

Stimulating Broadband Investment

Continuing a policy framework for Canadian telecom

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1 Executive Summary

In mid-December 2008, the CRTC issued a series of decisions that have impacted the incentives for telephone companies to invest in infrastructure. This paper reviews the competitive landscape for the provision of high speed digital services in the business and residential markets and concludes that a reliance on competitive market forces best serves the interests of stimulating investment in broadband facilities and providing innovation and choice for Canadians.

An objective of telecom policy should be to encourage the development of a sustainable competitive marketplace for customers to choose between facilities-based suppliers. Facilities-based competition encourages improved reliability, continued investment in upgrades and feature development and a more vibrant array of choices for customers. Conversely, a policy that relies on investment by only one party, with regulation mandating resale, will serve to limit choice and discourage the benefits of facilities-based competition that have been shown to be delivered best through the operation of market forces.

As we discuss in this paper, the CRTC's requirement for incumbent telephone companies to create low-priced digital network access tariffs for competitors produced an unintended consequence of inhibiting the development of competitors that had been building alternate supplies of fibre optic facilities. We caution that history could repeat itself.

1.1 Residential broadband

In 2004, Bell Canada began implementation of its fibre-to-the-node ("FTTN") network. By the end of 2008, \$650M had been invested with announced plans to be investing an additional

\$700M over the next 3 years¹ for a total investment of \$1.35B to install optical network connections closer to its customers.

FTTN represents a discontinuity in the evolution of access networks. For the first time, the access architecture segregates data and video services, carrying them over a new overlay fibre optic network, while maintaining the traditional legacy voice services infrastructure.

To date, Bell has largely completed the FTTN network in Toronto and Montreal and Bell Aliant has implemented FTTN in Halifax, Dartmouth, Bedford, Lower Sackville, Moncton, Saint John, Fredericton, St. John's, Paradise, and Mount Pearl. However, the business cases for further investments in implementing FTTN are under review, as a result of the CRTC decisions under appeal by Bell and Bell Aliant.²

The investment in FTTN enables much higher speed connections, permitting broadcast video and ultra-high speed internet service to be offered over the same wires, on top of regular telephone service. It is this combined revenue opportunity from internet and TV services that offsets the risk associated with investing in FTTN for the shareholders of Bell and Bell Aliant.

However, the nature of the technology architecture is such that if a competitor uses the FTTN connection for high speed internet, the phone company is unable to share the connection for any of its next generation services, such as broadcast distribution. The CRTC order to share FTTN facilities not only impacts the margin on internet revenues, but it would preclude the phone company from garnering any television revenues from that customer. The resultant losses in multi-service revenues and loyalty are such that the business case for further investment in the FTTN infrastructure project has been said to be put in jeopardy.

¹ Bell 2009 Analyst Meeting, February 11, 2009

² Bell Aliant Regional Communications, Limited Partnership and Bell Canada, Petition to the Governor in Council, March 11, 2009 at paragraph 4

Remarkably, unlike most other markets in the world, telephone companies in Canada are not the dominant suppliers of residential high speed internet service; that distinction belongs to Canada's cable companies. Further, the cable companies lead in market share and in technical capabilities, with speeds of up to 100 Mbps being offered to consumers.

As such, we find that it would be inappropriate to burden telephone companies with regulations that can inhibit their investments in more advanced infrastructure.

1.2 Business Ethernet

When examining business data communications services, there is a distinction drawn between fibre and copper-based services. Generally, for data speeds of DS-3 (45Mbps) or above, there is an assumption of fibre.

The issue of adequate competitive presence is not whether competitors are able to supply fibre to all or even a majority of business addresses. This would be an absurd standard. The reality is that the majority of business addresses are currently unserved by fibre facilities supplied by any carrier - including the incumbent phone company - and further, the majority of business addresses do not subscribe to services that need fibre facilities.

In an assessment of actual business data requirements, the CRTC determined that a large proportion of high-speed access and transport services, including Ethernet, were either self-provided by competitive carriers or obtained from third parties.³

The CRTC found that competitors have both the opportunity and incentive to invest in constructing network facilities required to provide Ethernet access and transport services,

³ Telecom Decision CRTC 2008-118, paragraph 16.

which led to its conclusion that the regulatory obligation to provide these services to competitors should be phased out.

