

A Giant Step Backwards: Canada's CRTC Moves To Re-Monopolize Communications Marketplace



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EXECUTIVE SUMMARY

This paper is a comment on a recent decision by Canada's national telecommunications regulator which, in SeaBoard's view, is a significant step backwards in the evolution of Canada's communications marketplace. The Canadian Radio-television and Telecommunications Commission (CRTC) decision essentially amounts to a re-monopolization of the most critical sector of communications business and will result in Canadians paying more for poorer service in the future.

The decision, 2008-118, was a denial by the Commission of a request to vary elements of an earlier Commission decision, 2008-17, where Ethernet services were excluded by the CRTC from services that are deemed essential to competition, and that would therefore remain subject to mandatory wholesale rates and availability. That is, the incumbent telephone companies would continue to be required¹ to provide both access and a cost-based price to competitors.

The Commission denied the MTS Allstream request because it appears to have believed that Ethernet facilities are replicable by the competitive communications service providers and that there are substitutes for Ethernet services. Unfortunately the Commission's view is flawed. The reach and breadth of the incumbent (former monopoly) telephone networks cannot be duplicated by competing carriers, and the fact that a competitor might be able to cobble together a roughly equivalent communications pathway from legacy offerings isn't material to the real advantage that native Ethernet services have over Rube-Goldberg-like *ad hoc* solutions.

The CRTC decision to exclude Ethernet services from the portfolio of essential services is a significant blow to the competitive communications environment and represents a major victory for the telephone company monopolists. **SeaBoard predicts that should this**

¹ "Continue to be required" because after an earlier, lengthier and more extensive review process, the same facilities were held to be necessary for a competitive communications framework.

decision be allowed to stand, competition in business services will wither, innovation will dry up, prices will rise, and service levels will decline.

The Commission is wrong. Two decades of progress, two decades of a communications services renaissance, two decades of public benefit from a competitive communications environment are in jeopardy.

We urge Canada's federal cabinet to overturn the Commission's decision and to restore Ethernet services classification as 'essential' to Canada's competitive communications environment.

INTRODUCTION

As the global economic crisis deepens, governments around the world are investing significant national resources into their Information and Communications Technology (ICT) sectors. The Telecommunications sub-sector in particular has been targeted by infrastructure spending stimulus. The United States, Germany, Britain, Finland, Portugal, Spain and Canada are including a broadband component in their economic stimulus packages while other countries like Australia, France, Ireland, Hungary, Japan and South Korea have created separate broadband initiatives. The goal of these broadband expansion initiatives is to improve national productivity and competitiveness. Broadband, it is felt, is a key to future prosperity. Through expanding broadband access and enhancing connection speeds, a nation's future may be assured.

Broadband is indeed an element of increasing import. Broadband services touch all facets of life. Art and culture, education, health, recreation and commerce are all enhanced by broadband service availability.² Access and availability of high quality broadband services are key public policy objectives in much of the industrialized world.

However, the situation in Canada is somewhat confused. While we have various initiatives underway to stimulate broadband access and quality across many levels of government – which shows that Canada can see the natural competitive national advantage a developed broadband infrastructure can offer – Canada's national telecommunications regulator, by contrast, seems to be trying to undo the work that has been achieved by allowing Canada's telephone companies to re-monopolize a key part of the broadband resource.

² See SeaBoard Group, *Paradise Lost: On the Future of Television and the Challenge for Canadian Public Policy*, (January 2009), and "Avoiding the Tragedy of Dorothy" (June 2006) for further discussion.

The CRTC, in its Decision 2008-118, decided that Ethernet access services were not “Essential Services.” That decision effectively shuts off competitive wholesale access to broadband Ethernet services and re-monopolizes the broadband access market.

We argue that the CRTC’s refusal to classify wholesale Ethernet access and transport services as “essential” flies in the face of best practices in most other countries to make broadband access more affordable and accessible, and we believe that the decision is regressive in terms of our national policy goals. Moreover, we view the decision as having been determined through flawed data analysis and methodology. We strongly urge Cabinet to reverse Decision 2008-118.

