for providers to control their traffic is by investing in their networks to ensure capacity is sufficient to meet demand. Consumer groups underlined the fact that OECD data seemed to indicate a correlation between download limits and the technologies used by companies to provide access, whereas all Canadian facilities-based providers were imposing such limits regardless of the technology used. The groups indicated that the imposition of such practices in Canada (download limits and smoothing) seemed to be based more on competitive aspects than on problems attributable to actual network congestion. The argument of the companies that network investments were expensive was also contested by the stakeholders, who indicated that contrary to the assertions of some companies, network investments to ensure Net neutrality (i.e. a sufficient capacity to keep up with demand) still allow ISPs to be financially viable.[119] According to these stakeholders, download limits have limited efficiency as a network management method, since consumers are not necessarily aware of their exact usage volume and have difficulty monitoring it. This is especially the case for many families that have various members accessing the Internet simultaneously. Download limits also have a negative impact on the development and use of innovative apps that require an important volume of bandwidth. These groups also suggested that additional usage fees are instead an unjustified way for companies to increase their revenues rather than a real method of controlling traffic.[120] The proof? What real use is a download limit in traffic management if the limit can be exceeded or even removed in exchange for additional fees?

Following the hearings, the CRTC concluded that investing in networks was the "fundamental tool to fix network congestion and has to remain the first solution to be used by ISPs" to settle traffic management issues. But it did not consider it necessary to impose obligations or to implement monitoring tools in this regard. The Commission emphasized the importance for consumers of management practice transparency. Consequently, it concluded that download limits should be considered as a management practice to be favoured,[121] since these

[117] Observations from Bell Aliant Regional Communications, Limited Partnership, and Bell Canada (the Companies), par. 4, 6 to 8. Op. cit. note 114, p. 58.
[118] Including Union des consommateurs (UC), the Public Interest Advocacy Centre (PIAC), and the Samuelson-Glushko Canadian Internet Policy and Public Interest Clinic (CIPPIC). Op. cit. note 114, CRTC, "*Review of the Internet traffic management practices of Internet service providers."* p. 58.
[119] See in particular, UC brief, Op. cit. note 114, CRTC, "*Review of the Internet traffic management practices of Internet service providers."* p. 58.
[120] See in particular, PIAC brief, Op. cit. note 114, CRTC, "*Review of the Internet traffic management practices of Internet service providers."* p. 58.
[121] CRTC. *Telecom Regulatory Policy CRTC 2009-657*, Ottawa, Canada, October 21, 2009, p. 58. [Online] http://www.crtc.gc.ca/eng/archive/2009/2009-657.htm "the economic ITMPs would normally not be considered as unjustly discriminatory; because they bind Internet service rates for end-user consumption. In addition, economic

"economic" restrictions are communicated more clearly than so-called "technical" traffic management practices (referring mainly to traffic smoothing practices) because they appear on the monthly invoice. The Commission also authorized the continued use of technical tools, as long as these practices do not diminish audio and video service, which requires rapid transmission.[122] This decision from the regulatory Canadian organization has thus given the go-ahead for several commercial practices that continue to be imposed very frequently on consumers today. As the CRTC stated in this revealing passage that was supposed to support its decision: "… these practices match consumer usage with a willingness to pay, thus putting users in control and allowing market forces to work."[123]

Another regulatory issue caused a stir in 2010 when the CRTC ruled in favour of Bell, which had requested approval for a wholesale service pricing model based on its retail model.[124] Once again, the Commission "accepted the argument […] that UBB was a pricing method used to manage the network and congestion."[125]The CRTC approved usage-based billing for wholesale clients, which means variable rates according to the volume of bandwidth used by each consumer, yet the public record on the ITMP decision gave instead the impression that there are no direct links between congestion and the volume of bandwidth used by consumers. The simultaneous use by a critical mass of clients at a given moment of the day is considered a more decisive element.

This decision was largely criticized by independent service providers, since it meant they could no longer differentiate their offers. They became forced to apply the pricing model adopted by the facilities-based providers, meaning the imposition of download limits, thus diminishing even further the independent service providers' ability to compete. The forced homogenization removed the independent service providers' competitive advantage, which was to provide unlimited services to a not insignificant number of consumers opposed to download limits.

As mentioned in our literature review, the outrage from that decision was so significant that the Commission had to revise its decision following a tug-of-war with the government, which had openly expressed its opinion in a parliamentary committee that ISPs should have the possibility of offering unlimited services at a fixed price.[126] The CRTC thus suspended application of its decision and held new hearings to determine the pricing models it would approve.

The CRTC agreed that instead of imposing wholesale invoicing according to the volume of bandwidth used by clients, the facilities-based providers could either charge a monthly fixed rate according to the speeds sold individually to each client and totally independent of the bandwidth used, or a rate based on a given capacity to be determined by the independent providers. In this

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ITMPs also offer greater transparency to users than technical ITMPs, because they appear on monthly invoices. In addition, these practices correspond to consumer usage they are willing to pay for, thereby allowing users to decide and the free play of the market to be exercised." (page visited on May 14, 2014).

[122] Ibid, p. 125-126.

[123] Op. cit. note 121, CRTC. *Telecom Regulatory Policy CRTC 2009-657*, p. 40.

[124] The Commission thus authorized Bell to impose ITMPs of an economic nature. To do so, it approved a pricing model proposed by Bell, which included the imposition, for each end user, of fixed fees to ensure access to the Internet and additional usage fees after exceeding a usage limit, billed to independent ISPs. CRTC. *Telecom Decision CRTC 2010-255,* Ottawa, Canada, May 6, 2010. [Online] http://www.crtc.gc.ca/eng/archive/2010/2010-255.htm (page visited on June 12, 2014).

[125] CRTC. *Billing practices for wholesale residential high-speed access services,* Ottawa, Canada, November 15, 2011, p. 11. [Online] http://www.crtc.gc.ca/eng/archive/2011/2011-703.htm. (page visited on May 14, 2014).

[126] Op. cit. note 39 CBC. "CRTC to Review Internet Billing Decision".

context, “capacity” is associated with bandwidth transfer speeds. We will address this in greater detail below, but for now this meant that independent providers could manage their wholesale services according to the number of subscriptions and speeds sold in the regions they cover, instead of according to bandwidth volume used by their customers. Capacity must be purchased in advance, enabling facilities-based providers to evaluate needs and manage the required investments in their network. While this pricing model doesn’t set prices directly according to congestion, despite the fact that the Commission admits in its decision that “peak traffic drives overall network costs,” it did restore balance to the system, giving independent providers the freedom to offer unlimited services if they like, but requiring that should demand “exceed this capacity, they will have to manage their network capacity until they purchase more.”[127]

3.2 A few clarifications on congestion

Several previous decisions by the Commission on Internet traffic management practices (ITMPs) and wholesale service pricing seem to indicate that it was particularly sensitive to the complaints of some providers regarding network management problems, which were, according to the providers, crucial because of “network congestion.” These concerns expressed by facilities-based providers and the CRTC’s attentive ear led to the approval of certain business practices that limit access to the Web, whether through ITMPs such as smoothing or usage billing applied by some providers to their retail services (and which they would have liked to apply massively to their wholesale clients). It is surprising that the Commission ruled several times in favour of download limits when by some providers’ own admission such limits don’t necessarily have a direct impact on the level of network congestion, which was confirmed by the testimonies of foreign service providers who arrived at the same conclusion (“Comcast’s own engineers admit that data caps will not affect network congestion”).[128]

What is the true situation? First, what do we mean by “network congestion”? Congestion is defined as a situation where the quantity of traffic on a network has the effect of deteriorating the quality of service for the end user. The situation occurs in particular when bandwidth traffic on a network exceeds its capacity.[129] Theoretically, it can occur on any type of network, with whichever technology is used by the service provider, whether copper wire, cable, or fibre optic. The risk of having this type of traffic congestion is, however, much less significant on FTTH networks,[130] which enable much greater capacity than the technologies traditionally used in telecommunication networks.[131]

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[127] Op. cit. note 125, CRTC. *Billing practices for wholesale residential high-speed access services,* p. 45 and introduction.

[128] “(...) There is no evidence that data caps will ease congestion and Comcast’s own engineers admit that data caps will not affect network congestion”, Op. cit. note 35 MINNE, J., *Data Caps: How ISPs are stunting the Growth of Online Video Distributors and What Regulators Can Do About It*, see summary.

[129] See JANSSEN, Cory. “What does Congestion mean?” *TECHOPEDIA*. [Online]. http://www.techopedia.com/definition/18506/congestion-networks (page visited on May 14, 2014) and CRTC. “*Telecom Public Notice CRTC 2008-19 Ottawa”, Canada, November 20, 2008*. [Online] http://www.crtc.gc.ca/eng/archive/2008/pt2008-19.htm#footnote6 (page visited on May 14, 2014).

[130] See in particular, Google’s FTTH service specifications, which reserve the right to apply ITMPs in the unlikely case where congestion would occur on the networks: GOOGLE. *Network Management Guide for Google Fibre Internet Services*. [Online] https://fiber.google.com/legal/network.html (page visited on May 14, 2014).

[131] Fibre has been used for a long time in telecommunication networks, but its progress in getting closer to subscribers’ locations enable a significant increase in the capacity and speeds offered by providers. See in particular: INSTITUTE FOR LOCAL SELF RELIANCE. *Fiber Optic Network*, Washington, United States. Community Broadband Networks. [Online] http://www.muninetworks.org/content/fiber-optic-network, See also: International

Some technologies have their specific limitations. For example, cable services may be less reliable at peak hours since access to the Internet in the last mile connects several subscribers to the same infrastructure. DSL services connect each subscriber by a wire that is not shared in the last mile, which allows for more constant speeds.[132] The distance between the subscriber and the central facility nonetheless has a direct impact on the performance of services delivered by a DSL line, unlike cable services, which are not affected in the same way by distance.

Despite these concerns, some sources suggest that these aspects are not necessarily directly related to the state of congestion of the telecommunication networks. One study found that in the United States, oddly, while DSL networks seem more resistant to congestion even with a higher level of contention, network congestion occurred closer to the last mile, compared to cable networks in which congestion is more often observed on network architecture farther from the subscriber.[133] Therefore, while each technology has its unique features, none seem to be exempt from the infamous congestion, a sporadic phenomenon that may last only a few seconds, according to providers like Bell.

Whatever the type of network, the risk of congestion is exacerbated by an overly high level of contention (also called oversale rate[134]). The fact is that providers sell a quantity of Internet access services at higher speeds than the total capacity of their networks allows them to absorb. In the case of Internet access services, this is not a dishonest practice (to the extent that providers are reasonable) but rather a perfectly logical approach: the subscribers of a given service don't all use the service at the same time, and none use the full capacity of the network permanently. It is thus possible to calculate an oversale rate, more commonly known as contention rate,[135] that can indicate to what extent the speeds in a given location are guaranteed. For example, a contention rate of 1:1 (total capacity sold to the consumers: network capacity) means that access speeds are guaranteed. In reality, contention rates are never that low; for residential services, the rate is often around 50:1,[136] which means that the ISP sold subscriptions at speeds that may need a capacity 50 times higher than the total capacity of the infrastructure. While there doesn't appear to be any formal regulations on these levels, here or elsewhere, the most common contention rates are 50:1 for residential services and 20:1 for business services.[137] Of course, the higher the contention rate, the more difficult it is for the consumer to benefit from the speeds advertised. A high rate of contention indicates that congestion may be more frequent, and that the provider should take action to ensure the quality of service. To resolve the situation in the short term, providers are most likely to use ITMPs, and must solve the network problem by dividing up the region where the network is congested to

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Telecommunication Network. *The Birth of Broadband*, Geneva, Switzerland, September 2003. [Online] http://www.itu.int/osg/spu/publications/birthofbroadband/faq.html (pages visited on May 14, 2014).

[132] All things being equal, i.e. in a context where the provider does not impose Internet traffic management practices.

[133] GENIN, Daniel & Jolene SPLETT. *Where is Internet Congestion*, "conclusion". National Institute of Standards and Technology, Gaithersburg, United States, July 26, 2013 [Online] http://arxiv.org/pdf/1307.3696v2.pdf (document consulted on May 14, 2014).

[134] Called "Oversubscription ratio". ODLYZKO, Andrew et al. *Know Your Limits: Considering the Role of Data Caps and Usage Based Billing in Internet Access Service*, Minnesota, United States, May 2012, 58 pages, page 25. [Online] http://www.publicknowledge.org/files/UBP%20paper%20FINAL.pdf (document consulted on May 19, 2014).

[135] Ibid.

[136] KUKIEWICZ, Julia. "Broadband speeds explained: distance, contention & fair use", *Choose,* London, Canada, March 4, 2014. [Online] http://www.choose.net/media/guide/features/broadband-speeds-explained.html (page visited on May 27, 2014).

[137] PREETHI, J. *TRAI's Broadband QoS Guidelines: Reveal Contention Ratio. Medianama*, Delhi, India, March 3, 2009 [Online] http://www.medianama.com/2009/03/223-trais-broadband-qos-guidelines-reveal-contention-ratio/ (page visited on June 12, 2014).

reduce its contention rate and/or by investing in the capacity where the congestion occurs. In all cases, the associated costs appear to be relatively minor.[138]

Congestion must of course be avoided because its consequence is poor quality service. The means to counter it when it occurs—in the Canadian context in which traffic management practices are permitted—don't necessarily lead to additional costs for providers, which have many options to avoid or stop congestion.[139] This means that the so-called economic management practices are entirely unnecessary.[140]

It is, therefore, easy to conclude that the massive use of invoicing based on usage volume is not, in Canada, a choice that specific technology constraints have imposed on providers, but rather a model favoured by the large providers, which see in it economic and strategic benefits, and the result of many years of regulatory decisions that have favoured the interests of those providers to the detriment of consumers and independent providers. It appears difficult today to justify the fact that dominant providers be given the power to impose their unpopular business model and practices both onto their customers and the providers who see delivery of access to the Internet differently. The weak state of competition in the Canadian market should, on the contrary, inspire more aggressive approaches.[141]

3.3 What about today?

Given the evolution of services since the last hearings on ITMPs and the fact that some providers were able to invest in their networks to reduce the risk of congestion, which they described during the hearings as particularly worrying, we thought it would be useful to check in again with Canadian stakeholders to see if they had changed with the context. We wished to see if the emergence of new technologies to deliver services to consumers could, in their view, change the models that currently lead to the imposition of limits. We also asked if the regulatory framework should be modified to foster and increase the number of unlimited service offers in Canada.

To seek their views, we consulted Canadian Internet access providers that were part of our field study,[142] certain associations representing the industry,[143] and several experts and organizations that have already taken a position on the subject and that have defended

[138] Op. cit. note 133 GENIN, D. & J. SPLETT, *Where is Internet Congestion*, p. 25-26.
[139] Op. cit. note 61 GEIST, M., *Canada's Usage Based Billing Controversy: How to Address the Wholesale and Retail Issues*, p. 231-233.
[140] For example, for audio and video functions that require a lot of real-time bandwidth, the use of content delivery networks – the duplication and dispersion of content in demand on multiple servers, allowing congestion from a single point of origin to be avoided – should appear as an obvious solution. See, in particular, ROUSE, Margaret. "Content delivery network (CDN)", SearchAws, Newton, United States, March 2011. [Online] http://searchaws.techtarget.com/definition/content-delivery-network-CDN (page visited on May 27, 2014) and Op. cit. note 61 GEIST, M., *Canada's Usage Based Billing Controversy: How to Address the Wholesale and Retail Issues*, p. 233.
[141] Op. cit. note 61 GEIST, M., *Canada's Usage Based Billing Controversy: How to Address the Wholesale and Retail Issues*, p. 249.
[142] We invited Bell, Bell Alliant, Telus, Rogers, Vidéotron, Cogeco, Eastlink, MTS, Shaw, Distributel (which declined by phone despite our effort to talk to several people to find someone in charge to whom we could send our questionnaire), Teksavvy, Colbanet, and Innsys.
[143] Canadian Association of Internet Providers, Canadian Network Operator Consortium, Association des compagnies de téléphones du Québec, and Independent Telecommunications Providers Association.

consumer rights before the relevant authorities or in the public sphere.[144] We sent a questionnaire[145] to all of them and contacted them by e-mail and phone, when required, to emphasize the importance of their participation in our survey or to have them complete their answers, when appropriate.