Consistent with government policy, the CRTC determined that ILECs would “continue to offer Ethernet access and transport services to competitors for five and three years, respectively.”⁴

The phase out period established in the CRTC’s Essential Services Decision⁵ was intended to provide competitors with sufficient time for business planning, expanding their own local access networks or making arrangements (such as negotiating with competitive suppliers), to remove the dependence on mandated ILEC wholesale services.⁶

These regulatory decisions follow a consistent pattern in recognizing that mandated access to facilities can lead to inhibiting the evolution of facilities-based competition, as the industry learned when the CRTC created special wholesale rates for digital network access facilities. Given that there are alternate suppliers of high speed Ethernet access facilities, there is no reason for the government to mandate the types of access being sought by MTS Allstream. Indeed, there is a risk that such an order could serve to arrest the development of competing service providers.

1.3 Conclusion

We believe that a policy of fostering facilities-based competition continues to be the approach that best enables the continued evolution of regulation to increasingly rely on market forces to the maximum extent.

When the CRTC aggressively intervened in establishing Competitive Digital Network Access (“CDN” or “CDNA”) tariffs, the effect of mandated cost-based rates was to drive competitors

⁴ Telecom Decision CRTC 2008-118, paragraph 27.

⁵ Telecom Decision CRTC 2008-17

⁶ Telecom Decision CRTC 2008-118, paragraph 27.

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from the marketplace, inhibit the development of a facilities-based competitive access market. As this applies to the market for high speed business Ethernet access, which enjoys a competitive supply of services, the CRTC's determination to apply a light touch approach to regulation in the business market should be upheld in order to avoid unintended consequences as a result of regulatory intervention.

Given that the telephone companies have a lower market share than cable companies in the supply of copper-based DSL-rate services and lag behind their cable competition in speeds, it is difficult to reconcile how regulation of this market continues to be consistent with a move to lighter touch regulation.

There is a vibrant competitive marketplace for high speed internet and Ethernet access in Canada, characterized by innovation and rivalrous market-driven investment in facilities and new services. Government policy should be to stand aside and allow the marketplace to work.

2 Introduction

Despite a challenging financial environment, Canada's telecommunications industry has been planning substantial investment in infrastructure that lays the foundation for the nation's participation in the global information economy. The major carriers have announced plans to spend more than \$4.5B in capital in 2009, including investment that broadens the reach of their networks and accelerates internet and data transmission speeds.⁷

This paper was commissioned by Bell Canada to discuss the impact of regulation and policy on investment in broadband facilities. Our premise is that favouring investment in competitive broadband infrastructure is positive and is consistent with the evolution to a lessening of regulation and a greater reliance on market forces. We examine these issues with a view to the appeals to the Governor in Council that were filed on March 11 by TELUS, Bell and MTS Allstream in respect of 4 CRTC decisions: Telecom Decision CRTC 2008-118; Telecom Regulatory Policy CRTC 2009-34; Telecom Decision CRTC 2008-117; and, Telecom Order CRTC 2009-111.

Cabinet has been asked to examine and vary these CRTC decisions that are said to have changed the criteria by which investment decisions were made by carriers. At question is whether a variety of CRTC's rules regarding the mandated sharing of local access facilities serve to discourage investment in the construction of advanced connectivity by incumbent telephone carriers and competitors.

⁷ In its March 11, 2009 Petition to the Governor in Council, Bell indicated a 2009 capital budget of \$2.5B. TELUS has announced a \$2.05B 2009 capital plan, including investment of \$500M in BC (March 17, 2009) and \$700M in Alberta (April 14, 2009) "focused primarily on advanced wireless and wireline broadband infrastructure" in the two provinces.

2.1 The cabinet appeals

MTS Allstream petitioned the Governor in Council to vary Telecom Decision CRTC 2008-118 (the “Ethernet Decision”) and Telecom Regulatory Policy CRTC 2009-34 (the “ADSL Decision”) with a view to modifying the wholesale classification of Ethernet and asymmetric digital subscriber line (“ADSL”) services.

