

Initial Comments Vaxination Informatique

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**In the matter of
CNOC's March 2nd 2012
Application to Review and Vary Telecom
Regulatory Policy 2011-703 and 2011-704 and
related follow-up matters**

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Introduction

1. Vaxination Informatique presents its comments on CNOC's comprehensive March 2nd Review and Vary application for 2011-703 and 2011-704 and related follow-up matters.

Summary of issues

2. The CNOC Review and Vary Part 1 application has raised many issues. Some are simpler to deal with, but the big one concerns the way in which the Commission arrived at the capacity rates for each incumbent.
3. While the incumbents will likely try to twist this application as a request to introduce 95% percentile (as they have done for CNOC's Part 1), Vaxination does not see any request to change the billing model adopted by 2011-703.
4. The big problem is that the error in the capacity pricing is of such magnitude that ISPs could quickly become unable to compete as their costs rise at a great rate while incumbent's own costs continue to decline, following industry trends.
5. This document will begin with a "big picture" discussion on how the 703 rates fit within the policy direction objectives, then deal with the easier issues, and finish with Vaxination's contribution to CNOC's arguments on why the capacity rates are wrong.
6. So, fasten your seat belts, fit back, relax and enjoy the reading...

Policy Direction Objectives

7. The large number of R&Vs on the 703 decision will force the Commission to make many decisions. Luckily, in the 2 months since implementation, some observations can be made on areas of the 703 decisions which have successfully advanced the Policy Direction and which areas still need some work.

Success with Vidéotron TPIA

8. The removal of the retail UBB scheme imposed on the Vidéotron TPIA service for a decade has spurred the birth of competition in the Québec TPIA market. This market had been stagnant because ISPs could not differentiate themselves on cable and were stuck with ancient speeds on the less reliable DSL service (with a threat of UBB lasting years).
9. This changed dramatically on February 1st with a number of TPIA ISPs unleashing new packages with a variety of price points and differing usage limits. In fact, some ISPs have since adjusted their pricing because they were losing customers to other ISPs who had better pricing (or higher limits) for certain speeds.



In February, Distributel had a highly visible marketing campaign in the Montréal Métro

10. In February, Distributel launched a major advertising campaign in the Montréal métro (on station platforms and inside métro cars). While Vaxination does not have the numbers of customers acquired by Distributel, it should be noted that the métro carries over 700,000 people everyday and these people now know there are options and competitors to the incumbents.

11. Electronic Box, based in Longueuil QC also unveiled new TPIA pricing. In the past, they grew by about 150 TPIA customers every 2 months. During February and March, they grew by over 1000 and have had to create 3 new jobs to handle the increased call volume and have announced 3 more job openings in April. This was achieved without a formal advertising campaign. They had to stop-sell certain speeds while awaiting implementation of capacity upgrades.

12. This clearly shows that reducing the incumbent's control over the ISP's retail offering is the direction to take and enabling the ISPs to compete both on price and features is required to let them grow to eventually reduce the control of the market exerted by the incumbents.

Success and failure of the DSL market

13. During the Industry Committee hearing in February 2011 as well as the 2011-77 hearing in July, the issue of off peak pricing was raised. Incumbents clearly said it was impossible or would take years and cost \$###,###,###.##¹ to implement.
14. However, many ISPs were able to implement this in a couple of months by using existing features of their routers and without having to break into Fort Knox to pay for this change. However, due to technology and network architecture, this is only possible on the GAS/DSL service where ISPs control the IP address assignments and can associate usage to a customer. This is not possible in the current TPIA environment in a reliable manner.
15. This clearly shows that the small ISPs really can deliver innovation and differentiation in rapid pace and low cost when given the opportunity. Fostering the growth of the small ISPs definitely advances the goals set by the Policy Direction.
16. The introduction of the 703 rates for Bell's GAS service has resulted in costs being slightly reduced for ISPs catering to aunts and grand mothers, while costs rose significantly for ISPs who cater to more bandwidth hungry customers². While this is not unexpected in a "user pays" philosophy (which is not being challenged), **the question is whether the capacity rates are disproportionately high.**
17. With disproportionately high capacity rates, it means that ISPs who have bandwidth hungry customers will not only subsidize those ISPs who cater to aunts and grand mothers but will also generate excessive profits to incumbents. (Does "fair and reasonable" ring a bell ?)
18. In the real world where capacity providers act in a commercial and competitive manner, capacity costs have generally dropped at roughly the same rate as usage has increased, allowing ISPs to maintain competitive and stable pricing.
19. This is why the CNOC R&V is extremely important because the **usage growth under the current 703 rates will quickly force the ISPs to price themselves out of the market**, thus negating the positive aspects of the 2011-703 decision.
20. The success described in the previous page on Vidéotron will be short lived because the current capacity rates are high enough that natural usage growth will force the ISPs to raise their retail pricing at a much faster rate than incumbents and quickly become unable to compete.