ON THE CRTC AND THE NATURE OF ESSENTIAL SERVICES

Canada’s public policy objective in telecommunications is to rely on market forces rather than regulation to safeguard the interests of Canadians. This principle was firmly elaborated in the Telecommunications Act of 1993, affirmed by the Telecom Policy Review Panel, and reconfirmed by the Federal Cabinet in its Policy Direction to the CRTC in December 2006:

a) *the Commission should*

- (i) rely on market forces to the maximum extent feasible as the means of achieving the telecommunications policy objectives, and*
- (ii) when relying on regulation, use measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives;*

Canada Gazette, Vol 140, No. 26 – 27 December 2006
Para 1 a)

The Policy Direction went on to say, however, with respect to the question at hand:

*... to complete a review of its regulatory framework regarding mandated access to wholesale services, to determine the extent to which mandated access to wholesale services that are not essential services should be phased out and to determine the appropriate pricing of mandated services, which review should take into account the principles of technological and competitive neutrality, **the potential for incumbents to exercise market power in the wholesale and retail markets for the service in the absence of mandated access to wholesale services, and the impediments faced by new and existing carriers seeking to develop competing network facilities** ... (emphasis added)*

Canada Gazette, Vol 140, No. 26 – 27 December 2006
Para 1 c) ii)

Clearly the Government's intention was not to eschew regulation entirely – it recognized that in instances where competition would not be able to duplicate facilities, or in areas where development of competitive infrastructure was impractical, then mandated wholesale access would continue.

Telecommunications in Canada developed under a system of regional monopolies for over a century. Telecom monopolies were thought to be the most efficient means to ensure that the required capital could be raised to connect the country. It was a successful public policy. Many billions of dollars were invested. The country was wired. Indeed, Canada became one of the most connected countries in the world.

Monopolies need to be regulated such that the public interest is assured and that the service provider's own interests are kept in check. A balance between the competing interests, the public and the private, was achieved. From 1890 to the 1990s the monopoly model served us well.

Two main factors caused the 'natural monopoly' model to falter. Technology changed the cost paradigm that formed the economic basis, and shifts in demand for communications services saw many new entrants into the marketplace with innovative new ideas, new pricing and new approaches to customer service.

Public policy makers responded to the shifts in paradigm. Regulatory measures were introduced to transition the services market from monopoly to competition.

The role of the CRTC has changed over the past two decades. The Commission was a major instrument of public policy in the the 1990s as it led the way to more and more competition in the telecommunications marketplace. In the current decade its major policy work, at least in the area of traditional telecom services, is over. The Commission's role has been taken over by a competitive marketplace – communications consumers, both residential and business, now have a range of suppliers and a choice of services and plans. The prime era of the regulator has passed. The CRTC does retain some duties with respect to the communications marketplace though. And one of the CRTC's key mandates in this era of less regulation is to adjudicate between competing service provider interests.

An area of key competitor concern is the field of wholesale services and competitive access. The incumbent telephone companies built networks of great compass and reach, and have achieved mass and scale that competitors cannot possibly match. A competitor may provide a compelling product or service, at an attractive price, while using facilities actually owned by

the former monopolies. The CRTC's role is to define which services the former monopolies must make available to competitive companies and to establish cost-based wholesale prices. The services so described are included in an "Essential Services" list and these form the basis of many competitive service provider business plans.

THE CRTC DECISION

Canada today has a competitive communications services environment. There are many service providers, many services, many price points and service plans powered by several different technologies. And Canadians are enjoying the fruits of that competition. Aggressive prices, customer service, flexible terms – all are hallmarks of our competitive environment for communications services. Yet all services are not competitive. All facilities cannot be duplicated. **Some facets of the monopoly network are still required such that the competitive market framework can persist.** It is to this point that the CRTC's Decisions 2008-17 and 2008-118 address themselves. It is in this context that the CRTC's decisions fail and run counter to the public interest.