The participation rate by members of the industry was unfortunately much lower than that of the stakeholders who had previously defended the interests of consumers. Of the 13 companies contacted, only two completed our questionnaire and two others provided some general information related to our request, despite our follow-ups and flexibility in terms of the number of questions they were ready to answer and the way the answers would be handled. Furthermore, no industry association offered to answer on behalf of their members. Below, we summarize highlights of the answers that were given to us, first by members of the industry followed by experts and consumer watch groups.

We can already say that a certain consensus emerged from the answers given by members of the industry, groups, and experts. Even when they referred to it, none of the stakeholders that responded endorsed the former CRTC conclusion, which defended download limits as a network management practice.

3.4 Answers from providers

Of the 13 providers contacted, only two returned our questionnaire at least partially completed: Rogers and Colbanet. Telus provided partial answers to our questions, and Cogeco provided a few explanations. The others refused to answer our questions or referred us to the positions previously expressed during the hearings. Some of them expressed a lack of resources to justify the fact that they didn't complete the questionnaires; others indicated that the answers to some of the questions would have required the communication of sensitive business information. Finally, it should be noted that given the low response rate, it would be difficult to consider the answers received as representative of the opinions or positions of the industry as a whole.

[144] OpenMedia, Public Interest Advocacy Centre (PIAC), Samuelson-Glushko Canadian Internet Policy and Public Interest Clinic (CIPPIC), Online Party of Canada, Catherine Middleton (Ryerson University, Canada Research Chair in Communication Technologies in the Information Society), Michael Geist (University of Ottawa, Canada Research Chair in Internet and E-commerce Law), Peter Nowak (journalist, blogger and author, IT specialist), Benjamin Klass (University of Manitoba).
[145] See the adapted questionnaires in Appendix 2.

The two providers that gave partial answers—Telus and Cogeco—mentioned that the CRTC decision on Internet traffic management practices, as they interpreted it, constituted the basis for the imposition of download limits. The following are relevant excerpts from their comments:

> *Telus: Download limits allow TELUS to establish a reasonable price for Internet access within a large range of user profiles while offering the best possible experience for all its customers. The use of download limits constitutes an economic Internet traffic management practice (ITMP) approved by the CRTC.*
>
> *Cogeco: As specifically recognized by the Canadian Radio-television and Telecommunications Commission, it is reasonable for providers of such Internet services to impose download limits to manage traffic to protect their networks. In addition, the CRTC has determined that to do so, economic measures, more than technical measures, should be favoured. Cogeco therefore uses practices in accordance with the CRTC guidelines in this regard.*

Thus, the CRTC decision mentioned above, which blindly and unconditionally authorizes the imposition of download limits and recognizes the commercial practice as a way to manage network traffic,[146] is still recognized or at least used today as a valid justification of the practice, which companies, like the CRTC, consider acceptable, despite consumer complaints in this regard, which put into question the practice's acceptability, and despite the fact that independent experts agree that economic constraints have no relevance and no effect on congestion risk management.

Apart from the Commission's decision on ITMPs, several respondents nonetheless mentioned the economic concerns that are behind the use of such practices. Telus mentioned the large geographical area to be covered in Canada, while Rogers put more emphasis on the large volume of bandwidth being used, which increases network deployment and maintenance costs for providers.[147]

> *Telus: It is not surprising (…), considering that Canada is the second largest country in the world in surface area, that Canada is second in the world regarding the highest levels of investment per access in telecommunication networks, and the fourth for the highest levels of investment per capita (…). It is thus necessary to recover capital expenditures through service revenues, and TELUS considers that to offer a large range of variable capacity services (such as download limits) at various rates is the most appropriate rule of the game.*
>
> *Rogers: Traffic volumes cause costs as network capacity must be increased. Consequently, higher volume users that cause costs are charged additional usage fees when they exceed the usage allowance in their package (...)*

[146] But emphasized, however, that the best solution to control congestion is investment to increase network capacity.
[147] This is not true, considering that as mentioned by the CRTC the level of traffic at peak hours is the main source of network management costs for facilities-based providers.

Rogers goes on to say that monthly prices tend to be higher for services with higher speeds and usage limits, compared to services with lower speeds and usage limits, "because higher volumes that are enabled by higher speeds cause more costs." [148]

On the use of bandwidth by Canadian consumers, Rogers adds:

> *Statistics show that Canadians are among the heaviest users of the Internet in the world. Comscore Canada Digital Future in Focus, March 19th 2013 reported that "Canadians spend more than 41 hours per month online on their PC, representing the 2nd highest across the globe, and they rank 1st in terms of monthly pages and visits per visitor." This level of traffic requires high capacity networks that impose greater costs on network providers than in other countries.*[149]

To increase network capacity, Telus said it invested $1.4 billion in capital assets in the wired section in 2013, and Rogers said it "currently spends several hundreds of millions of dollars to increase its capacity and to maintain its annual capacity increase to meet traffic increases."[150]

However, Rogers had the courtesy to expand on its statement saying that its biggest challenge in network management is the development of additional capacity to cope with the annual increase of 40% to 50% in traffic, a trend that has been a reality since the end of the 1990s. According to the company, all Internet access providers who own telephone and cable infrastructure in Canada have to deal with this challenge.

Regarding the reasons for imposing download limits, since some providers mentioned the decision of the CRTC and others mentioned the need to amortize costs attributable to network investments, the only independent provider who completed our questionnaire, Colbanet, indicated that the wholesale pricing model imposed by the providers with which it does business is the main, even only, reason why the company imposes download limits on some services. The supplier replied negatively when we asked if the imposition of download limits is a necessary evil, mentioning the foreign countries where there are no download limits. Colbanet also suggested that the main reason justifying the frequency of download limits in Canada is likely the desire of large providers to maximize their profits.

[148] We still question the reliability of such an affirmation, since it is access speeds and not monthly usage volume that have a direct impact on the need to invest in network capacity to reduce the risk of congestion. Furthermore, higher speeds are already billed at higher rates. We will see below that several stakeholders advocating for consumer interests also say that monthly usage volume does not have a direct effect on congestion and therefore on the need for providers to invest in network capacity.

[149] We will refrain from overemphasizing the fact that the number of hours spent online and the number of Web pages visited do not in themselves suggest a level of traffic that would require massive investments in network capacity, or that the use of such arguments by ISPs to support their need for investment is at least harebrained, if not part of an effort to manipulate based on a supposed lack of knowledge within its market of technical aspects.

[150] In the 2008-19 notice of consultation, Rogers had indicated expenses equivalent to "tens of millions of dollars annually," instead of hundreds. "Rogers is constantly augmenting network capacity, at a cost of tens of millions of dollars per year, in order to prevent congestion."

There was no consensus when we asked members of the industry if the deployment of fibre networks would affect unlimited service offers. Colbanet said the deployment of fibre could potentially have an impact, while Rogers answered no. No other supplier gave its answer to the question. In all cases, the answers received were too few and too short for us to draw any conclusions.

It should be noted, however, that none of the respondents in any way mentioned the risk of network congestion as a factor to justify download limits. Rogers even indicated in its answers that its networks are not congested,[151] stating that the necessary investments to increase network capacity were made before congestion could occur.[152] Instead, to justify the economic practice, the provider focused more on a principle that resembles user fees. Rogers said that countries where rates are fixed accept a greater level of amortization of costs by smaller users (with the costs being generated by major users), probably because traffic volumes are lower overall than average.[153]

> *Different companies offer different packages reflecting their individual cost structures and marketing approaches. All companies attempt to have their total revenues cover their total costs. Rogers' rating approach allows for recovery of total costs with recognition of the fact that heavy volume users should pay more than light volume users as they impose more costs*.[154]

3.5 Responses from experts and consumer advocacy groups

We sent questions to various university stakeholders and groups that advocate for consumers' rights on these subjects to gather their opinion on the imposition of download limits in Canada,[155] particularly the reasons why limits are imposed, the relevance of these limits as a network management practice, the impact of these limits on consumers, the influence of regulations, and the elements that can be changed to improve the situation in Canada.

[151] Since the CRTC hearings on ITMPs seemed to recognize that certain networks are congested, justifying the CRTC's authorization to apply Internet traffic management practices, we asked suppliers if their network was indeed congested. Rogers answered no. It should be remembered that during the hearings, proof of the claimed congestion was confidential, and no third party was able to analyze, evaluate, or contradict it, or make any representation to the CRTC regarding this evidence.

[152] According to these declarations, Rogers would have exemplary practices on the subject: "Rogers' network is not congested. Rogers increases its network capacity to meet its customers' traffic demand. Rogers increases its capacity when traffic reaches 60% of its capacity in a neighbourhood segment at peak period. With these practices, Rogers implements the capacity required to avoid congestion that may otherwise occur."

[153] However, a survey quoted in our literary review (ComScore) indicated that American and British Internet users spend more time online than Canadians. Also, our field study found that download limits in the United Kingdom are a lot less frequent, and in the United States a lot less restrictive. While reference to that study was a valid source to prove Canadians' enthusiasm for bandwidth, it is curious to find that two countries where consumers are more connected than Canadians have less download limits.

[154] This concern for fairness by Rogers, which in other contexts would be commendable, would probably impress us more if the use of a large volume did in fact influence in any way costs imposed on the supplier. Knowing that the large volume does not really increases costs, it is also surprising to find this concern for not having customers support them.

[155] Of the eight stakeholders questioned, six at least partially answered our questions: PIAC, CIPPIC, Open Media, Online Party, Benjamin Klass, and Michael Geist. Catherine Middleton and Peter Nowak did not respond.

a) Why are there download limits?

Oddly, answers from experts and interest groups on the subject may be considered similar in some ways to those of certain providers: answers from most stakeholders mentioned the importance of money in the equation—while the tone and interpretation of experts are different than those of providers. In fact, while providers discussed the amortization of costs to justify the imposition of limits, most experts mentioned profits instead. Here are some excerpts from the comments, which appear fairly unanimous:

> *We believe that a monthly limit of 20 GB for a 2.8 Mbps speed, type of service that prevails in Canada, seems more like a way to increase revenues, rather than a strict way to manage traffic.* – Open Media
>
> *In my opinion, the primary use of download limits is not to manage Internet traffic and limit network congestion, but rather:*
> *- Generate revenues for network owners*
> *- Protect broadcasting services owned by ISPs.* – Benjamin Klass
>
> *… Conflicts of interest. Internet TV slowly replaces television services which makes them lose revenues…* – Online Party
>
> *[This practice] is motivated by profitability reasons.* – Michael Geist

b) A necessary network management practice?

Are download limits necessary for sound network management?

While some stakeholders take providers' arguments into account to form their own opinion, after learning of the providers' arguments through the CRTC hearings, all stakeholders who answered this question generally gave little credibility to the argument that download limits are a valid way of managing network traffic. Here are a few relevant excerpts of their views.

According to the Public Interest Advocacy Centre (PIAC), it is possible that congestion is a reason motivating ISPs to impose download limits. However, an actual bandwidth shortage has not been clearly demonstrated. According to some providers, Internet traffic management practices (ITMPs) allow for limited Internet capacity to be used equally, thus eliminating the potential risk of abusive use that can affect the availability of bandwidth for others. The PIAC mentions, however, that it is not clear this reason is the main motivation for providers. "For example, instead of imposing ITMPs, providers could increase the capacity of their own networks to reduce congestion," suggests the organization.

The Samuelson-Glushko Canadian Internet Policy and Public Interest Clinic (CIPPIC) explains that since the annual increase in Internet wired services access traffic is historically low, ISPs are able to continue to develop their networks to accommodate this increase (and thus avoid congestion) with modest investments. Consequently, there is no need to impose transfer limits to limit network congestion. Furthermore, added the CIPPIC, data transfer limits have a tendency to be based on the users' monthly usage and therefore can have only a minimal correlation with real congestion. Risks of congestion occur within seconds (not over a month), and they are especially concentrated in the daily peak periods (going from the end of the

afternoon to the early hours of the night). According to the Clinic, the imposition of monthly limits can even have an adverse effect on network congestion. Individuals forced to limit their network use to avoid monthly fees will focus their usage in peak hours, since use during peak hours is more valuable to them.

Researcher Benjamin Klass also provided several possible answers.

> *Even if the CRTC recognizes that network owners have a legitimate interest in managing their network traffic, there is considerable proof that download limits are neither an efficient or effective way to manage traffic. Using such limits as the main way to manage congestion is similar to killing a fly with a cannon.*

The marginal cost of providing additional data is very low, while the price increase supported by consumers exceeding their monthly limit is dramatically high. This disparity comes from the fact that the network cost is more clearly linked to capacity, measured in terms of bandwidth, than to the monthly consumption of data, he adds.

Confirming one of the findings of our research, Benjamin Klass explains that policies on abusive or acceptable use already allow network operators to limit, by smoothing or slowing down, at their discretion, the flow available to consumers who reach a certain threshold of monthly usage that would cause negative effects on the experience of other users. The fact that providers reserve this discretion for all of their services, whether they impose usage limits or not, casts significant doubt on the need for explicit usage limits. “If the threshold after which congestion may be caused and is identified in such policies is a lot higher than the threshold after which additional usage fees are imposed, can the limits really be perceived as a legitimate network management practice?” he asks.

c) What are the effects on consumers?

Many experts and consumer advocacy groups have given their opinions on the effects of download limits on Internet users. And they aren’t quiet about it.

The PIAC pragmatically reminds us that providers say limits allow consumers to not suffer the negative impact of abusive use by a few individuals, but also raises the fact that limits are perceived negatively by consumers.

> *The PIAC observed [as part of a survey] that ITMPs have economic causes and that they cause misalignment with consumers’ interests. Our discoveries in this report indicate that consumers don’t like “octet limits” and additional fees for Internet access services, even though they’re used by ISPs.*

Other respondents indicated without a shadow of a doubt that download limits have no benefit to consumers. For example, when we asked Professor Michael Geist what were the consequences of download limits on consumers, he said “higher prices, and that it was more expensive to use the Internet,” but the consequences are varied, as other respondents suggested:

> *The reason why ISPs find such mechanisms attractive is because of their great lack of transparency. Customers are not able to predict how much a data interaction will cost them. Consumers are then pushed toward expensive consumption scenarios that increase their monthly fees significantly to have access to additional usage, or consumers have to support large additional usage penalties for a given month, or consumers have to excessively contain their usage* – CIPPIC

Open Media has a strong view on the question:

> *Several innovative products and services developed for the Internet today count on the ability of users to access higher levels of bandwidth. As services offered in OECD countries (like the United States) don’t have any omnipresent download limits, these services and business models are designed in a way that assumes consumers will have access to a high level of bandwidth without additional fees. Streaming video services in high resolution, for example, are less appropriate for migrating to an environment where high usage fees make it more difficult to compete with traditional television and IP television services. So, exaggerated restrictive limits of bandwidth will choke the potential [of innovative stakeholders] to use the full potential of the Internet to develop future goods and services.*

Benjamin Klass said the following:

> *...Canadians are encouraged to restrain their use of the Internet. This negatively affects consumers’ choices for their services, including various access points to news, social media, video services, games, cloud applications, program updates, etc.*

The suppression of consumer demand for services that require a lot of bandwidth by Internet service providers that use data transfer limits thus has potential prejudicial effects both on consumers and on services and markets accessible via the Internet.

d) What solutions to improve the situation?

Once again, experts and consumer advocacy groups were vocal on the potential solutions to improve the state of Canadian services. Of course, none of them seemed to promote the continuation of such a large number of service offers that impose download limits; economic, regulatory, and technical factors may be considered to bring progress. Here are a few interesting answers.

As the means of Internet access changes with time, the PIAC said it also expects ITMPs to change as broadband access technologies evolve.