1 "Gazillion of dollars", written in a way the incumbents can understand.

2 Early adopters may be called "bandwidth hogs" but their type of use eventually becomes the norm.

Competition at the wholesale level

21. Vaxination notes and supports the Commission's efforts to make TPIA services more competitive with those of GAS. Transforming the wholesale market into a competitive one where cable and telcos compete to win small ISP's business is a laudable goal which, if reached would reduce the need to discuss the regulatory four letter word "**functional separation**".
22. However, while TPIA has been made more palatable (especially in Québec), there are still many indications that the incumbents behave as monopolistic incumbents instead of competitive commercial operators.
 - (a) Electronic Box may have acquired over 1000 new TPIA customers in the last 2 months, but it only acquired 80 new DSL subscribers. This is 33% drop in DSL acquisition rate compared to the past instead of an increase due to the new rate structure.

This is in part due to Bell Canada's series of fees such as dry loop, DMCs etc as well as the less reliable nature of DSL and the high prices of FTTN once you factor all the additional fees. Bell's loss of market share accelerated in the last couple of years and is accelerating in the post 703 world.
 - (b) Instead of offering off-tariff lower rates to stop the loss of customers and regain some market share, Bell filed an R&V asking the Commission to raise rates with arguments on the longevity of concrete, and the capital cost implication of a plastic connector to attach copper loops at the telephone pole. This would never be seen in a competitive environment.
 - (c) During the debate on the service charges, some cable companies published a spreadsheet detailing some of the costs of processing an order. The amounts of time listed would be worthy of a Monty Python sketch depicting inefficient large corporations or government. (does it really take a cable 20 minutes to forward an email in a cable company?)
 - (d) When Rogers argues that its CMTS need to be replaced when capacity reaches 60% perhaps it should really be read as "Our company takes so much time to process the paperwork to authorize the purchase of additional hardware that we must start the process 8 months before the hardware reaches the target limit of 75% utilisation".
23. Incumbents have been so comfortable with their ability to raise prices due to their control of the market that they never had incentives to increase their internal efficiency, especially at the wholesale level where they are not only guaranteed to recuperate their costs, but also have a motivation to inhibit competition from the ISPs.
24. As it is clear that left to their own devices, the incumbents will remain bloated enterprises with no incentive to lower their wholesale costs to compete, the Commission is fully justified in taking whatever regulatory action is needed in order to achieve a trend of increasing competition which will reduce the power the incumbents have over the market.

Policy Direction Objectives

25. Bell Canada can point to some off-tariff efforts to lower prices. For instance, at the start of March, Bell Canada announced it would waive the \$90.65 fee to install FTTN provided the installation was performed in March. Moving legacy or acquiring new customers to FTTN speeds changes the capacity equations and any ISPs who would needed to purchase additional capacity would not be able to take advantage of this offer since the additional capacity would be delivered after the end of the promotion. Had the promotion been announced just over one month ahead of its start (or promotion held for at least 2 months), it would have had a greater impact.
26. Therefore, the Commission must be careful with some of the nice PR that is likely to come from incumbents because there is often some hitch that makes those offers of little value to the ISPs.

Request to make capacity rates interim

27. In its R&V, CNOC requests that the capacity rates be made interim to allow for retroactive billing once the Commission renders a final decision.
28. Vaxination opposes this request for the same reasons it opposed the incumbent's request for interim approval.
29. Because the outcome is not known, ISPs cannot prepare in advance for the outcome of this (as well as the numerous other R&Vs on 2011-703).
30. A retroactive price increase would financially hurt the ISPs who would not be able to retroactively bill their retail customers.
31. A retroactive price decrease would not benefit end users as the refunds would only go to the small ISPs and the Commission has no regulatory powers to order the ISPs to refund their retail customers (since the small ISPs are not regulated)
32. Furthermore, any threat of retroactive billing of unknown amounts adds to uncertainty in the market and prevents ISPs to proceed with their business plans.