The decisions look at classification of wholesale Ethernet services. The question being "are wholesale Ethernet services 'Essential Services' such that the incumbent telephone companies must allow competitors to have access?"

The CRTC recognizes that there are some services where the incumbent telephone company's market position is unassailable. The former monopoly networks are ubiquitous, the networks reach into every building, every business, every home. This network reach didn't happen overnight – it has taken over a century to build, to construct facilities to connect all Canadians. Our Canadian solution³ to this network reach obstacle is to instruct the incumbent telephone companies to allow competitors access to the network and to establish cost-based rates for such access. Services falling into this category are deemed to be "essential services".

The CRTC established tests to determine if a service was Essential, and therefore subject to mandated wholesale access to the network. There are three elements to the test:

- i) *The facility is required as an input by competitors to provide telecommunications services in a relevant downstream market;*

³ See section titled "What of Other Countries" for some other ideas about how to ensure a competitive marketplace.

- ii) *The facility is controlled by a firm that possesses upstream market power such that withdrawing mandated access to the facility would likely result in a substantial lessening or prevention of competition in the relevant downstream market; and*
- iii) *It is not practical or feasible for competitors to duplicate the functionality of the facility*

CRTC Telecom Decision 2008-17

SeaBoard believes that the Commission's test is an appropriate one. Our contention is that the CRTC's failure isn't a failure in developing a rational test, but that its failure is in its ability to apply the test and to consider the evidence.

Certainly the first element, **that competitors require the facilities as inputs for their own services in downstream markets**, is clearly passed. Ethernet services are the *sine qua non* in the provision of internet protocol (IP) services which constitute both the largest and fastest growing portion of competitive business.

Similarly the second element, **that the facilities are controlled by a firm that possesses upstream market power, and that withdrawal of mandated access to the facility would result in a substantial lessening of competition in the relevant downstream market**, is also clear. The incumbent telephone companies enjoy many of the legacy benefits of their old monopoly status. They still have the reach, the scale, the depth of network that they enjoyed in the monopoly era. As for the impact of withdrawing of mandated access, one only needs to look at the recent fracas between Telus Communications and Bell Canada over the latter's desultory approach to Telus' requests for cooperation in connection with the Telus win of a major Department of National Defense contract from Bell. It seems that even fellow-incumbent Telus can feel the wrath of Bell and the heat of upstream market power.^{4 5} This test is clearly passed.

The final element, too, one would think was clear: **It is not practical or feasible for competitors to duplicate the functionality of the facility**. Indeed, the company that made the application to the CRTC to reclassify Ethernet services as Essential has the most credible case to make about the practicality and feasibility to duplicate functionality; MTS Allstream

⁴ The client affected in the Telus - Bell Canada dispute, Public Works and Government Services Canada (on behalf of the Department of National Defense), was filed with the CRTC in December 2008 and the Commission rendered a decision (2009-85) in February 2009.

⁵ Interestingly some (but not all) of the difficulties that Telus has had with Bell in connection with the DND procurement may have been mitigated had the CRTC followed-through with affirming the essential nature of Ethernet services.

has invested, in SeaBoard's estimation, over \$5B in network infrastructure over the past 15 years. **Yet notwithstanding that investment, MTSA remains the single largest commercial customer that the incumbent telephone companies have.** Most of the company's customers require connections to places where the MTSA network cannot reach. The CRTC, however, did not find this argument compelling. The Commission believes that the company can self-supply, or find third parties who can provide the required access. The next section speaks to this point.

WHAT WERE THEY THINKING?

The MTS Allstream network is extensive. The company has a national fibre backbone, with extensive interconnections with the US, and significant fibre optic metropolitan area networks in each of Canada's main metropolitan areas. Yet as extensive as the MTS Allstream network is, the network does not even reach all of the company's *existing* clients. MTS Allstream has stated in its evidence that in order to reach its existing customers in Toronto, it would need to spend billions more. Self-supply of Ethernet facilities is obviously possible in select locations but it is not possible in all, or even most, locations.