It is true as far as UC is concerned that it would be ridiculous for a company to continue in a context that has changed to apply practices, models, and solutions that are no longer justified or that are no longer efficient or appropriate. And if their continuation is no longer justified other than by the profit they generate, one might think about forbidding their use due to their abusiveness?

According to Open Media, which supports one of the CRTC's strongest conclusions (investing in networks must constitute "the fundamental tool to solve network congestion and must remain the first solution applied by ISPs,") the best way to deal with congestion is to build better networks. Canada is at the end of the line in the international market in terms of Internet access and the speeds offered. To ensure network development, the government should use its billions of dollars of revenues from the industry to create a digital endowment fund that would build world-class networks, thus ensuring that every Canadian can have affordable access outside the grip of the three major providers.

Open Media also suggested that the functional separation of the major providers could be an efficient method of stimulating competition in the sector. The organization said:

It is crucial to separate the Internet infrastructure from large telecommunication companies to ensure that digital networks are open to a set of providers so that they may serve Canadian residents without any obstacles. Without that, independent providers will be unable to offer Canadians the faster speeds and lower prices they deserve.

The CIPPIC suggests the same: the Canadian market clearly lacks competition, and regulatory changes should be brought about to facilitate other forms of competition than the one exercised by facilities-based providers. Its recommendations, however, remain closer to the Canadian reality.

> *ISPs have tried to impose usage limits on consumers in other jurisdictions, but didn't succeed since that type of usage is very unpopular among them. The ability to impose that billing model on individuals in Canada, despite a widespread preference for a fixed-price model, illustrates the lack of competition (…). However, the wholesale market is not strong enough to provide sufficient competition for consumers. Neither are there enough competitors to ensure adequate pressure on monthly prices. Removing the compensatory margin presently accompanying wholesale prices could enhance the wholesale providers' ability to compete more efficiently.*

Benjamin Klass also refers directly to the CRTC hearings on wholesale Internet access services.

> *To enhance network access conditions is still on the CRTC agenda, since there are current hearings to consider the relevance of extending wholesale access obligations to new generations of installations (of fibre to the house). These hearings are an important opportunity for the CRTC to revitalize its approaches by establishing a robust regulatory framework that promotes independent competition in the residential Internet access market. Establishing the conditions for a clearly competitive residential market is the key to ensuring that network management practices are used adequately and only when necessary.*

3.6 Conclusion

The CRTC reached a decision on Internet traffic management practices that seems to have had a significant impact on the business practices of service providers in Canada. By qualifying download limits as an acceptable economic traffic management practice, and by encouraging such practices on the pretext that they are more transparent for consumers than technical traffic management practices, the Commission accepted that Canada would have one of the worst records compared to several foreign models in terms of download limits. Indeed, as we have seen, and as the providers themselves admitted, the demand for bandwidth has increased in a stable way over the years, congestion is sporadic, and download limits have at best only a marginal effect on this phenomenon. Very few providers indicated that download limits enable congestion to be controlled. Why, then, consider this business practice as a way to manage networks?

In our opinion, the Commission has compared apples and oranges. Very few elements in the Commission's public file on ITMPs suggest that download limits are required, in addition to smoothing practices, to enable providers to control the level of congestion on the networks. Again, as some providers themselves admitted, download limits have more of an effect on overall consumption, thereby reducing consumer interest in using the Internet. How can we hope to position ourselves as a broadband access model, which should be one of the regulatory authority's goals, when the main Canadian service providers at best show very lukewarm enthusiasm to the idea of offering services that meet the expectations and real needs of consumers?

Some service providers still mention today the CRTC's decision on ITMPs to justify the very frequent application of explicit download limits on their Internet access service. However, providers who agreed to respond to our questions also indicated that the large distances to cover and Canadians' particular fancy for the Internet explain in part this state of affairs… The obvious conclusion is that these practices don't have anything to do with congestion. The more we use, the more we should pay, according to some providers. However, several experts and consumer advocacy groups say that the rates charged by providers are out of proportion with the price they pay for a large additional capacity of bandwidth required for certain users.

Congestion usually means that providers must invest in their network to increase capacity. If the contention rates considered acceptable by some companies have been set at thresholds where congestion is very likely to occur, the fact that some users (growing in numbers, in fact, because increasingly heavy content is easily accessible online) decide to use what they pay for, why suddenly make them guilty for the effects of oversale by companies? If providers have sold access to their network to a number of users greater than what the network can support—by constantly promoting faster services, for which, let's admit, consumers don't need if all they do is e-mail, visit Web pages, and consult the weather—it is rather untoward of the providers to blame or penalize consumers today. Consumers are the victims of this overselling. Even ISPs should consider it normal that network capacities be increased enough to meet current needs—for which consumers already pay via their subscription—and the eventual demand of future subscribers, who will logically make these additional investments profitable by using the new available capacity.

Network congestion is not an established fact fixed in time, although providers make a lot of noise about it. It is abusive to pretend that networks are congested or even that they might be when also suggesting they are stable. When it occurs, the congestion phenomenon happens

over very short periods of time, usually a few seconds. Why then use management practices that limit the consumer's monthly usage, when congestion is a lot more sporadic? Congestion occurs locally, on a server or a given access point, and is generally unpredictable, except in certain circumstances: the risks of congestion are, for example, naturally higher during peak hours when more subscribers are accessing a given part of the network at the same time. How can it be claimed that download limits are essential to avoid congestion if the simple payment of additional fees (on a monthly basis) increases this limit or makes it disappear? Would the promise to pay magically increase network capacity to allow, without risk of congestion, access to additional content?

It now seems clear that download limits have at best a trivial effect on the risk of congestion. The answers from a few companies and those from consumer groups, five years after the CRTC hearings on the subject, all seem to indicate that congestion has nothing to do with the pricing model chosen by providers. Instead, download limits allow management of consumer demand and maximization of profitability.

Incidentally, do such commercial practices have a real effect on the use of Internet access services by consumers? Experts and consumer advocacy groups have also emphasized the fact that the price paid for usage after exceeding the monthly limit is not proportional to the real cost of providing an additional megabyte or gigabyte. The restrictive limits and significant additional fees have a deterrent effect on consumers, who therefore can't enjoy all the innovative uses of the Web without risking unhappy surprises on their next invoice. While the companies that develop innovative Web services and offer more and more services that consume large quantities of bandwidth are affected by this established fact at the profit of access providers, we should remember that an additional quantity of download by their subscribers only represents insignificant fees (as long as this additional usage doesn't take place on a congested network requiring investments). This makes sense when we consider that the innovative services in question may be of a nature that will make access providers lose subscription money generated by their own content via traditional parallel services…

Are consumers right to be outraged? Several debates that took place in the United States and elsewhere on Net neutrality and download limits seem to indicate that the answer is yes.

4. Looking for solutions: overview of the regulatory context abroad

Our literature review and field study confirm that the download limits almost systematically imposed in Canada are not a necessary evil, but rather a business model among many, which is unfortunately applied to different degrees at the expense of consumers.

Most OECD countries don't impose download limits. While services in countries like France and Japan are simply not limited, the United Kingdom has only a few services with download limits, leaving consumers with the choice between a limited service at a very low price and small bandwidth or unlimited access, which is the norm. Services offered in the United States often have limits, but they are never severely or systematically applied upon the first overrun; the limits provided in packages are in a way an indication or criterion for determining acceptable usage in a given package. Only the Australian access providers, among the foreign models studied, massively impose download limits; however, services are not subject to additional usage fees. While Australians may be better protected against surprise invoices, the smoothing of Internet connections after using a certain amount of data is undoubtedly another form of inconvenience for consumers. Our literature review found that the limits imposed are generally a little higher than in Canada, but may be lower for basic services (according to our field analysis).

Of course, services offered in each country reflect, to a certain extent, the legislative and regulatory context. This chapter provides an understanding of the specific regulatory contexts that seem to influence the state of Internet access services across the countries studied, and will help identify solutions, where required, to improve the situation in Canada.

Our overview of the legislation and regulations in Europe and Japan indicates that download limits were not necessarily the subject of the same type of examination as the one the CRTC went through in Canada. Of course, the scarcity or non-existence of this kind of service condition may be the reason. Regulations to stimulate competition in the telecommunication sector—ungrouping policies of the local loop, for example[156]—may be associated with services that are generally more affordable and more diversified or of better quality than the services offered elsewhere.

Surprisingly, despite the prevalence of download limits, Australia doesn't seem to have had specific debates on them: Australian authorities have preferred instead to battle against "bill shock" (the price shock resulting from surprise invoices) in the telecommunication sector, rather than consider the question of download limits.

[156] Local loop is more or less synonymous with the "last mile." In the case of a phone service provider's network, it is the pair of copper wires "located between the final subscriber's telephone plug and the local central [...] [The] ungrouped access to the local network is the providing of bare copper pairs to the alternative operator, which installs its own transmission equipment on these pairs. The use of the local network by the historic operator is, of course, remunerated by the operator user." ARCEPAGE *Qu'est-ce que le dégroupage de la boucle locale?*, Paris, France, February 24, 2014. [Online] http://www.arcepagefr/?id=6989#c5785 (page visited on June 12, 2014).

This leaves the North American continent. Most debate over download limits has taken place here. We examined the debates and impacts of the CRTC hearings on traffic management practices and pricing models for wholesale services. Since the hearings, few public debates have addressed the question of the need for download limits.

The situation in the United States is very different from the one in Canada, since regulatory authorities there seem to practice a tug-of-war with the industry on several questions regarding Net neutrality. We expected that download limits would be part of that process. Since the debates that are taking place in the United States are the most complete on download limits, we considered it relevant to first observe the situation in the land of Uncle Sam, to then examine regulatory frameworks designed to protect Net neutrality, stimulate competition, or protect consumers from surprise invoices, which may serve as solutions for Canada.

4.1 United States: no download limits in my backyard!

Contrary to other regulatory models examined below, American Internet service providers (ISPs) who own networks are no longer required to make their telecommunication infrastructure available to their competitors. The ungrouping policies of the local loop, which were implemented in the 1990s in the United States—which was one of the first countries to implement such policies—had little success, giving facilities-based providers dominance of the American market.[157]

While we found a form of download limit on services offered in the United States, the relative reserve of providers regarding their application reflects strong consumer opposition and the mistrust of regulatory and legislative authorities regarding this type of practice. Download limits have indeed received considerable attention there.

Since 2008, American providers have, on several occasions, attempted to get rid of some Internet access services that don't have bandwidth consumption limits,[158] but pressure from the public and regulatory and legislative authorities,[159] which have several times mentioned their intention to legislate the business practice, has always motivated the providers to be flexible in the application of limits. The tug-of-war between the industry and regulators in the United States is constant, and the American consumers' situation is precarious.

[157] S. FORD, George et al. *Lessons Learned from the U.S. Unbundling Experience*. Phoenix Center Policy Paper, Number 45, Phoenix, United States, June 2013, 48 pages, page 4-5. [Online] http://www.phoenix-center.org/pcpp/PCPP45Final.pdf (document consulted on May 16, 2014).
[158] HUSSAIN, Hibah et al. *Capping the Nation's Broadband Future?* Washington, United States, December 2012, 18 pages, page 2. New America Foundation. [Online] http://newamerica.net/sites/newamerica.net/files/policydocs/CappingTheNationsBroadbandFuture.pdf (document consulted on May 16, 2014).
[159] Over the years, two bills were introduced to prohibit or severely regulate the imposition of download limits. We will return to this below.

In fact, the declaration of unconstitutionality by the Appeal Court of Washington of some important principles adopted by the Federal Communication Commission (FCC),[160] may spell the worst for Net neutrality.[161] Before describing the current American situation, we will start with a chronological review of certain key events.

a) Protection of Internet neutrality

After several years of American debate on the issue of Net neutrality, the FCC adopted, in 2010, the *Open Internet Order*, a large regulatory text on the protection of this neutrality by ensuring the equality of data processing across the Internet. The FCC describes its text as a set of high-level rules to foster transparency and prevent the unjustified blocking and discrimination of content, to ensure the Internet remains an open platform. The FCC also stated that a neutral Internet allows consumers to choose freely the apps and services they use, create, or share with others. This openness of the Net promotes competition, innovation, and investments, enabling anyone to participate, innovate, and help revolutionize the way people communicate, create, and do business, etc.[162] Intentions expressed by the regulator were incidentally in sync with promises made by President Barack Obama, who said he wished to ensure an equal processing of all Web content, promising to defend the principle that any person should have the opportunity to implement his or her novel idea.[163]

The 2010 FCC order[164] enacts the requirements that follow the path established in the 2005 "Internet Policy Statement"[165] outlining the general principles for non-discriminatory access to legal content. Five years later, the principles put forward are still designed to prevent discrimination against content or apps on the Net. The 2010 order, which applies to high-speed Internet access services regardless of the technology used, promotes transparency in the application of Internet traffic management practices by ISPs, provides for the freedom to send and receive content that is legal regardless of its nature, prohibits undue discrimination of any content over another, and determines what are considered reasonable Internet traffic management practices. The latter are those that allow congestion control, ensure the quality of service, control nuisance traffic for consumers, and prevent the transfer of illegal content. The FCC recognizes that the reasonable nature of management practices may vary according to the type of technology used. Contrary to what was considered by the CRTC regarding the establishment of its rules on Internet traffic management practices, download limits are not

[160] HAAL, Mélanie. "Une cour américaine porte un coup à la neutralité du net", *ICTJournal*, January 15, 2014. [Online] http://www.ictjournal.ch/fr-CH/News/2014/01/15/Le-projet-de-neutralite-du-net-juge-inconstitutionnel.aspx?pa=1 (page visited on May 19, 2014) et BRODKIN, John. "Net neutrality is half-dead: Court strikes down FCC's anti-blocking rules", *ArsTechnica*. January 14, 2014. [Online] http://arstechnica.com/tech-policy/2014/01/net-neutrality-is-half-dead-court-strikes-down-fccs-anti-blocking-rules/ (page visited on May 27, 2014).

[161] Which is the guarantee that all online content is transmitted without any form of undue discrimination or preference. LA QUADRATURE DU NET. *Neutralité du Net*. La Quadrature du Net Paris, France, https://www.laquadrature.net/fr/neutralite_du_Net (page visited on May 27, 2014).

[162] FCC. *Open Internet: Insuring that every American has access to open and robust high-speed Internet service*. Washington, United States (no date). [Online] http://www.fcc.gov/openinternet (page visited on May 16, 2014)

[163] SWEETLAND EDWARDS, Haley. "Obama Backs Away From Net Neutrality Campaign Promises After FCC Vote", Time, New York, United States, May 15, 2014. [Online] http://time.com/101794/obama-backs-away-from-net-neutrality-campaign-promises-after-fcc-vote/ (page visited on May 16, 2014).

[164] FCC. *Open Internet Order*. Washington, United States, December 23, 2010, 194 pages. [Online] http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-201A1.pdf (document consulted on May 16, 2014).

[165] IT LAW WIKI. *Internet Policy Statement.* [Online] http://itlaw.wikia.com/wiki/Internet_Policy_Statement (page visited on May 16, 2014).

explicitly mentioned by the FCC as a way to manage the network. The FCC doesn't prohibit this practice, though, and indicates that it doesn't oppose the fact that users of a larger volume of bandwidth pay more for their access service.[166]

While the principles put forward by this regulatory text are of interest in ensuring the neutrality of Internet access, the American regulator nonetheless gave itself few means to ensure its application. The FCC desisted from modifying the status of large broadband service providers, which would have given it clearer powers of intervention.[167] We will see that this choice by the FCC, in accordance with the industry's wishes, was its Achilles heel, reducing to almost nothing its efforts to ensure neutral access to all content on the Web. Indeed, a few minutes only after the announcement of the new regulation, the provider Verizon said the fact that the FCC gave itself the power to regulate Internet access without clearly defining by law its powers over ISPs would create uncertainty on the market.[168]

b) Threat of bills

We will see shortly that following the adoption of the 2010 guideline on Net neutrality, the FCC enquired about download limits. But the telecommunication regulatory authority was not the only one to address this business practice: two bills were successively introduced to prohibit or strictly regulate the imposition of download limits.