TPIA transition period

- 33. CNOC requests that the TPIA transition period for ISPs still on the un-aggregated system be extended to 3 years, with justification being the incumbents insisting on 3 year contracts for the interconnect links between the ISP and the POIs.
- 34. The contractual issue could easily be solved by ordering incumbents to allow the transfer of contracted interconnect link capacity when the ISP switches to the aggregated system.
- 35. The goal of such contracts is to commit the ISP to continued purchase for 3 year. A contract signed today should allow for a link between the ISP and un-aggregated POI to be moved to the aggregated POI without having to break the contract, with the new link remaining on contract for the remainder of the original 3 year contract.
- 36. This system would allow an ISP to renew contracts for links to un-aggregated POIs right up until the day before the ISP moves to the aggregated model with whatever time remaining in the contract applying to the new link.
- 37. Under the CNOC proposal, merely extending the grandfathered period to 3 years would not solve the problem since contracts expiring next year would still need to be renewed for 3 years despite only 2 years remaining of the proposed 3 year grace period.

Is the grandfathering fair ?

- 38. The 2011-703 decision recognises that ISPs who have un-aggregated POIs require some time to move to the new aggregated model. However, any ISP wishing to establish TPIA service does not have the choice and must connect using the aggregated POI. Should there be any advantages to continued use of the un-aggregated model, this would give an unfair advantage to those ISPs still on the un-aggregated and would therefore not be competitively neutral.
- 39. The current un-aggregated rates were set some time ago with certain expectations on usage. Since usage patterns continue to grow, the Commission must ensure that if grandfathered rates are to remain in place for 3 years, that usage at the end of the 3rd year will still be within the assumption made when the rates were set. If not, it means that those ISPs on aggregated model will end up having to subsidize those on un-aggregated model whose rates would be frozen.
- 40. One possible solution would be for the Commission to publish capacity based rates for the un-aggregated connections. Such rates would be similar to the aggregated model, except they would not include the cost of transit between the un-aggregated POIs and the central aggregated POI. This would ensure ISPs using the un-aggregated POIs are not given an unfair advantage.

Rate for the 7mbps upload

41. For its retail service, Bell Canada charges \$5.00 for an upgrade up the upload speed from 1 mbps to 7mbps on services other than the 25mbps (which includes 7mbps by default).
42. Bell Canada is imposing its own retail pricing (minus random discount to give the price a retail look of \$3.95. (the discount is 21%).
43. Bell Canada has not provided cost based justification for this. And there is good reason since there is no cost justification. It has simply decided that the 7mbps upload has value from a marketing point of view and assigned a subjective pricing to it. Applying artificial retail pricing onto a wholesale service is unacceptable.
44. The last mile technologies (copper on DSL and coax on cable) have asymmetrical speeds. In the case of copper DSL, the last mile is dedicated. Therefore, once the costs of the DSLAM access port is paid, there is no costs to enabling the full use of upload capacity.
45. Between the DSLAM and the POI (covered by the capacity costs), the network technologies used are symmetrical in nature. (same capacity for upload and download). Therefore, the upload can ride back to the ISP using the same purchased capacity since it fits comfortably within those limits.
46. 7mbps upload speeds require a VDSL2 profile. However, speeds which qualify for the 7mbps uploads require the end user already be connected to a remote. Therefore, if a user qualifies for a 7mbps upload, it means that the remote to which user is connect has VDSL2 capabilities. Thus, the upgrade consists of applying a different profile for the user, and is no different whether the user was on ADSL2 or already of VDSL2 profiles.
47. A change from ADSL2 to VDSL2 does require a change of modem. However, this is a one time item and discussed elsewhere in this document.
48. It must also be noted that the 7mbps speed comes with the 25mbps service by default, and the Commission did not justify a significant price difference between the 16 and 25mbps access rates.
49. **Therefore the Commission must forbid Bell from charging extra for the 7mbps upload.**
50. Furthermore, if the Commission judges that this rate was not approved, it should order Bell Canada to refund ISPs for all the \$3.95 fees paid since the 2011-703 decision came into effect on February 1st.