The Commission seems to be of the view that if Ethernet services can be sourced from someone else or self-supplied, that the facilities are not therefore essential. We have seen that self-supply has taken MTS Allstream on a multi-billion dollar investment journey over the past 15 years and still the majority of the company's customers remain tethered to the incumbent telephone company networks. Why? Because the incumbent telephone companies are the only companies who have the reach and scale – as Lee Selwyn states in his thoughtful paper on the *Non-Duplicability of Wholesale Ethernet Services*:

Facilities construction decisions are made on a building-by-building basis driven by the anticipated revenues relative to the costs involved. In the vast majority of business locations, potential revenues are not sufficient to permit economic recovery of the associated investment. In order to attract a customer's business (i.e., revenues), a competitor needs to be able to serve the customer's overall requirements – both at locations where self-supply is economically practical as well as at locations where it is not. It is with respect to this latter group – that wholesale services furnished *solely by and available solely from the incumbent carrier* are unambiguously *essential* to the competitor's ability to "provide telecommunications services ...⁶ (emphasis in original)

⁶ Lee L. Selwyn, **The Non-Duplicability of Wholesale Ethernet Services, Promoting Competition in the Face of the Incumbent's Dominance over Last-Mile Facilities**, March 2009, p ii.

MTS Allstream cites an example in its evidence of a recent contract award it had received from a national bank to serve over 1,000 branches across the country. For MTS Allstream to reach each customer location with its own facilities would cost the company over \$2B. Even if MTS Allstream elected to build in certain locations and to reduce the capital amount by half, the payback period would still exceed 203 years. Access to the incumbent Ethernet transport facilities are obviously essential to competition. And competition, of course, is essential if consumers are to benefit from the new economics of communications services.

WHAT IS BROADBAND? ETHERNET? (AND WHY IS IT IMPORTANT?)

Broadband refers to the bandwidth in a communications network; a broadband network is a wide-band transport mechanism where, typically, a number of different services can share the same transport mechanism.

At the consumer level, broadband is usually delivered in Canada over cable networks (where the household is equipped with both a cable connection and a cable modem) or telephone networks (where the broadband household typically uses a DSL (Digital Subscriber Line) modem.

Consumer broadband is normally thought of as high-speed internet access – and internet access is, indeed, the most ubiquitous application. Broadband access contrasts to its precursor which was known as dial-up, or narrowband, connection. Dial-up access is disappearing from use as the economics and quality of broadband services are far more attractive.

For businesses, small and large, broadband services are usually supplied/provisioned using Ethernet-based facilities. Business connectivity too has evolved. Businesses used to connect their various sites with telephone-age connections – these include T-1/DS-1⁷ facilities that supported 24 telephone channels of 64 kbps each for an aggregate data rate of 1.544 Mbps. Given that 1.544 Mbps was thought to be extremely fast in the 1990s, telephone companies typically offered their business customers fractional T1 access because very few business customers were projected to ever need 1.544 Mbps.

⁷ In Europe and other parts of the world E-1 trunking was more common (equivalent to 30 64 kbps voice channels, or 2.048 Mbps).

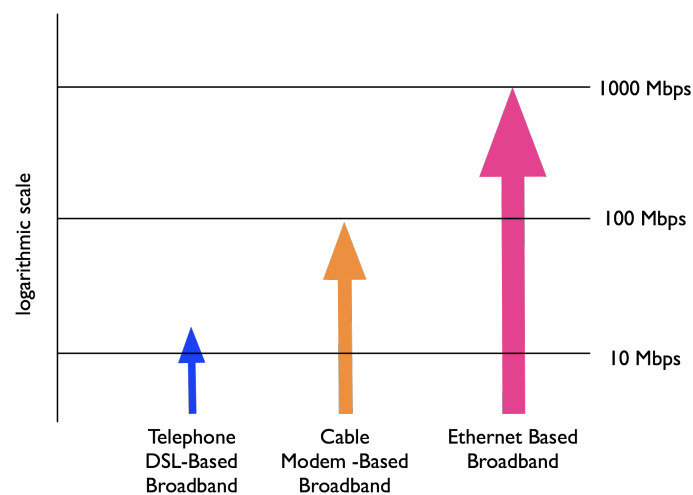
Interesting how much has changed in a few short years. Today's typical cable broadband service consumer⁸ uses more bandwidth than the largest companies only a decade ago.