The first *Broadband Internet Fairness Act* introduced by Congress in 2009 attempted to give explicit power to the Federal Trade Commission in collaboration with the FCC to enquire and intervene in the matter of download limits in the context where Time Warner Cable was in the process of implementing such usage limits in its Internet access services. As a result of public outrage, Time Warner Cable greatly softened its requirements related to download limits.[169]

With the main purpose of ensuring that Internet access service usage billing be based on service delivery cost, many who had been long awaiting the bill openly criticized the industry, saying that imposing this pricing model where fees represent amounts substantially higher than providers' costs in an environment lacking adequate competition constitutes an unfair, unreasonable, anti-competitive, and anti-consumer business practice that is harmful to the consumption of video content. Indeed, the bill sought to prohibit providers that use billing according to bandwidth volume from imposing unfair, unreasonable, or unduly discriminatory service conditions. The bill would have forced ISPs to file with the FTC their service conditions and fees, their justifications for these conditions, and an assessment of their impact on consumers' capacity to access the services available on the Internet—to be examined by both the FTC and FCC. The bill would have given regulatory authorities the power to take action, in particular when the conditions imposed by providers are not proportional to the costs of delivering service, prohibit the deployment of innovative services, or impose unfair service

[166] Op. cit. note 163 SWEETLAND EDWARDS, H., "Obama Backs Away From Net Neutrality Campaign Promises After FCC Vote", p. 41, 47-48.
[167] GUSTIN, Sam. "FCC Passes Compromise Net Neutrality Rules", *Wired*, Boone, United States, December 21, 2010. [Online] http://www.wired.com/2010/12/fcc-order/ (page visited on May 16, 2014).
[168] *Ibid.*
[169] ANDERSON, Nate. "Time Warner tries again, fails to justify caps and charges", *ArsTechnica*, April 10, 2009. [Online] http://arstechnica.com/tech-policy/2009/04/time-warner-cable-to-press-stop-questioning-our-caps/ (page visited on May 16, 2014).

conditions and prices to residential consumers. Furthermore, the authorities would have had the power to hold hearings on the subject and impose fines on providers.[170] The *Broadband Internet Fairness Act* was never adopted.

More recently, a new bill was introduced to regulate download limits after the publication of research results by the New America Foundation, which found that download limits serve more to maximize revenues than control network congestion, particularly for wired Internet access services. The study outlined that investments by most main American providers were decreasing while their revenues were increasing, and that providers, more out of economic expediency than necessity, were artificially creating scarcity of broadband access to justify protection of their traditional television services.[171]

The goal of the *Data Cap Integrity Act,* introduced by Senator Wyden, was to prohibit the imposition of download limits by providers, unless they obtained authorization from the FCC. The FCC would have had the power to examine, before issuing such authorization, if a company's download limits were truly designed to control network congestion and did not unduly discourage Internet use. The FCC would also have considered the reliability of the tools that providers were to make available to customers to measure their use of bandwidth and ensure that ISPs were not handling some types of content preferentially over others.[172] Following a consumer's complaint to the FCC on incorrect bandwidth measurements, a faulty provider could have been fined, and the amounts collected could have served to compensate complainants.[173]

Although Senator Warden's bill was applauded by the New America Foundation,[174] it died on the order paper.[175] It has been controversial,[176] but it is interesting to note that a few weeks after it was introduced, the former president of the FCC acknowledged that usage-related invoicing of bandwidth has never been a matter of network capacity, but rather a simple question of equity, allowing ISPs to amortize the high start-up costs generated by their networks.[177]

[170] MASSA, E. et al. *Broadband Internet Fairness Act*, Washington, United States, June 16, 2009, [Online] https://www.govtrack.us/congress/bills/111/hr2902/text (page visited on May 16, 2014).
[171] Op. cit. note 157 S. FORD, George et al., *Lessons Learned from the U.S. Unbundling Experience.*
[172] A reference to the fact that Comcast didn't account for the content from one of its own streaming apps for Xbox. See in particular: B. LEE, Timothy. "Senator introduces bill to regulate data caps". *ArsTechnica*, December 20, 2012. [Online] http://arstechnica.com/tech-policy/2012/12/senator-introduces-bill-to-regulate-data-caps/ (page visited on May 16, 2014).
[173] WYDEN, Ron. *Data Cap Integrity Act of 2012*, Washington, United States, December 20, 2012. [Online] https://www.govtrack.us/congress/bills/112/s3703/text (page visited on May 16, 2014).
[174] KRAVETS, David. "Net Neutrality, Data-Cap Legislation Lands in Senate", *Wired*, Boone, United States, December 20, 2012. [Online] http://www.wired.com/2012/12/net-neutrality-data-bill/ (page visited on May 16, 2014).
[175] Op. cit. note 172 B. LEE, T., "Senator introduces bill to regulate data caps".
[176] COLLINS, Steve "*Controversial Data Cap Integrity Act", Active Broadband Networks*, Framingham, United States, December 26, 2012. [Online] http://www.a-bb.net/?p=90&option=com_wordpress&Itemid=227 (page visited on May 16, 2014).
[177] However, arguments that ISP costs are particularly high are rebutted by several commentators who have estimated the bandwidth cost for providers at about $0.02 per gigabyte. See BURGESS, Rick, "Former FCC chair: ISP data caps are about monetization, not network congestion", *Techspot*, Miami, United States, January 21, 2013 [Online] http://www.techspot.com/news/51392-former-fcc-chair-isp-data-caps-are-about-monetization-not-network-congestion.html (page visited on May 16, 2014).

c) Regulatory authority enquiries

Comcast's decision to give preference to content from one of its apps by not counting data transferred by Xbox also caught the attention of the Justice Department of the United States, which began an investigation in 2012 to verify if the download limits from Comcast could serve to prevent consumers from leaving traditional television services in favour of getting their content exclusively online.[178] Several companies were questioned in the context of this enquiry; not only were the business practices considered anti-competitive by some stakeholders, but they also conflict with the FCC's *Open Internet Order*, which prohibits preferential treatment of some content over another.[179] During the same period, Comcast decided not to apply its 250-gigabyte download limits.[180]

At the same time, the FCC's Open Internet Advisory Committee conducted a study on download limits, which reported some factual elements but offered only minimal concrete recommendations other than monitoring the situation. The committee stated, however, that download limits could become problematic, according to the evolution of usage and bandwidth demand, particularly if limits fail to evolve with consumer needs.[181] The report also indicates that the lack of knowledge of consumers on bandwidth consumption may be a source of problems and frustration, and undermines the efficiency of such a practice to control traffic (despite the fact that the 2010 guideline qualified download limits as a business model rather than an ITMP). But the few affirmations and concrete solutions in the report made some people say, with a touch of cynicism, that what it clearly demonstrates is that the FCC knows little about download limits. The organization Public Knowledge, which often pressures the FCC to intervene in this practice, indicated that market monitoring by the FCC is not efficient, and pointed out the regulatory authority's inaction since adoption of the *Open Internet Order*.[182]

[178] SANDOVAL, Greg. "Netflix not buying Comcast excuse about Xfinity data", *Cnet*. April 23, 2012. [Online] http://www.cnet.com/news/netflix-not-buying-comcast-excuse-about-xfinity-data/ & MUSIL, Steven, "Justice Department probes Internet video data caps, *Cnet*," June12, 2012. [Online] http://www.cnet.com/news/justice-department-probes-internet-video-data-caps/ (pages visited on May 16, 2014).
[179] Ibid. "Justice Department probes Internet video data caps".
[180] ANDERSON, Nate. "Comcast suspends 250GB data cap—for now", *ArsTechnica*, May 17, 2012. [Online] http://arstechnica.com/business/2012/05/comcast-suspends-data-caps-for-now/ (page visited on May 27, 2014).
[181] OPEN INTERNET ADVISORY COMMITEE. *Policy Issues in Data Caps and Usage-Based Pricing*, Washington, United States, August 20, 2013, 26 pages, page 11-14. [Online] http://transition.fcc.gov/cgb/oiac/Economic-Impacts.pdf (document consulted on May 16, 2014).
[182] WEINBERG, Michael. "After All These Years, We Still Don't Know Much About Data Caps", Public Knowledge, Washington, United States, August 22, 2013. [Online] http://www.publicknowledge.org/news-blog/blogs/after-all-these-years-we-still-donat-know-muc (page visited on May 16, 2014).

In a study on download limits,[183] Public Knowledge made several relevant recommendations, suggesting that real-time monitoring tools measuring usage be made available and that usage limits or other forms of volume billing take into account network congestion, and not be applied 24/7. The organization also recommended the government ensure that such limitations don't allow ISPs to reduce the competition for services offered via the Internet, and that it take action to prevent the billing model from replacing the required network investments. The organization considers that providers should give information on their service offers and document their impact on consumers. The organization also suggested that the FCC collect data on market concentration in the residential Internet access services sector, as it does on wireless services, to verify if competition in that sector is also influenced by the nature of the competitors in each region as it is in Canada.[184]

d) What future for American consumers?

Thus, although the imposition of download limits by service providers in the United States is modest and their application very flexible, the situation is not a reaction to a strict regulation, but instead to the obvious frustration of consumers and to political pressure. The consumer advocacy group Public Knowledge denounced the standstill of relevant authorities, despite numerous pressures and enquiries on the subject. The absence of strict regulations to control the way download limits may be imposed may affect American consumers, since nothing is settled. The recent ruling of the Washington Court of Appeal that declared part of the *Open Internet Order* unconstitutional is a clear illustration.[185] Following Verizon's objections, the Court sided with the provider, indicating that the FCC didn't have the necessary legal authority to apply the regulation that prohibits ISPs from invoicing content providers to access their network. The FCC could have avoided such an annoying situation if it had reviewed the status of broadband service providers,[186] which was not done at the time. At the moment, rather than having recourse to regulatory or legislative approaches to clarify the way American Internet access providers are subject to regulation, the FCC is working on the development of a weak regulation that would allow access providers to sign economic agreements with content providers as long as the agreements are commercially reasonable.[187] Some already see this as a fatal blow to the neutrality of the Web.

[183] Op. cit. note 133 GENIN, D. & J. SPLETT, *Where is Internet Congestion*, executive summary http://www.publicknowledge.org/documents/know-your-limits-considering-the-role-of-data-caps-and-usage-based-billing
[184] *Op. cit.* note 133 GENIN, D. & J. SPLETT, *Where is Internet Congestion*, p. 35.
[185] Op. cit. note 160 HAAL, M. "Une cour américaine porte un coup à la neutralité du net".
[186] GERSHMAN, Jacob. "Net Neutrality Ruling: What are the FCC's Options?" *Wall Street Journal*, New York, United States, January 14, 2014. [Online] http://blogs.wsj.com/digits/2014/01/14/net-neutrality-ruling-what-are-the-fccs-options/?mod=WSJBlog (page visited on May 19, 2014) & Op. cit. note 160 HAAL, M. "Une cour américaine porte un coup à la neutralité du net".
[187] The new FCC rules were still at a hearing stage at the time of writing these lines. See: SELYUKH, Alina. "Amid protests, U.S. FCC proposes new 'net neutrality' rules", Toronto Sun, Toronto, Canada, May 15, 2014. [Online] http://www.torontosun.com/2014/05/15/amid-protests-us-fcc-to-vote-on-new-net-neutrality-proposal (page visited on May 19, 2014).

4.2 A few European base lines

Before pursuing the regulatory context in other countries that were part of our comparative study, it seemed relevant to highlight a few interesting elements that may be found in European guidelines on Net neutrality, which may indirectly influence download limits.

Several decisions were rendered in the European community to ensure neutral access to the Web. In 2008, the European Parliament started a series of telecommunication reforms called "Paquet Télécom."[188] The objective was to preserve access to the Web. After much negotiation, the texts that would constitute the Paquet Télécom were adopted in 2009. Among the leading principles now guiding the market in the European Union, one holds that any restriction to Web access by national authorities must conform to the rights and freedoms of individuals and must be appropriate, balanced, and necessary within a democratic society.[189]

The European reform includes other provisions on Internet neutrality, in particular: the power of national authorities to impose minimum quality standards for broadband services "to promote the neutrality of the Internet and the freedom of the Internet for Europeans," within the context in which ITMPs or the development of new television functions using IP "may also be used to degrade the quality of other services to unacceptable levels or to strengthen dominant positions on the market."

The European reform also requires a reinforcement of the powers of national telecommunication regulation authorities, to keep their activities independent of political influence, and goes as far as to give national authorities the power to impose functional separation on certain companies, to force "telecommunication operators to separate the communication networks from the provision of service (…) to rapidly increase competition." This ensured greater legal security for the countries that have applied such measures. In addition, the reform calls for the acceleration of access to high bandwidth connections for all Europeans, following the switch to digital television.[190]

More recently, the European Commission adopted other regulations that will affect several telecommunication services. Once again, the objective is to protect Net neutrality across the European Union. The European Commission adopted rules to prohibit the blocking and limiting of Internet content "thus guaranteeing to users open and unrestricted Internet access, regardless of the cost or speed specified in their subscription." Providers maintain, however, the right to offer specialized services such as IP television "as long as the services don't alter the access speeds promised to other customers."[191]

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[188] At the time of its adoption in 2009, the Paquet included a guideline (2009/140/CE) that amended three existing guidelines (the access guideline (2009/19/CE), the authorization guideline (2002/20/CE), the framework guideline (2002/21/CE), and the private and electronic communications guideline (2002/58/CE)) as well as ruling (CE) No. 1211/2009 creating the Body of European Regulators for Electronic Communications (BEREC).

[189] MEYER, David. "European 'internet freedom' law agreed", *ZDNet*, November 5, 2009. [Online] http://www.zdnet.com/european-internet-freedom-law-agreed-3039860587/ (page visited on May 21, 2014).

[190] EUROPEAN COMMISSION. *"*Agreement on EU Telecoms Reform paves way for stronger consumer rights, an open internet, a single European telecoms market and high-speed internet connections for all citizens", on the European Union Web site, Brussels, Belgium, November 5, 2009. http://europa.eu/rapid/press-release_MEMO-09-491_en.htm (page visited on May 28, 2014).

[191] EUROPEAN COMMISSION. "*Commission proposes major step forward for telecoms single market"*, Brussels, Belgium, September 11, 2013. On the European Union Web site. http://europa.eu/rapid/press-release_IP-13-828_en.htm (page visited on May 21, 2014).

These new guidelines from the Commission also imposed "plain language contracts with more comparable information, greater rights to switch provider or contract."[192]

Some of these principles were reaffirmed by the European Parliament in 2014, which in particular provided a clear definition of Net neutrality and specialized services. The principle of Net neutrality thus implies that "traffic should be treated equally, without discrimination, restriction or interference, independent of the sender, receiver, type, content, device, service or application."[193]Specialized services could no longer be offered by an access provider unless the capacity was sufficient to prevent compromised access to the Internet. Contrary to the current American situation, two-speed Internet access is thus explicitly prohibited within the European Union. At the time of writing these lines, some application powers of this new guideline were still not adopted.[194]

4.3 Australia: very different controversies

Contrary to what is observed south of the border and in Europe, there are few debates in Australia on Net neutrality or on the imposition of download limits, even though it is among the few countries where download limits are imposed more often than in Canada. This absence of debate is all the more surprising since some providers are already favouring their entertainment content by not accounting for the bandwidth used by their own services.[195] Regulatory authorities in the telecommunication sector in Australia seem to have taken action less often on specific practices, giving priority to the implementation of major reforms and regulatory initiatives. It is impossible to talk about the Australian regulatory context without mentioning the vast *Telecommunications Consumer Protection Code*[196] and a national broadband network deployment plan that could have a major impact on the state of competition.