VDSL2 Modem rental fee

51. The 5440 tariffs currently in effect and available from Bell Canada's web site³ makes no mention of an \$8.00 modem rental fee. Neither does the 2011-703 decision.
52. While FTTN speeds of 6 10/12 and 16 can be achieved with industry standard ADSL2+ modems available for purchase from many sources, the 25mbps service requires a VDSL2 modem available exclusively from Bell Canada with (allegedly) Bell Canada specific firmware to deal with bugs in its DSLAMs. The 10/12 and 16 speeds with the 7mbps upload speeds also require the VDSL2 modem.
53. In the case of the 25mbps service, since the modem is an unavoidable cost, it must be part of the regulated tariff unless Bell Canada agrees to allow ISPs to obtain the modems with Bell's specific firmware from at least 1 alternate source.
54. The same rules should apply to the lower speed services with 7mbps uploads which also require this modem.
55. It must be noted that this \$8.00 fee is a true impediment to adoption of FTTN speeds.
56. It is not clear who is responsible for firmware upgrades to fix the bugs from the modems. It is even less clear why Bell Canada would have chosen problematic combination of DSLAM and modems. VDSL2 technologies have been deployed for many years already by many different telephone companies.
57. It should be possible for the ISPs to order the modems directly from Alcatel-Lucent or a distributor and apply the required patches. It should also be possible for ISPs to obtain the full technical inter operability specs from Bell Canada so that the ISPs could issue RFPs requesting various modem manufacturers to provide pricing information. Bell Canada's retail division may have selected a modem with options such as Wi-Fi, integrated router etc, but those features should not be imposed on other ISPs whose customers only need a modem because they already have routers and wi-fi separately.
58. Furthermore, ISP's end users should be provided with the management password for their modem so that they can properly configure it for their own local network (for instance, disabling all routing, Wi-fi and other functions to ensure the device acts as a simple modem and does not conflict with their own equipment)
59. On the other hand, if the modems are truly unstable due to Bell Canada selection of DSLAM/modem, perhaps it should be necessary for Bell Canada to support those modems until they are considered reliable and stable. However, in such a case, the \$8.00 rental fee should be converted to a lease fee where, after X months, the modem has been considered purchased and the lease fee no longer applies (but with bell still having to provide bug fixes for as long as the modems require proprietary firmware due to Bell's use of non standard options/configurations of its DSLAMs).

3 <http://www.bell.ca/en/corp/aboutbell/tariffs/>

VDSL2 Modem rental fee

- 60. Vaxination urges Bell Canada to provide comprehensive information on both the technical and business issues associated with its selection of the Alcatel Cellpipe 7130 modem and its interoperability with various DSLAMs deployed on its network.
- 61. Vaxination urges the Commission to act quickly on this item as it affects end users directly and is separate from the other issues raised by all the R&Vs.

Transparency of costing process

- 62. Vaxination is aware of the notice of consultation [CRTC 2012-168⁴](#) titled "Confidentiality of information used to establish wholesale service rates". Vaxination feels a public hearing coming :-)
- 63. While it is true that participants did not have access to meaningful numbers, we were given an opportunity to request the numbers be made public and there was much debate from deposit of the cost studies right to the close of record for the 2011-77 consultation.
- 64. However, the Commission was not transparent in how it arrived at the rates defined by 2011-703. Vaxination understands that when an incumbent decides that a piece of information is confidential, the Commission's hands are tied. However, there is nothing preventing the Commission from explaining how it converted the 2010-632 follow-up costing into the rates in 2011-703. Explaining the logic used would not have violated the confidentiality of the numbers furnished by the incumbents.
- 65. Participants cannot know whether the abnormally high capacity rates are the result of costing interpretation errors by the Commission, or because the costing itself was submitted by incumbents and shaped to justify punitive UBB rates.
- 66. If costing transparency is to change significantly as a result of the 2012-168 consultation, perhaps it would be better to wait for that process to complete before requiring the incumbents to submit costing studies that are drawn for the purpose of establishing capacity based rates.

4 <http://www.crtc.gc.ca/eng/archive/2012/2012-168.htm>

Annual review of tariffs

2011-703 para 169. Consistent with the Policy Direction, the Commission therefore considers that an annual rate review would not be efficient, minimally intrusive, or proportionate to its purpose. Consequently, the Commission decides that, at this time, it would be inappropriate to mandate an annual review of the wholesale high-speed access rates.