Exhibit I compares the transmission characteristics of business broadband vs. consumer broadband in 2009.

Exhibit I

Consumer Broadband and Business Broadband Services Compared⁹.

Source: SeaBoard Group, 2009



The Ethernet-based services offered to Canadian businesses are delivered, usually, through a fibre-optic connection. The cable-based services offered to cable subscribers are delivered through coaxial cable and the DSL-based services are delivered over copper telephone pairs.

It is important, though, to note that both the cable and the telephone network rely on fibre infrastructure as well. Fibre-optic technologies are at the heart of every communications network. This is an important point.

⁸ See our December essay, “Don’t You Wish Your Internet Service Was Hot Like Laval’s” where we discussed consumer broadband speeds in Canada. In the Montreal suburb of Laval consumers have access to 50 Mbps services - 32x faster than the T1 services that were the ubiquitous connection metaphor of a decade ago. T1 services are deemed “essential” by the Commission. Ironic, since the role of the T1 has been eclipsed.

⁹ Note that DSL reference is given as a typical Bell Canada high-speed internet access service, the cable reference illustrated is the Videotron high-speed cable service soon to be introduced in Montreal, QC (The current Videotron service is 50 Mbps). See SeaBoard Group, “Don’t You Wish Your Internet Was Hot Like Laval’s” (December 2008).

Fiber optics is the gold standard transmission medium of the current century. Earlier forms of communications transport are as obsolete as the services they supported. While it could be argued that you can use yesterday's facilities to construct a 'modern' communications solution, it is both imprudent technically (you can only do so much with antique connection options) and it is expensive. New technologies and new technical approaches are far more cost effective than the technology it has replaced. **For the CRTC to consider that Ethernet services can be replicated using older technologies is a fatal flaw in its analysis.**

WHAT OF OTHER COUNTRIES?

Canada isn't alone in thinking about how to provide communications service provider challengers access to the incumbent network infrastructure. It has long been recognized that replication of the facilities makes little economic sense – either at a micro level, for the firm involved whose business plans would be doomed by the unnecessary weight of billions of dollars of spending, or at the macro level. Channeling efforts into facility duplication has a social cost too – the resources would offer more return if focussed in other areas.

In our opinion, the best example for Canada to consider is the UK. The UK faced a similar dilemma with respect to that country's competitive structure and the reluctance of the former monopoly, British Telecom, to offer timely, affordable wholesale access to competitors. After an extensive review of the British communications industry, that country's regulator, Ofcom, entered into an agreement with British Telecom that the competitive access side of British Telecom would be run as a separate entity. This new division, called Openreach,¹⁰ has a mandate to “ensure that all rival operators have equality of access to BT's own local network”. Openreach has been an unqualified success. Britain enjoys the benefits of a highly competitive communications marketplace, the incumbent receives a return for its network investment, but competitors are not disadvantaged or held hostage by BT's market power.

The UK's approach was not just to consider that Ethernet Services were essential, and that they had therefore to be made available to competitors, but that British Telecom had to undergo a transformation such that its core network assets would be held in its Openreach division, available to BT Retail and to BT's competitors on an equal basis. MTS Allstream's request is not nearly as aggressive as the Ofcom solution – MTS Allstream merely wants the

¹⁰ <http://www.openreach.co.uk/orpg/home/home.do>

CRTC to affirm that Ethernet services are essential and that they will be subject to mandated access and cost-based pricing for the foreseeable future. We might suggest that MTS Allstream needs to go further.