[192] EUROPEAN COMMISSION. "Commission adopts regulatory proposals for a Connected Continent", Brussels, Belgium, September 11, 2013. On the European Union Website. http://europa.eu/rapid/press-release_MEMO-13-779_en.htm (page visited on May 28, 2014).
[193] EUROPEAN COMMISSION. *Proposal for a regulation, Recital 45*, March 26, 2014, On the European Union Web site, http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+AMD+A7-2014-0190+237-244+DOC+PDF+V0//EN (page visited on May 21, 2014).
[194] MEYER, David. "European Parliament passes strong net neutrality law, along with major roaming reforms", *Gigaom*, San Francisco, United States, April 3, 2014. [Online] https://gigaom.com/2014/04/03/european-parliament-passes-strong-net-neutrality-law-along-with-major-roaming-reforms/ (page visited on May 21, 2014).
[195] THE SYDNEY MORNING HERALD. "Net neutrality - a debate we can't afford to ignore", Sydney, Australia, February 26, 2014. [Online]. http://www.smh.com.au/digital-life/computers/blog/gadgets-on-the-go/net-neutrality--a-debate-we-cant-afford-to-ignore-20140226-33hco.html (page visited on May 19, 2014).
[196] COMMUNICATIONS ALLIANCE. Telecommunications Consumer Protection Code, ACMA, Milsons Point NSW, Australia, 102 pages. [Online] http://www.commsalliance.com.au/__data/assets/pdf_file/0017/33128/TCP-C628_2012_May2012-Corrected-July12.pdf (document consulted on May 19, 2014).

a) Inform consumers to avoid bad surprises

Australia invested a lot of effort in battling bill shock via a telecommunication services provider code of conduct. While the code was written by the industry, the Australian Communication and Media Authority (ACMA) first requested the telecommunication industry to work on it to improve information provided to consumers. The ACMA can also intervene to ensure its application by requiring commitments from the industry or by filing lawsuits in federal court.

The code results from numerous hearings chaired by the ACMA on the state of telecommunication services in Australia, which have been the subject of an increasing number of complaints each year. The ACMA thus concluded that the lack of clear information on services is one of the main problems, leading to consumer dissatisfaction. Among the measures adopted, which apply both to mobile services and Internet access, is the obligation for Australian providers to make available, before signing an agreement, a summary of each offer that must contain certain information, in particular the price of the service, the usage limits, a description of usage limits that may be imposed, and the price per megabyte of data.[197] Advertising rules prohibit the description of a service as unlimited when it may in fact be subject to some usage limits.

The code requires that notices be sent to consumers when they reach certain thresholds of usage. All providers who impose additional usage fees after reaching a usage limit must do this.[198] Australian providers must send usage follow-up notices by e-mail (or text messaging, for wireless services) when consumers reach 50%, 80%, and 100% of their monthly usage.

Providers also have the general obligation of offering consumers at least one additional usage management tool, but the definition of “usage management tool” is surprisingly large: the prepaid service offer may be considered as a tool that allows usage to be managed, as well as services that may slow down navigation speed once the monthly limit is reached.[199]

As previously seen, all Australian service providers we studied indicate in their promotional documents that access speeds are slowed down once a customer’s limit is reached; providers thus by default exempt themselves from the obligation to offer usage management tools, as they do on the requirement to send follow-up notices on usage.

The ACMA confirmed to us that the industry practice of slowing down access speeds once a limit is reached is relatively old and did not result from the adoption of the code. We can infer, then, that broadband providers who participated in preparation of the code could simply have included in it a validation of their practice as a solution to one of the requirements of the regulatory authority. It remains, nevertheless, that these requirements of the code, even if they

[197] One of the problems in the code is that it doesn’t clearly explain if the price per megabyte is the price inside the package or the price per additional megabyte, or both values. Some contract summaries available online give a good idea of this clarity problem, since three modes of calculations are observed, in particular for mobile service packages.
[198] See Article 6.5 of the Code. Op. cit. note 195, THE SYDNEY MORNING HERALD, “Net neutrality - a debate we can't afford to ignore”.
[199] LAMBERT-RACINE, Sophy. *Limites d’usage des services d’accès à Internet mobile : informer et protéger les consommateurs*, Union des consommateurs, Montréal, Canada, June 2013, 202 pages, pages 111 to 114. http://uniondesconsommateurs.ca/docu/telecom/18-donnees-mobiles-rapport-F-complet-Fr-revise.pdf (document consulted on May 19, 2014).

are presently bypassed, could be useful if additional usage fees eventually become a standard in residential Internet access services.[200]

Based on our research, while Australian ISPs don't seem to have been in the hot seat with regard to the almost systematic imposition of download limits,[201] they must fulfill certain detailed information obligations, which give consumers access to relatively complete information on mandatory usage limits and protection (at least in part) against surprise fees resulting from additional usage.

b) Greatness and misery of functional separation

Historically, Australia is not a model in terms of Internet access. Australian regulatory authorities have often had conflict relations with the former telephone monopoly, Telstra, which was until recently a vertically integrated empire that had little difficulty or scruples in abusing its dominant position. ACMA regulations to unbundle the local loop may have had mitigated success, but at least stimulated competition somewhat: most Australians now have access to services from an incumbent provider and about two other DSL providers that are benefiting from ungrouping policies to deliver services.[202]

Given the evident competition problems and the interest in developing a next-generation network, the government adopted a structural separation policy for Telstra, requiring the company to divide its retail services from its wholesale services to prevent it from overly leveraging its retail services to the detriment of competitors.[203] At the same time, the Australian government started a plan worth more than $30 billion to build a next-generation broadband network, made mainly from fibre optic and available to all Australian providers, enabling them to

[200] E-mail conversation with an ACMA representative.

[201] Since download limits don't seem any more appreciated by Australian consumers than by Canadian and American ones (see in particular: HOPEWELL, Luke. "Sony Thinks It's 'Crazy' That Aussie ISPs Have Usage Caps", *Gizmodo*, Sydney, Australia, November 26, 2012 [Online] http://www.gizmodo.com.au/2012/11/sony-thinks-its-crazy-that-aussie-isps-have-usage-caps/ (page visited on May 19, 2014)), it may seem surprising that Australia didn't take a more definitive position on the business practice and on the problems related to Net neutrality. It would seem that certain countries in Oceania are disadvantaged by the ever-growing bandwidth demand and from a lack of competition for an international bandwidth access (to the backbone) ensured by rare underwater international fibre optic cables. Australia is thus confronted with technical, geographic, and economic challenges, due in particular to its distance from America. See particularly SAARINEN, Juha. "Pacific Fibre folds, submarine cable plans scrapped". *ITNews*, August 1, 2012. [Online] http://www.itnews.com.au/News/310541,pacific-fibre-folds-submarine-cable-plans-scrapped.aspx (page visited on May 19, 2014), HUTCHISON, James. "Doubts Cast Over Pacific Cable". *ITNews*, May 11, 2012, [Online] http://www.itnews.com.au/News/300243,doubts-cast-over-pacific-cable.aspx (page consulted on May 19, 2014), KORDIA. "Kordia and PIPE sign MoU to build new trans-Tasman submarine cable", Auckland, New Zealand, February 26, 2009, [Online] http://www.kordia.co.nz/_blog/What%27s_new/post/Kordia_and_PIPE_sign_MoU_to_build_new_trans-Tasman_submarine_cable/ & ANDERSON, Nate. "Australia's Internet: non-neutral and proud of it." *ArsTechnica*, February 9, 2010. [Online] http://arstechnica.com/tech-policy/2010/02/australias-internet-non-neutral-and-proud-of-it/ (pages visited on May 21, 2014).

[202] BERKMAN CENTER. "*Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world",* Harvard University, Cambridge, United States. February 2010, page 241. [Online] http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Berkman_Center_Broadband_Final_Report_15Feb2010.pdf (document consulted on May 19, 2014)

[203] While the first announcements on the subject were made in 2009, it was only in 2012 that the Australia Competition and Consumer Association approved the Telstra functional separation plan. See ABCNEWS. "ACCC green lights Telstra separation plan", February 28, 2012. [Online] http://www.abc.net.au/news/2012-02-28/accc-approves-telstra-separation-plan/3856848 (page visited on May 19, 2014).

compete on services rather than infrastructure. The new network promises speeds of up to 100 Mbps,[204] which were already observable when we studied Australian service offers. The frequency of download limits on fibre services were, however, almost equivalent to those for ADSL services.

The development of the broadband in Australia is, however, uncertain. The deployment of fibre is facing delays,[205] and the new government is questioning the Australian strategy, saying that the deployment of the network is too expensive and long to complete, and that it will make Australians pay more for their Internet access services. Instead, the government proposes a national plan to the node.[206] This change of plan, however, has many detractors (a petition signed by 272,000 Australians demands that the initial plan be maintained). Some members of the industry are pressuring government authorities to allow them to develop their own fibre optic infrastructure, which is presently prohibited.[207]

Unfortunately, the destiny of the ambitious plan of the Australian government, which could have revitalized competition in the sector, seems to be going to the dogs; the government had just announced, at the time of writing these lines, that it was bringing changes to broadband funding.[208]

4.4 United Kingdom: similar initiatives, different results

In this section, we will examine in particular specific information obligations that apply to Internet access services in the United Kingdom and that may be of interest to Canada. We will then finish with a few remarks on the regulatory context specific to the United Kingdom.

First, it should be noted that the Office of Communications (OFCOM), which is the United Kingdom's communications regulation authority, is not currently in favour of strict regulations to protect Net neutrality, indicating that it does not have particular concerns regarding ITMPs applied by providers, and considering that, despite the slowdown of flows for apps such as Skype by some providers, it doesn't intend to take action as long as consumers are informed of such practices.[209]

Some information obligations in force in the United Kingdom are similar to those imposed in Australia. The United Kingdom has also proceeded with the functional separation of its incumbent provider, but the impact of this policy was a lot less problematic than in Australia, and

[204] SINGEL, Ryan. "Aussies Announce $31B National Broadband Network", *Wired*, Boone, United States, July 4, 2009. [Online] http://www.wired.com/2009/04/aussies-announc/ (page visited on May 20, 2014).
[205] STURMER, Jake. "NBN rollout could face 10 year delay: expert", *ABC News*, March 23, 2013. [Online] http://www.abc.net.au/news/2013-03-22/nbn-rollout-could-be-delayed-by-10-years3a-expert/4589520 (page consulted on May 20, 2014).
[206] LEMAY, Renai. "Turnbull slams Twitter's NBN "craziness", *Delimiter*, Sydney, Australia. March 22, 2013. [Online] http://delimiter.com.au/2014/03/22/turnbull-slams-twitters-nbn-craziness/ (page visited on May 19, 2014).
[207] LEMAY, Renai. "'Severe impact': Rival FTTB plans worry NBN Co", *Delimiter*, Sydney, Australia, March 12, 2014. [Online] http://delimiter.com.au/2014/03/12/severe-impact-nbn-co-worried-rival-fttb-plans/ (page visited on May 19, 2014).
[208] DUCKETT, Chris. "Budget 2014: NBN rollout to be privately funded after mid-2018", ZDNet, May 13, 2014. [Online] http://www.zdnet.com/budget-2014-nbn-rollout-to-be-privately-funded-after-mid-2018-7000029377/ (page visited on May 20, 2014).
[209] OFCOM. *Annual Plan 2013-2014*, London, United Kingdom, March 28, 2013, 87 pages, page 38. [Online] http://www.ofcom.org.uk/files/2013/03/annplan1314.pdf (document consulted on May 21, 2014).

the positive results of the policy were rapidly felt in retail services. The United Kingdom model was incidentally cited by the European Union to justify the new guideline in its Paquet Télécom, which gives national authorities the power to apply structural separation policies.

a) Some obligations and information standards

OFCOM adopted in 2008 and updated in 2010 an industry code of conduct that addresses mainly Internet access speeds but also Internet traffic management practices. The code covers the question of usage limits. It is a voluntary code for the industry; in accordance with its regulatory framework, OFCOM must as much as possible draw on self-regulatory solutions. But it must also take into account the relevance of promoting broadband access throughout the United Kingdom as well as the opinions of consumers and members of the public within the various affected markets.[210]

The code seems to have been received positively by some consumer groups,[211] and contains a few passages on usage limits[212] as well as non-restrictive information obligations. The code of conduct states that providers that impose a usage limit in their acceptable use policy must specifically indicate that limit in a clear and accessible way. The provider must identify the actions that will be taken if the usage limit is exceeded, which includes, as the case may be, the amount of the additional applicable fees or information on smoothing practices that may be applied. The provider must also make available the tools required to monitor usage (when it is reasonable and possible to do so). Providers with their customers' e-mail addresses must notify them when they reach the limit indicated in their contract. The code suggests that providers should also send notices by e-mail when consumers reach certain thresholds.[213]

We mentioned earlier that unlimited services are very frequent in the United Kingdom, which probably explains that information obligations regarding usage limits are somewhat flexible. However, we noted that other information standards applying to services with unlimited usage were dictated by the Advertising Standard Authority (ASA). Various qualifiers may be used for unlimited services, but in general the specifications issued by this authority indicate that an unlimited usage service must correspond to the expectations of the majority of consumers on unlimited services, and that consumers subscribing to such a service must not be subject to service interruptions or to additional usage fees if they exceed the permitted use as described in an acceptable use policy.[214] The ASA has already issued decisions forcing two ISPs to modify their misleading advertising.[215]

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[210] See paragraphs 1 to 8 of the Code. OFCOM. *2010 Voluntary Code of Practice: Broadband Speeds*, London, United Kingdom, July 27, 2010 [Online] http://stakeholders.ofcom.org.uk/telecoms/codes-of-practice/broadband-speeds-cop-2010/code-of-practice/ (page visited on May 21, 2014).

[211] CONSUMER FOCUS. "Consumer Focus response to Broadband Stakeholder Group's (BSG) Voluntary Industry Code of good practice on traffic management transparency for broadband services", London, United Kingdom, March 15, 2011. [Online] http://www.consumerfocus.org.uk/news/consumer-focus-response-to-broadband-stakeholder-group%E2%80%99s-bsg-voluntary-industry-code-of-good-practice-on-traffic-management-transparency-for-broadband-services (page visited on May 20, 2014).

[212] OFCOM's Analyst Relations Department indicates that the same passages apply both to monthly usage limits and to uses deemed acceptable, which may (or may not) be set at a different threshold.

[213] See paragraphs 37 to 41 of the Code. Op. cit. note 209 OFCOM, *Annual Plan 2013-2014.*

[214] See ASA's information complement on the subject. ASA. *"Hot Topic: Broadband",* London, United Kingdom (no date), 4 pages. [Online] http://www.asa.org.uk/News-resources/Hot-Topics/~/media/Files/ASA/Hot%20Topics/Broadband%20hot%20topic.ashx (page visited on May 21, 2014).

[215] See particularly the decisions on the Virgin Media & BT services: ASA. *ASA Adjudication on Virgin Media Ltd*, London, United Kingdom, March 27, 2013. [Online] http://www.asa.org.uk/Rulings/Adjudications/2013/3/Virgin-Media-

Regulation of the state of competition

The United Kingdom is an obvious example of success when it comes to public policies put forward to stimulate competition and the general quality of services offered. While historically BT resisted more efficiently the local ungrouping policies than did former monopolies in other jurisdictions, the functional separation imposed on it certainly allowed competition to be revitalized in the market. In 2005, the United Kingdom was the first country to impose such a measure on an incumbent provider. Open access to communications infrastructure via OpenReach (the new wholesale provider independent from BT) has seriously stimulated competition in the provision of services. The availability of broadband services increased, and service prices decreased considerably, accelerating the adoption of such services by the population.[216] It was the United Kingdom model that served as an inspiration for the European Union policy, which brought about the possibility of imposing structural separation.[217] While some consider that such aggressive policies to stimulate competition may affect investments in next-generation networks, among all countries studied, the United Kingdom is the one that has, by far, the fastest minimal access speeds. The theory that investment and innovation will be undermined therefore seems not to be true in the UK.

4.5 France and Japan: dynamic competition motivated by efficient regulatory intervention

Markets in France and Japan are usually well ranked in comparative studies on Internet access services, because of the reasonable prices of services and remarkable access speeds that are available in these countries. While download limits are not standard business practices in these two countries, it is worth noting that the history of regulation in France and Japan, particularly regarding policies that ungroup the local loop, undoubtedly influence the quality of services offered.