67. The current capacity rates are already too high for 2012. If they are meant to remain at that level for many years while the rest of the market benefits from dropping rates, then the TPIA and GAS ISPs will be put out of business. It is that simple. The current rates are not sustainable.
68. While incumbents may have bloated and inefficient internal administrative processes, they benefit from the general trend in diminishing telecom costs both internally and in purchased service. They may have antique Nortel switches to serve GAS ISPs, but when it comes to their backbones, they do adopt new technologies to increase the capacity of their existing fibre strands.
69. There is a problem with establishing profit levels as a percentage of costs. This does not incent incumbents to cut costs since it reduces their profits. In fact, they have every incentive to find ways to increase costs since increased costs means increased profits for GAS and TPIA services, and this is totally contrary to normal business practices in commercial competitive environments.
70. Perhaps incumbents should be tasked to provide cost estimates for the next year and told that if they bring their costs below these estimates, they will get to pocket the difference. This would provide incentive to lower the costs. And if the margin were set at a fixed level instead of percentage of costs, the incumbents would not fear that lowering of costs would hurt their profit margin.
71. Canada's rank in OECD studies is no longer something to brag about. The new tariff structure is an improvement over the planned UBB schemes, but it must be properly managed on an on-going basis to prevent Canada from seriously falling behind. Flat telecom rates are not viable in the internet economy.
72. An annual review in the traditional process is not realistic since such processes can take more than a year. The Commission should find a more efficient way to do a simple review.
73. Once the costing formulas for capacity based rates is done properly, it should be much simpler for the Commission to automate the process with incumbents furnishing key numbers on an annual basis (instead of a full costing study). And as long as costs go down, then ISPs can easily adapt their business plans as this does not add uncertainty.
74. To reduce regulatory overhead, a bi-annual review could be done, with rate adjustments for each of the 2 years until the next review.

Bell Canada's AHSSPI rate

75. Since Vaxination got tangled into this mess some 4 years ago (first submission on April 4th 2008), Bell Canada's definition of "AHSSPI" seemed to have morphed from "purchase sufficient AHSSPI capacity to support the usage generated by your customers", to "AHSSPI is just a window into our network" and more recently "just a port into the router".
76. During the many UBB decisions, the Commission never acknowledged the AHSSPI component in its decisions despite the multiple arguments from multiple parties that Bell Canada's AHSSPIs included some of the transport costs. The AHSSPI component was not changed and remained undefined by the Commission.
77. The 703 and 704 decisions make no mention of AHSSPI, despite two different billing paradigms sharing a common component (with the resulting issue of domain splits, penalties etc).
78. It is time to end the taboo. The Commission went through the meticulous exercise of analysing Bell Canada's costs and it should know exactly which costing components were used to construct the AHSSPI pricing. And if the Commission did not do the due diligence to create a cost based AHSSPI rate, it need to do this now.
79. If AHSSPI was kept the way it was because it contains some transit components, then those components must be stripped from AHSSPI and moved to the fixed access rate for business GAS. This also means that the rebate applied to the business access rate to those ISPs who carry business traffic via capacity based (as per 2012-60) should be adjusted accordingly to ensure that no 2 components are paid twice.
80. Or perhaps the Commission meant to remove the AHSSPI completely since all its costs were factored into the capacity rate but Bell Canada didn't get the memo and still bills it to ISPs ?
81. **Either way, it is time for the Commission to set a clear definition of what AHSSPI consists of.** Without a definition, parties cannot challenge the costs since nobody knows what costs are meant to be included in AHSSPI.

Capacity rate calculations

Source of Costing Information

- 82. At the time of the 2010-632 follow-up, the incumbents were asked to provide cost studies. Bell Canada, Rogers, Vidéotron and Shaw (not sure about Cogeco) already had plans to enable retail UBB on their respective wholesale service. Bell Canada had been given the green light on UBB multiple times and the only question left was whether there should be a rebate or not on the wholesale UBB rates. Rogers had mentioned its intentions to enable UBB on wholesale now that it also had UBB at the retail.
- 83. The costing studies were prepared before the January/February "UBB Winter" civil uprising which forced a regime change by toppling the incumbent dictated UBB.
- 84. Therefore, the cost studies were structured to justify UBB rates, and in some cases, because the UBB rates were set at very high levels to act as an ITMP, the accounting decisions would have been made to help justify such high rates. Therefore, the Commission's cost data had been prepared to support one billing paradigm, and had to be converted to set rates in a different paradigm...
- 85. Since participants only got to see a large collection of "#" signs, there could be very little debate or analysis of those costs.