Also worthy of note are the more recent decisions in New Zealand and in Australia to follow the UK model.

The decision by the Australian incumbent telephone company to voluntarily separate the company's wholesale network access business from its retail services arm, which was announced in April 2009, was a dramatic change of policy by the ILEC. Telstra had led the fight against such a move using many of the same arguments advanced by Canadian ILECs. The Australian example is an excellent indicator that Canada's CRTC is going in the wrong direction.

RE-MONOPOLIZATION?

The title of this paper suggests that the CRTC is taking the country a step backwards and that it is moving to re-monopolize the Canadian communications marketplace. Why?

Internet Protocol technologies are becoming increasingly important elements of our lives. As we rely more on communications, as the devices that serve us rely more and more on communications, the communications transport they rely upon is IP - and IP is Ethernet-based.

By finding that Ethernet services were not essential, the Commission has essentially handed the keys of the communications kingdom to the incumbent telephone companies. Without competition, without mandated access to Ethernet facilities, Canadians will no longer have choice.

The fruits of the communications revolution that swept through the economy over the past twenty years are worth bearing in mind. Communications services have come a long way since the (prior) days of the telephone monopolies.

- Communications services cost less – and long distance services are now close to free.
- Service levels have increased and customer service has dramatically improved.

- There is far more innovation – examples of innovative new services abound, the opposite of the ‘*any colour you like as long as it is black*’ thinking that characterized monopoly mentality.

Canadian consumers will still have choice - there are non-telephone company-supplied offerings in the consumer marketplace. Competition from cable-based service providers and from wireless companies keep the consumer marketplace on competitive edge. However, the choices in the business services marketplace are fewer – and without mandated access to wholesale Ethernet services, the word “monopoly” fits.

Cable companies have made some efforts in the past to develop business services units, Rogers, Videotron and Shaw being notable in this regard, but each company has shifted its prime focus to the consumer market, where the network strengths are prime.¹¹

Wireless services are evolving too. High-speed data over wireless is being achieved at rates that may reach 20 Mbps by the early part of the next decade. Wireless data remains relatively expensive and the data rates achievable in wireless, at least with the technologies and spectral assignments currently in the plan, will never approach the 100 Mbps and 1,000 Mbps Ethernet connections that are supported by the wired Ethernet network. Wireless may well be a solution in a decade or two (if current data consumption patterns remain constant) but it is no substitute for Ethernet services now, and will not be for the foreseeable future.

WHY CABINET SHOULD LISTEN ... WHY CABINET SHOULD ACT

The CRTC has made a bad call. Through misapplication of its own tests and obliviousness to the data presented, it has made a ruling that has profound (negative) implications for the Canadian communications marketplace. In the interests of Canadians and in the interest of good public policy, this decision needs to be reversed. Moreover, the Commission needs to be given guidance that the ‘market forces’ that it has learned to cherish must be tempered with respect for the significant market power wielded by the incumbent telephone companies.

¹¹ Cable networks are heavily deployed in residential neighbourhoods, in multi-unit dwellings – they are conspicuously absent in office towers, business parks and main streets ...

Let the telephone companies compete: good for them, good for consumers. But let them compete on an equal basis with competitive service providers who have fair and equitable access to the same facilities.

Send the CRTC the message that Australia, New Zealand and the United Kingdom are on the right path. That Canadians too deserve a competitive environment, that Canadians should not be forced to live with monopoly provision of IP services.

Free Canadian businesses, both small and large, from being again held hostage by a monopoly service provider with a penchant for ever increasing prices, ever increasing surcharges and ever decreasing service levels.

MTS Allstream has made a strong case. It deserves to be heard. It deserves to be considered. The Commission should be overruled and Ethernet access should be deemed an essential service with cost-based pricing established accordingly.

The marketplace will be stronger for it. The services on offer and the prices Canadian businesses pay for connectivity will be lower and the country stronger. This is a case for political will to refocus the regulator on what is truly important.