Recognized as one of the markets that offers the most affordable Internet access services in the world, France has nonetheless had some difficulties implementing practices to strengthen competition in the Internet access service markets. Previously, the telecommunication regulatory authority had a tendency—at best—to follow guidelines issued by the European Parliament and the European Commission to stimulate competition in the telecommunication sector and to ungroup the local loop in particular.[218] The European Commission intervened in 2002 against the Autorité de régulation des télécommunications (ART), considering that the regulatory framework in France did not comply with the European guidelines. Changes that

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Ltd/SHP_ADJ_213114.aspx (page visited on May 21, 2014) & ASA. *ASA Adjudication on British Telecommunications plc,* London, United Kingdom, April 18, 20112. [Online] http://www.asa.org.uk/Rulings/Adjudications/2012/4/British-Telecommunications-plc/SHP_ADJ_170900.aspx (pages visited on May 21, 2014).

[216] Op. cit. note 202, BERKMAN CENTER, "*Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world".*

[217] Op. cit. note 189 MEYER, D., "European 'internet freedom' law agreed".

[218] OFFICIAL JOURNAL OF THE EUROPEAN UNION. *Règlement (CE) No 2887/2000 du Parlement européen et du Conseil*, Brussels, Belgium, December 18, 2000, 5 pages. On the ARCEP Website. [Online] http://www.arcepagefr/fileadmin/reprise/textes/reglements/reglement181200ce.pdf (document consulted on May 21, 2014) & EUROPEAN UNION. *Regulatory framework for electronic communications, guideline 2002/21/CE*, Brussels, Belgium, March 7, 2002 [Online] http://europa.eu/legislation_summaries/information_society/legislative_framework/l24216a_fr.htm (page visited on May 21, 2014).

followed had a positive impact on competition, allowing the emergence of new competitors that now have significant market share in Internet access services. Establishment of the Autorité de régulation des communications et des postes (ARCEP) led to increased leadership of the French regulatory authority, which contributed to better regulations in favour of competition.[219]

At the same time, the regulatory framework in Japan is also the story of a regulatory authority in a tug-of-war with an incumbent provider, in particular at the time of its privatization and following a few unsuccessful attempts by the regulatory authority to divide the company.[220] However, constant regulatory leadership and some changes brought to the communication regulation authority in Japan allowed the implementation of an efficient local loop ungrouping policy.

The Japanese regulatory framework is based on a particularly interesting approach: the criteria used in its last digital strategy take into account the final user's experience,[221] a formula that finds here deeper implications than the approaches of several other regulatory authorities, which are limited to observing the state of competition, and that can take into account consumer interests without necessarily taking a definitive position in favour of their final experience. The Japanese regulatory framework gives importance not only to Internet access speeds, but also to guaranteed connectivity between all persons and objects, thereby stimulating online innovation. In brief, it is not surprising that Japan is one of the countries where fibre has penetrated the most (and especially early on), since regulatory authorities want 'being connected' to be a given for consumers, who thus benefit from omnipresent access.[222] Japanese authorities continue to supervise the market and to update their regulatory framework to ensure it is applicable to all next-generation infrastructure.[223]

While parallels may be made between the situations in France and Japan regarding competition and successful regulation of access to the local loop, their pictures are somewhat different on the question of Internet traffic management policies. By request of its regulatory authorities, the Japanese industry implemented rather early on, through smoothing guidelines, a few basic rules to ensure Net neutrality. The Japanese guidelines advocate that the first response to congestion is investment in network capacity, smoothing being used only exceptionally and in a targeted manner when a user is seriously undermining other users' access. Furthermore, objective data must justify the usage of all Internet traffic management practices. Guidelines also specify that it is unreasonable to slow down all users of peer-to-peer file transfer apps since the provider has no means to determine if the files are transferred against the law. The implementation of management practices requires consumer consent and must respect their private life, which prohibits de facto the deep inspection of packets currently used by Canadian companies (with the blessing of the CRTC). Contrary to what is observed elsewhere, the P2P technologies are far from being demonized in Japan: research has shown that it would be difficult on Japanese networks, which are characterized as having the largest capacities in the world but also share

[219] Op. cit. note 202, BERKMAN CENTER, "*Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world",* p. 151-153.
[220] *Ibid*, page 284.
[221] A strategy that summarizes the formula: 4 "U" (literally "for you"): Ubiquitous (omnipresent access, anywhere, anytime…), Universal (for all), User-oriented, Unique (for active individuals, a society and vitalized companies), see in particular UESUGI, Shiro. *From e-Japan to u-Japan Japan's ICT Policy Movements,* Australia-Japan Research Centre, Canberra, Australia, undated. [Online] https://crawford.anu.edu.au/pdf/crawford_seminar/ap05_suesugi.pdf (document consulted on May 21, 2014).
[222] Op. cit. note 202, "*Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world",* p. 21.
[223] *Ibid*, page 285.

the challenge of network management, to correctly distribute new media content without using peer-to-peer data transfer techniques, which have the benefit of decentralizing access to network architecture.[224] Overall, while ITMPs are authorized in Japan, their use must be a last resort, and their application must respect consumers' rights.

Despite past attempts to protect Net neutrality using national legislation, in France, presently, there is no specific regulatory framework applicable to ITMPs. However, several general principles included in the Code des postes et des communications électroniques provide competent authorities with the power to intervene in this problem, by way of a power to protect Net neutrality.[225] These principles impose upon providers the obligation to be neutral in their transmitted messages. The Autorité de régulation des communications électroniques et des postes (ARCEP), which has the responsibility to ensure the "absence of discrimination (…) in relations between operators and communication service providers to the online public with regard to traffic distribution and access to its services,"[226] already addressed in a 2012 report the role it may play with regard to the protection of Net neutrality. While no specific intervention is recommended, the report clearly indicates that the ARCEP should remain ready to take action if the situation justifies it. At the moment, some business practices could be contrary to the intention expressed by the regulator, but the ARCEP indicates that "competitive intensity is serving to reduce these practices. In addition, the Authority has adequate tools to accelerate this reduction and, if need be, encourage prescriptive measures to end them. In particular, the ARCEP now has the expanded role of settling disputes and the authority to impose minimal service quality requirements."[227] It has in fact already tackled management practices considered problematic.[228] Therefore, while France doesn't currently have a specific regulatory framework, the situation is carefully monitored, and this monitoring seems to be bearing fruit.

4.6 Conclusion

This regulatory overview indicates that in numerous ways Canada regretfully continues to lag with regard to several foreign models that have proven to be effective. In terms of competition, while the American model leaves facilities-based providers with a dominant position, still greater than in Canada, there have been many debates to ensure Net neutrality and to limit anything that could hinder it. While the regulations adopted have been from the beginning hard to apply by the FCC, a leading regulation was partly invalidated following Verizon's objections, and

[224] HARRIS STEVENSON, John et al. *Regulatory Lessons for Internet Traffic Management from Japan, the European Union, and the United States: Toward Equity, Neutrality, and Transparency*, Toronto, Canada, 2010, 21 pages, pages 14-15. On the University of Ottawa Web site. [Online] http://www.gmj.uottawa.ca/1001/v3i1_stevenson%20and%20clement.pdf (document consulted on May 21, 2014).
[225] ROQUES, Fabien. "Neutralité du Net et gestion du trafic : quelles limites aux pratiques des opérateurs?", *LinkIPIT*, February 28, 2014 [Online]. http://www.ipnews.be/article-invite-3-neutralite-du-net-et-gestion-du-trafic-quelles-limites-aux-pratiques-des-operateurs/ (page visited on May 21, 2014).
[226] Ibid.
[227] ARCEPAGE *Rapport au Parlement et au Gouvernement sur la neutralité de l'internet*, Paris, France, September 2012, 134 pages, page 71. [Online] http://www.arcepagefr/uploads/tx_gspublication/rapport-parlement-net-neutralite-sept2012.pdf (page visited on May 21, 2014).
[228] ARCEPAGE "Neutralité de l'Internet: L'ARCEP clôt l'enquête administrative concernant plusieurs sociétés, dont Free et Google, relative aux conditions techniques et financières de l'acheminement du trafic", Paris, France, July 19, 2013. [Online] http://www.arcepagefr/index.php?id=8571&tx_gsactualite_pi1[uid]=1619&tx_gsactualite_pi1[annee]&tx_gsactualite_pi1[theme]&tx_gsactualite_pi1[motscle]&tx_gsactualite_pi1[backID]=26&cHash=3e1f6c03d0b85ed8e34f7b594f46e957 (page visited on May 21, 2014).

despite the fact that the future of Net neutrality in the United States is uncertain at the moment, download limits are nevertheless rarely applied by Internet access providers and are decried by a number of important stakeholders—with the former president of the FCC himself refuting providers' arguments that download limits are somehow useful in managing network traffic. Complaints from the public and threats from various authorities to legislate and investigate, even without much follow-up thus far, have nonetheless slowed down the providers that may have been considering explicit download limits that systematically include additional usage fees.

In terms of Net neutrality, Australia and the United Kingdom also seem somewhat weak on the question of regulation. However, ISPs are subject to various information obligations, and incumbent providers faced structural separation obligations to stimulate competition. The United Kingdom is today an international model in terms of service accessibility. Results from the Australian initiatives are presently very uncertain; only time will tell if the authorities in this Commonwealth country have been successful or not in their attempt to deploy an innovative national network while stimulating competition. Furthermore, Australia would be disadvantaged by the difficulty for that country of having an efficient access to the backbone, because geographic distances influence access conditions to other continents. Australian consumers at least benefit from the fact that ISPs must proactively give them information on several aspects, and this proactivity would de facto increase should they decide to systematically impose additional usage fees, as in Canada.

Japan and France largely eclipse Canada in service quality, but also on the leadership demonstrated by their regulatory authorities, which have ensured quality and efficient broadband access. The French regulatory organization monitors with vigilance any risk of obstruction to Net neutrality, while Japan does so even more, prohibiting certain management practices and placing the consumer at the heart of its digital strategy. In brief, even without an "economic traffic management practice," these countries intervene to ensure that the use of Internet traffic management practices is not abusive or anti-competitive and that these practices don't impede access to the global Internet, with Japan also emphasizing that they must be a last resort.

Canada would be well advised to model itself after these two countries, which in many ways compare advantageously with their international counterparts. Choosing specifically to be a world leader, Japan is far ahead of Canada. At least the wholesale services framework here allows some competition from independent providers, which practically doesn't exist south of the border. This can give some hope to Canadian consumers.

While Australia suffers from isolation, Canada's proximity to the United States facilitates efficient access to the Web. The difficulties we encounter are instead caused by facilities-based providers that continue to impose download limits on their retail services, having received unequivocal support from the CRTC. While the FCC gave a similar approval—although less exuberantly—other players in the United States have ensured a certain balance… which is unfortunately absent in Canada despite public discontent.

Conclusion: So? What do we make of download limits?

Our literature review found that while Canadian consumers are among the most devoted Internet users in the world and among the first to massively adopt the broadband, today they must deal with download limits that can lead to significant surprise fees if they exceed the limits imposed on them, and yet these extra costs appear to be designed to maximize the revenues of Internet service providers (ISPs) more than control congestion problems as they are claimed to do.

Canada is one of the countries where download limits are the most frequent, and several providers systematically impose additional usage fees, which during our study were among the highest. The situation is not uniform for all ISPs: independent providers across Canada and most facilities-based providers in the Maritimes and Western Canada are a lot more permissive than facilities-based providers in Quebec, which are by far those who impose the most restrictive download limits. However, while providers in other Canadian regions may be less restrictive in terms of limits and additional fees, they often offer less affordable services and compare poorly to many foreign providers.

Even though Australian ISPs don't do better in terms of prices and limits, they don't systematically impose additional usage fees, despite the fact that Australia faces major geographic constraints that interfere with its access to the Web. Elsewhere, particularly south of the border, bandwidth usage limits are a lot less restrictive and less frequent, while in the United Kingdom they are rare and imposed only on basic services, which are clearly among the most economical in our study (starting at $2 CDN). France and Japan don't impose any limits and even feature the best speeds among all countries studied.

The few Canadian providers that agreed to answer our questions acknowledged that download limits do not serve to control network congestion—which contradicts the CRTC's conclusion claiming that it was an Internet traffic management practice (ITMP) to be privileged. Canadian researchers and consumer rights advocates also contest the fact that download limits have some link with traffic-control measures, and denounce the negative consequences of such limits on consumers and on the development of innovative Web apps. They also contest the qualification of download limits as ITMPs, noting that such limits serve more to maximize the profitability of Internet access services while also preventing consumers from replacing their traditional communication services with the Internet—traditional services that are incidentally also sold by ISPs, who as facilities-based providers are the most convinced apostles of the usefulness of download limits.

From a regulatory standpoint, Canada is far behind the other countries we studied. The United States experience has demonstrated that even in a market where the state of competition is unenviable and where regulatory authorities are constantly targeted by legal suits, pressure from political authorities and civil society has forced providers to be flexible and to pull back from their plan to follow their Canadian counterparts. The Australian market is problematic in numerous respects, but the government has attempted to resolve the situation with major initiatives, particularly the construction of a broadband network and the introduction of a code of conduct that applies to all telecommunication service providers with the goal of controlling information provided to consumers and preventing bill shock. The United Kingdom has been relatively permissive on the question of download limits and ITMPs, but took vigorous action to strengthen its market; the success of its initiatives can still be observed today—one almost

understands why the OFCOM is so permissive in certain respects. In terms of regulation, the Japanese and French models are of interest for their significant leadership over numerous years in allowing efficient access to telecommunication infrastructure to stimulate competition. Japan stands out with its various strategies to make the very high broadband networks accessible, putting the consumer at the heart of its priorities. They are miles ahead (geographically, politically, and legally) of Canada.

Download limits are nothing more than a business practice guaranteeing additional revenues to ISPs and helping them maintain demand for their tele-distribution services, while possibly keeping contention rates too high as well. Download limits are not appreciated by consumers (whatever providers may say); they don't foster Net neutrality; and they adversely affect online innovation. In addition, they don't control congestion, nor do they enable invoicing that is proportional to the costs of providing Internet access. Instead, they encourage the user-pay principle, which isn't desirable, given the essential nature of broadband access, or justifiable, both because the content for which ISPs are imposing limits and adding charges doesn't belong to them and because the quantity of content transferred by a user doesn't generate additional costs for providers—the question of equity raised by providers is a sham. Finally, download limits don't allow consumers to benefit from predictable fees or to obtain monthly discounts… at least not in Canada.

The simple answer to the main question raised by this report—are download limits the best choice for consumers?—is NO. Some Canadian providers argued that they represent a wise choice in allowing all Canadian consumers access to quality services given the penchant of some for large amounts of bandwidth and the large distances to be covered. Our research demonstrates that these two arguments are fallacious. In fact, the economic and political context has for a long time favoured ISPs and has given them the liberty to choose and apply the pricing models that benefit them and guarantee their economic future, with minimum consideration for consumers' interests both by providers and, unfortunately, the CRTC. Still today, ITMP regulations pave the way for a business practice that is becoming increasingly rare around the world and is in fact the exception across the OECD.

More recently, the CRTC adopted several regulations that stand out from those rendered by the organization in 2009. The technologies used to deliver Internet access services have also evolved, and the demand for bandwidth is only increasing with the multiplication of services offered via the Web, which are based on new capacities of rapid and reliable transmission of increasingly heavy content over the networks. It is perhaps time for the CRTC and other authorities responsible for applying the laws (and creating them) to turn the page on this dark chapter of our history of Canadian Internet access services and to consider what the future holds for broadband services in Canada. Must we continue to approve a business practice that benefits ISPs alone, a rare practice in some Canadian regions and in other jurisdictions, and which is disappearing globally? Should we not re-establish the balance between providers' and consumers' interests, with innovation, broadband access, and Net neutrality? Must we accept losing our position as leaders in broadband access? The answers to all these questions are obvious from the evidence.