Conversion errors

- 86. Launched in 1998, the Mars Climate Observer (Mars Surveyor 1998) crashed on Mars 9 months later because an engineer performed math operations on wrong units.
- 87. In July 1983, Air Canada flight 143 from Montréal-Ottawa-Edmonton ran out of fuel and glided to a disused runway at Gimli Manitoba due to math conversion errors by pilots both at Montreal and Ottawa.
- 88. On November 15th, the CRTC issued decision 2011-703 with suspiciously very high capacity rates that were based on a cost study from a time where Bell Canada had been given the green light to implement UBB. A conversion error between usage and capacity may not cause an aircraft to fall out of the sky or crash on Mars, but it will affect the viability of ISPs whose costs will grow at a faster rate than the rest of the industry and remove their ability to compete.

Capacity rate calculations

Invalid extrapolation

89. At the Industry Committee Hearing of February 10th 2011⁵, in responding to Dan McTeague's question:

Mr. Mirko Bibic:

I mean, I don't have the precise figure, but we know the number of wholesale ISPs customers we have and the number of end users they have. We make an extrapolation based on our own Internet users' consumption of bandwidth⁶, how many of their customers would likely trigger the caps, and therefore have usage-based billing apply to them according to the CRTC decision. It is so small.

90. Bell Canada admits that it doesn't have exact figures and that it used its own retail customer's usage patterns to generate the numbers.
91. **Conversion from UBB to capacity is not a science, it is an art.** To perform this conversion, you need to have previous empirical correlation between capacity and usage statistics and the back conversion is only valid for the same type of usage.
92. Bell Canada's retail customers, having been conditioned with limited UBB would have different usage patterns than those of independent ISPs. Therefore, even for a time period where Bell's back conversion is still valid, it only approximates its own customer's capacity requirements and would not work for end users of other ISPs.
93. Furthermore, as usage pattern evolve, the back conversion logic is no longer valid and must be adjusted based on new empirical correlation between observed capacity and usage. During the 2011-77 public hearings, the Commission was told multiple times that the real network management is always done at the capacity level and that usage numbers were very inexact for network management purposes.
94. In the case of Bell Canada, the numbers would be even more skewed because ISPs still have the vast majority of their customers at 5 or 6 mbps, costing less capacity during peak hours compared to Bell Canada's retail customers who have years worth of speed upgrades and thus very different correlation between observed capacity and usage.

5 Industry Committee, 40th parl, 3rd session, meeting 056, above paragraph 1700.

6 Bell Canada erroneously uses the term bandwidth to denote usage in bytes.

Capacity rate calculations

Contention ratio must not be part of tariffs

95. In a capacity based system, each ISP decides how much bandwidth⁷ to purchase per user, or how many users to fit within 1 gbps of capacity. This defines the contention ratio and how often and how much end users will notice slowdowns.
96. This contention ratio would be an integral part of the back conversion formulas from UBB to capacity. Therefore, the Commission would have assumed Bell Canada's retail service contention ratios and generated capacity rates with implicit network management parameters that are linked to Bell Canada's retail service.
97. The 2011-703 decision confirms that network planning is the responsibility of the ISP. Each ISP must have the ability to define how much capacity it needs for the type of service it wishes to offer. Therefore, the Commission erred in using a conversion which embeds of Bell Canada's retail network management metrics.