CONCLUSION

In a world reeling from the machinations of unfettered free markets, the CRTC's recent decision to deny the classification of Ethernet access and transport service¹² as 'essential', and therefore subject to both tariffed rates and regulatory oversight, is profoundly disturbing. The CRTC's actions on this file fly in the face of its own essential and wholesale services guidelines and suggest a curious affinity to the position of the dominant carrier.

One of the Commission's prime tests for essentiality was that one firm had substantial upstream market power and that withdrawing mandated access would result in a lessening of downstream competition. That is to say without mandated access competitors which might require access might experience some difficulty in obtaining that access in a timely fashion, or that the terms might be onerous ... The following quotation might be illuminating. It would seem that the monopolies retain some key DNA:

"[Bell] was criticized on other grounds, particularly for its refusal in some instance to grant connections to competing lines, or for the terms it asked when such connections were arranged."¹³

This could have been written in January 2009, rather than 104 years ago. The citation is a summary of representations given to the House of Commons Select Committee on Telecommunications in 1905. Sentiments similar to this can be found in countless regulatory interventions over the past twenty years and form the basis for SeaBoard's opinion that the CRTC Essential Services decision was wrong.

The role of government in the communications marketplace has always been to balance the interests of society with the interests of service providers. Service providers need assurances that their investments will have an opportunity to be repaid, and the risk rewarded. Society looks to government to ensure that it has fair prices, that services extend as far as possible to the population, and that, generally, the public interest will be served.

Canada's public policy has been to let the marketplace take on more of the responsibility formerly assumed by regulatory agencies. To achieve a healthy marketplace, the government

¹² CRTC Telecom Decision 2008-118, 11 December 2008

¹³ Report of representations to the **House of Commons Select Committee on Telecommunications**, 1905, as reported in the biography of *Charles Fleetwood Sise*, the principal founder of Bell Canada, by R. C. Featherstonehaugh, Gazette Printing, Montreal, 1944.

has taken steps to ensure that a framework exists where competition can thrive. We have recently seen this in the set-asides for new entrants in the AWS wireless auctions – Canadians are already seeing benefits from more competition: lower prices, elimination of phantom access charges and more attention to customer service.

The Government needs to stand-up for Canadian consumers, for Canadian businesses. We need a competitive framework, not a re-monopolization. The reaction to Bell Canada's proposal to introduce new fees and charges in Wholesale ISP services is instructive – the Bell proposal has been shown to be draconian in its impact on consumers and small businesses. The consumer reaction has been both fast and furious. We contend that the Ethernet as an Essential Service decision is even more destructive to the competitive marketplace that Canadians have come to expect.

The CRTC's move in the Ethernet as an Essential Service hearing is clearly a significant retrograde step. It is counter to every tenet of public policy and is certainly anti-competitive. Canada does not need a return to the monopolistic dark ages. The country is looking to Cabinet to do the right thing. Overturn the CRTC decision on 2008-118. Continue to show Canadians leadership and ensure a competitive marketplace.

Montreal, Toronto

April 2009.

FOR FURTHER READING

Don't You Wish Your Internet Was Hot Like Laval's, SeaBoard Group, December 2008

Reason, Not Romance: A Better Internet in the Balance, SeaBoard Group, October 2008

Lament for a Wireless Nation: A Cross-National Survey of Wireless Phone Prices in Canada, the United States and Western Europe, SeaBoard Group, March 2007

Avoiding the The Tragedy of Dorothy: Enhancing Rural Broadband, SeaBoard Group, June 2006

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Michael Sainsbury and Jennifer Hewett, *Telstra open to break-up as broadband plan forces telecom to overhaul strategy*, The Australian, 14 April 2009

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SeaBoard is an independent marketing and technology research company with offices in Toronto and Montreal. This White Paper was prepared for SeaBoard clients and other interested parties as part of SeaBoard's continued research on market trends and technologies. SeaBoard would be pleased to arrange for briefings on any of the subjects covered in this white paper.

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