The situation must change. Canada must put consumer interests back at the heart of its concerns and initiatives. We must stop hiding behind geographic, technical, and economic excuses to justify pricing models that unduly disadvantage all citizens, particularly those who are still not using what we used to call the "information highway." And, too bad for the old tele-

visual content distribution models that facilities-based providers wish to maintain at all costs; they must evolve with new technologies and the rest of the world.

Canada can do better, by examining the situation and by taking action promptly to ensure a fair and free access to broadband for all consumers, regardless of their income or place of residence.

Recommendations

- Whereas the adoption of Internet access services in Canada is reaching a threshold approaching universality;
- Whereas Canadians are historically large Internet access users;
- Whereas access to bandwidth is essential for a majority of consumers, for professional, communication, information, and entertainment reasons;
- Whereas explicit download limits are nonexistent or rare in most OECD countries, and Canada is one of the countries where Internet access providers impose download limits the most frequently and on a more restrictive basis;
- Whereas additional usage fees imposed by some Canadian providers are among the highest in the world;
- Whereas several sources indicate that download limits may cause bill shock for consumers and prevent them from freely benefiting from all the innovative services and applications offered online and requiring a large volume of bandwidth;
- Whereas the imposition of download limits, which are associated with markets dominated by vertically integrated empires, may compromise Net neutrality;
- Whereas no recent (or older) and independent source demonstrates that download limits have any use in controlling network congestion on telecommunication networks; several sources explain, on the contrary, that monthly download limits don't have an impact on congestion, which is sporadic and caused more by an oversale of services according to their capacity;
- Whereas the pricing model imposed on consumers is out of proportion with maintenance and deployment costs and all other expenses related to the providers' networks;
- Whereas costs related to providers' networks are not related to the quantity of data downloaded by subscribers, but rather to technical changes and to traffic increases at access speeds that seem to exceed the real capacity of networks;
- Whereas CRTC regulations on Internet traffic management practices (ITMPs) wrongfully identify download limits as an ITMP;
- Whereas Net neutrality is essential to ensuring a free, democratic, and non-discriminatory Web access, a principle at the heart of the Internet since its creation;
- Whereas the CRTC has thus far not adopted a regulatory framework to explicitly protect Net neutrality, which is affected by both download limits and ITMPs;
- Whereas countries where no download limits are imposed (such as Japan) nonetheless have a code of conduct on the application of technical ITMPs or closely monitor the industry (as in France) to avoid anti-competition practices and to protect Net neutrality and democratic access to the Web by consumers;
- Whereas the CRTC adopted a vast code of conduct on wireless services, but neither it or anything else protects residential Internet access service users;
- Whereas Australia adopted a code of conduct similar to the CRTC's, but which covers all telecommunication services;
- Whereas some markets, such as the one in the United Kingdom, feature a variety of different services, with and without download limits, at affordable prices, thanks to a regulatory context favourable to consumers;
- Whereas the United Kingdom is a leader with regard to affordable Web access, particularly due to BT's functional separation;

Union des consommateurs therefore recommends that the CRTC

1. Begin working immediately on the implementation of a vast regulatory framework to ensure efficient protection of Net neutrality in Canada and better protection of consumers;
2. More specifically, Union des consommateurs recommends that the CRTC launch as soon as possible new hearings to update its Telecom Regulatory Policy 2009-657; we recommend, in particular, the revision of CRTC policies regarding download limits and additional usage fees, as well as those on the application of technical ITMPs and increased regulatory monitoring required by these practices;
3. Ensure that ITMPs not be authorized unless tangible evidence indicates they are applied in such a way as to be useful for traffic management, they are applied only as a last resort, and they are set at thresholds that don't discourage the use of large broadband services;
4. Ensure the availability of affordable quality Internet access services in all Canadian regions, to guarantee for all Canadians the opportunity to have efficient use of all innovative applications and services offered via the Web, including those requiring large volumes of bandwidth;
5. Study the possibility of imposing on Internet service providers mandatory rules of conduct particularly on new proactive information obligations and the publication, before an agreement is signed, of a summary including mandatory and standardized information such as the real monthly subscription price,[229] the level of download limits, the price per gigabyte inside the limit, and the price per additional gigabyte;
6. Limit additional usage fees that may be imposed on consumers following the overrun of their monthly usage limit;
7. Require providers to offer consumers real-time usage monitoring tools, including, in addition to the online usage record, various e-mails when consumers reach different usage thresholds and a notice by e-mail (or other mode of transmission) when consumers reach their monthly usage limit, with mention of the applicable additional usage fee (or for any other applicable service condition once their limit is reached);
8. Ensure providers that impose download limits and additional usage fees offer usage monitoring measures that give reliable, up-to-date, and accurate information to consumers;
9. Investigate to determine if it is necessary to review the regulatory framework of wholesale Internet access services to increase the availability of retail services without usage limits;
10. Conduct a feasibility study on the impacts of implementing a functional separation policy within the Canadian context.

- Whereas download limits are applied very differently across Canada, and some regions have only a few services offered without usage limits;
- Whereas in most regions studied, many similarities were identified between services offered by the main providers and their business models;
- Whereas the grouped service offered by facilities-based providers and their popularity among consumers give the main providers a major competitive advantage, which also constitutes an obstacle to mobility for consumers who wish to turn to alternate providers;
- Whereas restrictive download limits slow down the breakthrough and popularity of products and services that require quality access to broadband services;

[229] i.e.: Excluding promotional discounts and including all mandatory related charges.

Union des consommateurs therefore recommends that the Competition Bureau

11. Investigate the practices of facilities-based providers to determine if there are any anti-competitive behaviours, arrangements, or agreements as stipulated in the *Competition Act* or any barrier to Internet access services that could prevent consumers from fully enjoying the benefits of competition due to a lack of rivalry between large providers;
12. Investigate the practices of facilities-based providers to determine if there has been abuse of a dominant position, as stipulated in the *Competition Act*;
13. Use the coercive measures at its disposal to ensure, where appropriate, that the situation is corrected.

- Whereas many industry stakeholders and authors indicate that download limits have no effect on network congestion;
- Whereas many foreign providers impose little or no download limits on their customers (despite population densities and access speeds largely higher than those in Canadian centres), and many foreign providers that do impose limits do not feel the need to systematically impose additional usage fees;
- Whereas Internet services are the subject of numerous complaints to the Commissioner for Complaints for Telecommunications Services (CCTS), and the Commissioner has pointed out once more that additional bandwidth usage fees are problematic;
- Whereas the CCTS also indicated that consumers don't trust the usage monitoring measures offered by providers, and that providers don't take any actions to reassure consumers on this issue;
- Whereas the CRTC has recognized in its Telecom Regulatory Policy CRTC 2009-657 that "real-time usage monitoring tools available to users are important components of economic ITMPs";

Union des consommateurs therefore recommends that Internet service providers

14. Plan to offer more services without explicit download limits;
15. End the practice of systematically imposing additional usage fees to consumers who exceed their usage limits;
16. Multiply real-time usage monitoring tools and promote them to consumers;
17. Ensure that bandwidth usage measures are reliable and offer explanations to consumers on this issue.

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Appendix 1: Specifications on the Methodology (Chapter 2)

Canadian analysis

Prepared with information made available online by all the providers studied, on residential Internet access services. First collection from July 8 to 10, 2013, additional collection made from February 27 to March 5, 2014.

Providers studied (alphabetical order):

1. Bell Canada: Quebec
2. Bell Alliant: New Brunswick
3. Cogeco: Quebec
4. Colbanet: Quebec
5. Distributel: British Columbia
6. Eastlink: New Brunswick
7. Innsys: national (no province specifications in the documents)
8. MTS: Manitoba
9. Rogers: New Brunswick
10. Shaw: Manitoba/British Columbia
11. Telus: British Columbia
12. Teksavvy: Quebec
13. Vidéotron: Quebec

Foreign analysis

Prepared with information made available online by all the providers studied, on residential Internet access services. First collection from September 1 to October 1, 2013, additional collection made from March 6 to April 14, 2014.

Providers studied (alphabetical order):[230]

Australia

1. Exetel
2. Iinet
3. Internode
4. Optusnet
5. Southern Phone
6. Telstra
7. TPG

[230] No specific locations studied: unless otherwise specified.

United States

1. AT&T
2. Comcast
3. Cox Communications: Georgia
4. Glis.net
5. NetZero
6. Time Warner Cable: New York
7. Verizon: New York

France

1. Bouygues Telecom
2. Coriolis
3. Free
4. Numericable
5. Orange
6. Prixtel
7. SFR

Japan

1. Asahi
2. Assist Solutions
3. FusionGol
4. SpinNet

*Documents from the network providers NTT East, NTT West, and KDDI relevant to these providers and available in English were also studied.

United Kingdom

BT
Direct Save Telecom
Primus Saver
Sky
TalkTalk
Tesco
Virgin Media

Appendix 2: Questionnaires sent to Canadian stakeholders

These questionnaires were sent to various stakeholders on February 14, 2014 with two follow-ups in March 2014.

2.1 Version distributed to ISPs

union des consommateurs

QUESTIONNAIRE pour les fournisseurs

1. **Quelle est la (ou les) technologies employées par votre entreprise pour offrir des services d'accès à Internet résidentiel (ADSL, câble, avec ou sans fibre optique (FTTH et FTTN)?**

2. **Quelle proportion de vos services d'accès Internet comporte des limites de téléchargement?**

3. **Qu'est-ce qui justifie l'imposition des limites de téléchargement aux clients de détail?**

4. **Les justifications sont-elles les mêmes pour l'utilisation d'un modèle de tarification fondé sur la capacité, pour ce qui concerne les services de gros?**

5. **Si on accepte l'hypothèse que les limites de téléchargement sont utilisées comme pratique de gestion de trafic Internet…**
   a. Les niveaux auxquels sont fixées les limites de téléchargement sur le marché sont-ils raisonnables et proportionnels au but visé? Votre réponse est-elle la même, peu importe le type de fournisseur de service?

   b. L'imposition des limites de téléchargement est-elle un mal nécessaire ? Y a-t-il d'autres moyens de minimiser les risques de congestion?

6. **Les statistiques de l'OCDE indiquent que le Canada était en quatrième position des pays qui imposaient le plus fréquemment des limites de téléchargement en 2012. Comment expliquez-vous l'absence ou la rareté de limites de téléchargement dans la majorité des pays membres, alors qu'elles sont omniprésentes au Canada?**

7. **Quels sont les défis propres à la gestion du trafic de votre réseau?**

8. **En quoi ces défis sont-ils différents de ceux de vos concurrents?**

9. **Quel est votre taux de contention ? Comment a-t-il évolué au cours des cinq dernières années?**

10. **Où, dans vos réseaux, sont généralement susceptibles de se produire les congestions?**

11. **Quels moyens techniques employez-vous pour gérer le trafic de votre réseau?**

12. **En quoi l'utilisation de moyens de nature économiques (limites de téléchargement et frais de dépassement) pour gérer le trafic du réseau, en plus des moyens techniques, semble-t-elle être nécessaire?**

13. **À votre avis, comment les politiques actuelles du CRTC concernant la tarification des services d'accès à Internet de gros influencent-elles la nature des services offerts par les fournisseurs de services indépendants?**

14. **Quels sont vos revenus attribuables aux services d'accès à Internet de résidence? Quelle proportion est attribuable aux frais de dépassement de la limite de téléchargement?**

15. **Si vous deviez investir afin d'offrir exclusivement des services d'accès à Internet sans limite de téléchargement, quels types de dépenses seraient les plus coûteuses : coûts liés aux infrastructures (entretien, remplacement et mise à niveau des réseaux, notamment), coût du personnel, coût de services de transit IP, etc.? Spécifiez les proportions des investissements nécessaires.**

16. **Au cours des cinq dernières années, avez-vous fait des investissements qui ont servi à augmenter la capacité de votre réseau d'accès à Internet résidentiel?**

17. **Quels problèmes ces investissements ont-ils permis de régler? Ces investissements ont-ils été suffisants pour éliminer les risques de congestion sur vos réseaux (ou de les réduire significativement)?**

18. **La diversification des offres de services d'accès à Internet pour multiplier les services «illimités» fait-elle partie de vos projets pour les prochaines années?**

19. **Est-ce que vous prévoyez que le déploiement graduel de la fibre optique sur les réseaux de télécommunication aura un impact sur l'imposition de limites de téléchargement?**

20. **Le fait de relier la fibre optique jusqu'à la maison aurait-il un effet sur la prévalence des limites de téléchargement?**

Nous vous remercions de votre collaboration.
Veuillez nous retourner le questionnaire complété à :

UNION DES CONSOMMATEURS
Sophy Lambert-Racine, analyste télécommunications, radiodiffusion, inforoute et vie privée
T : 514 521-6820 poste 253
C : Slambert-racine@uniondesconsommateurs.ca

union des consommateurs

QUESTIONNAIRE for Internet service providers

1. **What are the technologies used by your business to provide residential Internet access to your customers (ADSL, cable, with or without fiber (FTTN, FTTH)?**

2. **What proportion of your retail services includes download limits?**

3. **What are the reasons explaining the imposition of download limits to retail clients?**

4. **Is capacity based billing to wholesale clients used for similar reasons?**

5. **If we accept the hypothesis that download limits are used as a network management practice...**
   a. Are download limits' levels reasonable and proportionate to the intended purpose? Would your answer stay the same, whatever the type of Internet service providers?

   b. Is the imposition of download limits a necessary evil? Are there other means to minimise the risks of network congestion?

6. **OECD statistics show that Canada is in the 4th place of countries most commonly imposing download limits. How do you explain the absence or rarity of download limits in most of those countries, while they are omnipresent in Canada?**

7. **What are the main challenges you have to deal with regarding Internet traffic management?**

8. **How are those challenges different from those of your competitors?**

9. **What is your contention ratio? How did it change in the past five years?**

10. **Where in your network, congestion is most likely to occur?**

11. **What technical means are you using to manage your network?**

12. **Why do the simultaneous use of economical practices (download limits and usage overage fees) and technical means are seen as necessary to ISPs?**

13. **In your opinion, how do CRTC's policies regarding price fixing of wholesale Internet influence the diversity of services offered by independent ISPs?**

14. **What is your annual income for retail Internet services? What proportion is owed to usage overage fees and download limits?**

15. **If you would invest to offer exclusively Internet access services without download limit, what types of spending would be the most costly: cost related to infrastructure (maintenance, replacement and update of networks, for instance), cost related to workstaff, peering, etc.? Specify the proportion of necessary investments.**

16. **Have you made investments to increase your network capacity for retail Internet services in the past five years?**

17. **What issues did these investments solve? Were these investments sufficient to end the risks of congestion (or reduce risks significantly)?**

18. **Do you intend to offer more retail Internet access services without download limits in the upcoming years?**

19. **Do you think the deployment of fiber in telecommunication networks will contribute to reduce the commonness of download limits?**

20. **Will the fiber connected to the home have an impact on the commonness of download limits?**

Thank you for your cooperation.
Please return the completed questionnaire to:

UNION DES CONSOMMATEURS
Sophy Lambert-Racine, analyst for telecommunications, broadcasting, information highway and privacy
Tel.: 514 521-6820 ext. 253
E-mail: Slambert-racine@uniondesconsommateurs.ca

2.2 Version distributed to the associations representing ISPs

union des consommateurs

QUESTIONNAIRE pour les membres de l'industrie (associations)

1. **Qu'est-ce qui justifie l'imposition des limites de téléchargement aux clients de détail?**

2. **Les justifications sont-elles les mêmes pour l'utilisation d'un modèle de tarification fondé sur la capacité, pour ce qui concerne les services de gros?**

3. **Si on accepte l'hypothèse que les limites de téléchargement sont utilisées comme pratique de gestion de trafic Internet…**
   a. Les niveaux auxquels sont fixées les limites de téléchargement sur le marché sont-ils raisonnables et proportionnels au but visé? Votre réponse est-elle la même, peu importe le type de fournisseur de service?

   b. L'imposition des limites de téléchargement est-elle un mal nécessaire? Y a-t-il d'autres moyens de minimiser les risques de congestion?