Streaming vs Downloading

98. When Bell Canada announced it would end the throttling, it admitted that the downloading activities on P2P were no longer as important due to the emergence of streaming activities. Lets compare what happens to a movie lasting 120 minutes and 3.5 gigabytes in size:
99. A user on a 25mbps link can download that movie from iTunes at maximum speed in roughly 24 minutes.
100. Streaming the same movie on Netflix will use roughly 5mbps for the 2 hours. (bit rate varies depending on how fast video changes).
101. YouTube is a hybrid of download and streaming, approaching more the streaming model but preferring to download at a higher speed than necessary for some types of clip so that the download can finish before the clip has finished being viewed.
102. Therefore, all 3 techniques will generate different loads on the network despite transferring the same number of bytes. Each of these therefore has different correlation between usage (bytes) and capacity (mbps).
103. Furthermore, as speeds increase, the network load differences increase. A user on a 25mbps link will use more bandwidth to download than to stream. But a user at 5mbps will use roughly the same because he won't be able to download much faster than streaming speed.
104. Therefore, because usage patterns have changed much since Bell provided the CRTC with its own data, the correlation between UBB usage and capacity is no longer valid.

7 The term "bandwidth" refers to capacity of a link, not how much data is transferred.

Capacity rate calculations

Comparison with Bell Canada's new FTTH

105. Bell Canada recently launched its real FTTH service in Québec City, a technology which allows it to compete against cable. http://www.bell.ca/Bell_Internet/Products/Fibe_175 advertises a 175mbps download and 30mbps upload for \$129.95. This package is limited to 100 gigs which represents roughly 1.5 hour of download at full speed.
106. The Fibe 50 package also allows 100gigs which take ~5.5 hours of constant use. Supporting this user for 5.5 hours during a peak period would cost the ISP half of a 100mbps chunk or \$1106.50. Bell Canada sells this at retail for \$79.95
107. While this comparison is technically invalid, it does show the difference in scale. When individual users get such high speeds, they start to have a serious impact on smaller networks.
108. On a 200mbps link, a 175mbps user represents 87.5% of capacity or a whale in a residential pool. But on a 10gigE link, he represents only 1.7%, a small fish in the sea and thus very little impact.
109. The Commission should therefore ask itself whether its formulas were really correct. Since Bell's network has a gargantuan amount of capacity, the ISP's traffic would represent a small fish in the sea instead of the whale in a pool. So how come the Commission came to calculate rates that are so high? Did the Commission vastly underestimate the total capacity of Bell's network and thus force ISPs to pay a much bigger share of the pie than they should be paying?
110. Bell Canada would not be offering those packages at those prices if its network costs were as high as the Commission thinks. Something definitely went wrong in the calculations somewhere.

Past growth rates vs current cost increases

111. Since the CRTC began to regulate GAS in 2005, the GAS and TPIA rates remained fairly stable despite large increases in usage. This was possible because incumbents' real costs would have gone down at a rate that more or less followed usage increases so there was no need to constantly adjust the rates.
112. With the new model, ISPs will have constantly rising costs that match changes in usage patterns. And because the capacity costs are so high, they occupy a disproportionate place in the list of the ISP's costs and will drive retail prices. The ISP will quickly find itself priced out of the market and unable to offer competitive services against incumbents.
113. While at any one point in time, it is correct that an ISP that caters to bandwidth hogs should pay more than one that caters to aunts and grand mothers, the expectation is that their prices should remain more or less stable because bandwidth costs are expected to drop at about the same rate as average usage increases. This will not happen unless the CRTC acts on some of the requests made by CNOC in this file.

Conclusion

114. The capacity rates in 2011-703 vary so much that the formulas used by the Commission to develop the tariffs have to be flawed and/or the incumbents provided highly dubious data. This will greatly hurt the ISP industry going forward because even modest growth will raise their costs so much that they will no longer be able to compete.
115. The Commission needs to publish the methods used to arrive at the capacity rates based on input from incumbents (without jeopardising incumbents' confidential number) and perhaps initiate a new costing process, this time requiring the right information from incumbents to ensure that the correct rates can be calculated without having to resort to "artistic" conversions that are not applicable to ISP's users who have different usage patterns.
116. Therefore, to make the GAS and TPIA services sustainable and competitive in the long term, the Commission must:
- Review the rates downwards in a significant way based on true capacity costs instead of using conversion from UBB based costs. A serious reduction in the capacity rates will reduce the impact whenever ISPs have to increase capacity.
 - Vaxination wishes to remind the Commission that rates must remain cost based with reasonable markup otherwise it will prevent competition and allow incumbents greater of not only the market but also of the ISPs.
 - A regular review must be done to ensure that the incumbents' pricing better mimic a competitive commercial environment (and put some pressure on incumbents to become more efficient).

*** * * END OF DOCUMENT * * ***

No "#" characters were harmed during the production of this document.