4. **Les statistiques de l'OCDE indiquent que le Canada était en quatrième position des pays qui imposaient le plus fréquemment des limites de téléchargement en 2012. Comment expliquez-vous l'absence ou la rareté de limites de téléchargement dans la majorité des pays membres, alors qu'elles sont omniprésentes au Canada?**

5. **Quels sont les défis propres à la gestion du trafic du réseau que rencontrent vos membres?**

6. **Quel est le taux de contention de vos membres ? Comment a-t-il évolué au cours des cinq dernières années?**

7. **Quels moyens techniques sont employés par vos membres pour gérer le trafic du réseau?**

8. **En quoi l'utilisation de moyens de nature économique (limites de téléchargement et frais de dépassement) pour gérer le trafic du réseau, en plus des moyens techniques, semble-t-elle être nécessaire?**

9. **À votre avis, comment les politiques actuelles du CRTC concernant la tarification des services d'accès à Internet de gros influencent-elles la nature des services offerts par les fournisseurs de services indépendants?**

10. **Au cours des cinq dernières années, vos membres ont-ils fait des investissements qui ont servi à augmenter la capacité de leurs réseaux?**

11. **Quels problèmes ces investissements ont-ils permis de régler? Ces investissements ont-ils été suffisants pour éliminer les risques de congestion de leurs réseaux (ou de les réduire significativement)?**

12. **Quelle est la proportion des revenus attribuables aux services d'accès à Internet de vos membres qui provient des frais de dépassement de la limite de téléchargement?**

13. **La diversification des offres de services d'accès à Internet pour inclure un plus grand nombre de services «illimités» fait-elle partie des projets de vos membres ou est-elle une orientation de votre association?**

14. **Est-ce que vous prévoyez que le déploiement graduel de la fibre optique sur les réseaux de télécommunication aura un impact sur l'imposition de limites de téléchargement?**

15. **Le fait de relier la fibre optique jusqu'à la maison aurait-il un effet sur la prévalence des limites de téléchargement?**

Nous vous remercions de votre collaboration.
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union des consommateurs

QUESTIONNAIRE for associations who represent ISPs

1. **What are the reasons explaining the imposition of download limits to retail clients?**

2. **Is capacity based billing to wholesale clients used for similar reasons?**

3. **If we accept the hypothesis that download limits are used as a network management practice...**

   a. **Are download limits' levels reasonable and proportionate to the intended purpose? Would your answer stay the same, whatever the type of Internet service providers?**

   b. **Is the imposition of download limits a necessary evil? Are there other means to minimise the risks of network congestion?**

4. **OECD statistics show that Canada is in the 4th place of countries most commonly imposing download limits. How do you explain the absence or rarity of download limits in most of those countries, while they are omnipresent in Canada?**

5. **What are the main challenges your members have to deal with regarding Internet traffic management?**

6. **What is the contention ratio of your members? How did it change in the past five years?**

7. **What technical means are your members using to manage their network?**

8. **Why do the simultaneous use of economical practices (download limits and usage overage fees) and technical means are seen as necessary to ISPs?**

9. **In your opinion, how do CRTC's policies regarding price fixing of wholesale Internet influence the diversity of services offered by independent ISPs?**

10. **Have your members made investments to increase their network capacity for retail Internet services in the past five years?**

11. **What issues did these investments solve? Were these investments sufficient to end the risks of congestion (or reduce risks significantly)?**

12. **What proportion of your members' annual income for retail Internet services comes from usage overage fees and download limits?**

13. **Do your members intend to offer more retail Internet access services without download limits in the upcoming years, or is it something your association pushes for?**

14. **Do you think the deployment of fiber in telecommunication networks will contribute to reduce the commonness of download limits?**

15. **Will the fiber connected to the home have an impact on the frequency of download limits?**

Thank you for your cooperation.
Please return the completed questionnaire to:

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2.3 Version distributed to groups and university experts who have defended consumers' rights

union des consommateurs

QUESTIONNAIRE pour les experts des services d'accès à Internet ou groupes de défense des consommateurs

1. **Veuillez décrire brièvement la mission de votre groupe (ou votre expertise personnelle).**

2. **Avez-vous réalisé des actions ou participé à des consultations concernant les services d'accès à Internet au Canada? Veuillez résumer les principales activités que vous avez réalisées à ce sujet au cours des dernières années.**

3. **On affirme souvent que les limites de téléchargement servent d'abord à gérer le trafic Internet et à éviter la congestion des réseaux. Que pensez-vous de cette affirmation?**

4. **Selon vous, pour quelles raisons les principaux fournisseurs d'accès Internet imposent-ils systématiquement des limites de téléchargement, alors que les fournisseurs indépendants le font plus rarement (ou au moyen de limites plus élevées)?**

5. **Si on accepte l'hypothèse que les limites de téléchargement sont utilisées comme pratique de gestion de trafic Internet…**
   a. Les niveaux auxquels sont fixées les limites de téléchargement sur le marché sont-ils raisonnables et proportionnels au but visé ? Votre réponse est-elle la même, peu importe le type de fournisseur de service?

   b. L'imposition des limites de téléchargement est-elle un mal nécessaire? Y a-t-il d'autres moyens de minimiser les risques de congestion?

6. **Les statistiques de l'OCDE indiquent que le Canada était en quatrième position des pays qui imposaient le plus fréquemment des limites de téléchargement en 2012. Comment expliquez-vous l'absence ou la rareté de limites de téléchargement dans la majorité des pays membres, alors qu'elles sont omniprésentes au Canada?**

7. **Quelles sont d'après vous les conséquences négatives de ces limites sur les consommateurs?**

8. **Existe-t-il des avantages aux limites de téléchargement pour les consommateurs?**

9. À votre avis, comment les politiques actuelles du CRTC concernant la tarification des services d'accès à Internet de gros influencent-elles la nature des services offerts par les fournisseurs de services indépendants?

10. À votre avis, l'offre de services d'accès à Internet (de gros et de détail) au Canada est-elle le reflet d'une industrie concurrentielle?

Nous vous remercions de votre collaboration.
Veuillez nous retourner le questionnaire complété à :

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union des consommateurs

QUESTIONNAIRE to experts of Internet access services and consumer advocacy groups

1. **Can you briefly describe the mission of your organisation or your field of expertise?**

2. **Have you engaged in any actions or participated in public consultations about Internet access in Canada? Please describe briefly your main activities regarding Internet access in the past few years.**

3. **We often hear that limits to transfer capacity are used primarily to manage Internet traffic and to avoid network congestion. What is your opinion on that affirmation?**

4. **In your opinion, why are Internet service providers (ISP) steadily imposing download limits, considering the fact that independent Internet service providers do it more rarely (or with much higher download limits)?**

5. **If we accept the hypothesis that download limits are used as a network management practice...**
   a. Are download limits' levels reasonable and proportionate to the intended purpose? Would your answer stay the same, whatever the type of Internet service providers?

   b. Is the imposition of download limits a necessary evil? Are there other means to minimise the risks of network congestion?

6. **OECD statistics show that Canada is in the 4th place of countries most commonly imposing download limits. How do you explain the absence or rarity of download limits in most of those countries, while they are omnipresent in Canada?**

7. **What are the negative consequences of download limits for consumers?**

8. **Are there any advantages to download limits for consumers?**

9. **In your opinion, do CRTC's policies concerning price fixing of wholesale Internet have an influence on the diversity of services that independent ISPs can offer?**

10. **In your opinion, is the offer of Internet services (wholesale and retail) in Canada that of a competitive market?**

Thank you for your cooperation.
Please return the completed questionnaire to:

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Appendix 3: Original quotations from Anglophone stakeholders (Chapter 3)

These quotes were subject to loose translation in the French report.

Rogers

Traffic volumes cause costs as network capacity must be increased. Consequently, higher volume users that cause costs are charged additional usage fees when they exceed the usage allowance in their package (...) The monthly rates for the various packages increase with higher speed/higher usage allowance packages having higher rates than lower speed/lower usage allowance packages because higher volumes that are enabled by higher speeds cause more costs.

Statistics show that Canadians are among the heaviest users of the Internet in the world. Comscore Canada Digital Future in Focus, March 19th 2013 reported that 'Canadians spend more than 41 hours per month online on their PC, representing the 2nd highest across the globe, and they rank 1st in terms of monthly pages and visits per visitor. (...) This level of traffic requires high capacity networks that impose greater costs on network providers than in other countries.

Rogers currently spends hundreds of millions of dollars in increasing capacity and maintaining that increased capacity annually to meet increases in traffic.

The principal challenge Rogers faces in regard to internet traffic is constructing additional capacity to meet 40-50% annual traffic growth each year. This has been Rogers experience since the late 1990s. Rogers believes that all Canadian facilities-based internet providers experience this challenge.

With regard to the second question, Rogers does not have network congestion. Rogers increases its network capacity to carry the traffic load that customers present to it. Rogers increases capacity when traffic reaches 60% of capacity on a neighbourhood segment at peak period. Through these practices Rogers builds the capacity needed to prevent congestion that would otherwise occur.

Countries without differentiated usage allowances accept a greater degree of cross-subsidization of heavy users by light users presumably because traffic volumes are of lower overall levels on average. (...) Different companies offer different packages reflecting their individual cost structures and marketing approaches. All companies attempt to have their total revenues cover their total costs. Rogers' rating approach allows for recovery of total costs with recognition of the fact that heavy volume users should pay more than light volume users as they impose more costs.

PIAC

PIAC also noted that some ITMPs are imposed for economic reasons by the ISP and that this fundamentally causes a misalignment with consumer interests. Our findings in this report note that consumers greatly dislike "bit caps" and overage charges for internet services, despite the use of these by ISPs.

It is likely that congestion is a factor that leads ISPs to impose download limits across all providers. (...) while ITMPs seem to indicate a bandwidth shortage by the ISPs it remains unclear as to whether this is actually occurring (...) According to some ISPs ITMPs ensure that the limited capacity of internet networks can be equally used among all users of internet services, thereby doing away with "bandwidth hogs." It remains unclear however whether this concern is a necessary consideration by ISPs in order to manage their networks. For example, as an alternative to undertaking ITMP measures ISPs could build capacity within their own networks to reduce congestion.

Whether these limits are necessary depends, in part, on the type of technology used to access the internet. For example, in - Telecom Decision CRTC 2008-108 the CRTC found that the only way for the traffic on DSL congestion to be managed was through the practice of "throttling." As time and technological access methods change we also expect that limiting some ITMP would also change.

CIPPIC

The reason why ISPs find such mechanisms so compelling is that they are highly lacking in transparency. Customers are not able to predict how much a given interaction will 'cost' them. The result is either that customers are pushed into costly over-insurance schemes that inflate their monthly costs significantly in order to provide additional usage allowances, or that customers are forced to bear occasional heavy penalties for over-using in a given month, or that customers simply curb usage to excessive degrees.

With respect to wireline annual traffic growth rates in particular, these are at historical lows, meaning that ISPs are able to continue building their networks in order to accommodate this growth (and, hence, avoid network congestion) with modest amounts of annual capital investment. There is therefore no need for transfer limits as a means of managing network congestion. (...) Moreover, with respect to economic transfer limits, these tend to be based on a particular user's monthly usage and have minimal correlation to actual network congestion. Actual network congestion manifests in seconds and is primarily focused around a 4-5 hour daily period of 'peak period' network usage. (...) However, individuals forced to curb their usage of networks in order to avoid monthly fees are more likely to limit their 'off peak' usage and instead concentrate all of their usage in the peak period, because peak period usage is more valuable to users.

ISPs have tried to impose usage limits on customers in other jurisdictions, but have not succeeded as this type of usage is highly unpopular with customers. The ability to impose this billing model on individuals in Canada, in spite of widespread customer preferences for flat rate usage models, is indicative of the lack of competition in Canadian network service provision.
However, the wholesale market is not sufficiently robust to provide sufficient competitive pressure on incumbents to push them to shelve what is a lucrative pricing model with their own

customers. Nor are there enough competitors to ensure there is sufficient pressure on monthly rates. Removing the markup that currently accompanies wholesale rates may increase the ability of wholesale ISPs to compete more effectively.

Open Media

We believe that monthly limits in the range of 20 GB on a 2.8 Mbps service, which are prevalent in Canada, more closely resemble attempts to increase revenue rather than narrowly tailored attempts to manage traffic.

Many of the most innovative products and services being developed for the Internet today rely on users' ability to access large amounts of bandwidth. Since the majority of OECD countries (such as the United States) do not have ubiquitous monthly usage caps, these services and business models are designed in a manner that assumes customers will be able to use a large amount of bandwidth without incurring additional costs. High-bandwidth video streaming services, for example, are less likely to migrate to an environment where high monthly usage costs make it more difficult to compete with traditional television and IPTV offerings.
Thus, overly restrictive bandwidth caps will stifle any innovators from utilizing the full potential of the Internet in developing their future services and products.

The best way to tackle network congestion is to build better networks. Canada is falling far behind our global counterparts when it comes to Internet access and speeds. The government should use its $5.2bn digital windfall from the recent wireless spectrum auction as a digital endowment - investing it in creating world-class networks to ensure every Canadian has independent and affordable options outside the stranglehold of the Big Three. (...) It is crucial to split off Internet infrastructure from big telecom companies to ensure digital networks are open for a range of providers to service residents of Canada unencumbered. Without it, independent ISPs will be unable to operate on a level playing field and offer Canadians the higher speeds and lower prices they deserve.

Benjamin Klass

In my opinion, the primary use of data caps is not to manage Internet traffic and to avoid network congestion, but to:
a.) generate revenue for network owners;
b.) protect ISPs' affiliated or otherwise jointly-owned broadcasting services (programming and/or distribution).

Although the CRTC recognizes that network owners have a legitimate interest in managing the traffic on their networks, there is considerable evidence to suggest that data caps are not an efficient, let alone effective, means of managing that traffic.
Using data caps as the primary means of managing network congestion is akin to swatting flies with a bazooka.
The marginal cost of providing incremental data use is vanishingly small, while the price increases consumers face with increasing usage is dramatic. (...)This discrepancy stems from the fact that network costs are more closely related to capacity, measured in bandwidth or throughput, than they are to monthly data consumption.

Excessive or Acceptable usage policies ("AUPs") allow network operators, at their discretion, to limit throughput available to customers who pass a certain threshold of monthly Internet usage deemed to cause adverse effects to the experience of other users. The fact that AUPs are applied to both capped and unlimited data plans casts doubt on the necessity of hard data caps. Typically much higher than explicit data caps, AUPs typically reserve the right to "throttle," i.e. slowdown, a customer's network usage past a point at which such usage adversely affects other users." If the point at which congestion is caused as identified by an AUP is much greater than the point at which overage fees are triggered, then can the latter really be construed as a legitimate traffic management practice?

... Canadians are encouraged to restrict their use of the Internet. This negatively affects consumers' range of choices for downstream services, including but not limited to various news outlets, social media, video services, gaming, cloud applications, software updates, and so on. Suppression of consumer demand for downstream services by ISPs who employ hard data caps has potentially detrimental consequences for both the supply and demand sides of online markets.

Improving open access stipulations remains on the agenda at the CRTC, as there is currently a proceeding to consider the appropriateness of extending mandated wholesale access to next generation fibre-to-the-home (FTTH) facilities. This proceeding represents an important opportunity for the CRTC to revitalize its approach by establishing a robust framework to promote independent competition in the wireline ISP market. Establishing the conditions for a functionally competitive market to emerge going forward will be key to ensuring that network traffic management practices are employed proportionally to need and only when necessary.

Online Party

In your opinion, why are Internet Service Providers steadily imposing download limits, considering the fact that independent service providers do it more rarely?

Conflict of interests. Internet TV replaces TV services slowly and they lose TV subscription income.

Michael Geist

In your opinion, why are Internet Service Providers steadily imposing download limits, considering the fact that independent service providers do it more rarely?

It is driven by profitability motives

What are the negative consequences of download limits for consumers?

Higher prices, more costly to use the Internet