The focus of the MTS Allstream petition deals with wholesale competitor access for business data communications. The relief sought by MTS Allstream is to have direction to the CRTC “to categorize both Ethernet and DSL facilities as “conditional essential” which are sought to be unbundled and provided by the incumbents to competitors at cost-based rates,”⁸ having the effect of lowering the price of these services and eliminating the phased deregulation of Ethernet.

Bell Canada and TELUS each independently petitioned the Governor in Council to vary Telecom Decision CRTC 2008-117, and Telecom Order CRTC 2009-111, both related to Cybersurf’s applications related to the matching speed requirement for wholesale internet services. The focus of these petitions deals with wholesale competitor access to consumer internet services. Specifically, the companies are appealing the requirement by the CRTC to have the incumbent local exchange carriers (“ILECs”) continually provide mandated wholesale access to network improvements that provide higher speed internet services. The relief sought would freeze the mandated access to that which was available at the time the CRTC issued its Essential Services Decision (Telecom Decision CRTC 2008-17).

⁸ MTS Allstream Petition to the Governor in Council, March 11, 2009, paragraph 109.

2.2 Objective

This paper will demonstrate that Canada currently benefits from a competitive facilities-based communications industry that, driven by market forces, is investing billions of dollars annually in advanced fibre optic connections in order to compete for residential and business clients. Given these circumstances that distinguish Canada's competitive marketplace from many of its OECD peers, we will demonstrate the appropriateness of a light touch approach to regulation of high speed access services in order to avoid distortions to the willingness of the private sector to invest in advanced telecommunications infrastructure, a fundamental building block for the information economy.

3 Strong facilities-based competitors

As will be seen, Canadians have access to choices in selecting broadband services. For both businesses and residential consumers, there are facilities-based competitors vying for the right to provide advanced telecommunications services.

In the absence of government intervention, cable companies and phone companies have each built competing infrastructure into most homes in Canada. In most cities, the major cable companies, as well as other competitive carriers, have installed fibre optic facilities into the urban core, competing with phone companies to enable choice for advanced business communications connectivity and high speed data requirements.

Canada's telecommunications infrastructure provides some of the top levels of connectivity in the world. Basic telephone connectivity is available to virtually every household in the country, with nearly universal adoption of telephone service. A second wire, from cable TV service, is available to 97% of Canadian households.⁹

Canada's cable TV industry predates the first Canadian TV stations, tracing its roots to entrepreneur building shared TV antennae, in order to improve the reception of US-based TV stations. From humble beginnings, the cable industry has grown to the point that most Canadians now enjoy access to two suppliers of communications services into their homes: telephone and cable. Broadcast distribution undertakings, cable and direct to home satellite, are delivering TV to roughly 90% of Canadian households¹⁰ while telephone service, wired or wireless, is in 98.8% of households¹¹.

⁹ Calculated from data on households passed in 2005 CCTA Annual Report

¹⁰ CRTC Communications Monitoring Report, September 2008, section 4.4

¹¹ CRTC Communications Monitoring Report, September 2008, Table 2.3.5

Since the launch of high speed internet services, cable companies and telephone companies have upgraded their facilities to extend the reach of their internet services into more homes and the companies have returned to re-invest in upgrading the quality of service being delivered in their existing markets.

Canadian consumers now have access to high speed internet services that are orders of magnitude faster than dial-up, and 50-100 times faster than the speeds that were offered in the early days of high speed internet.

3.1 Canada's position in the world

Canada is a leader in telecommunications infrastructure for its citizens.

Canada was one of the first countries to implement a connectivity agenda geared toward facilitating Internet access to all of its citizens. To this day, Canada remains one of the most connected nations in the world, with the highest broadband connection rate among the G7 countries.¹²

Canada is consistently ranked as a world leader in the adoption of high speed internet connectivity. Significantly, 55% of Canada's high speed internet connections, residential and business, are provided by cable companies¹³; Canada leads the OECD in the adoption of cable high speed internet¹⁴.

This is an important statistic, because it indicates the success of the Canadian competitive model for the delivery of high speed internet connectivity. Unlike many countries that only have one wire into each home or business, Canadians benefit from vigorous facilities-based competition between at least two strong suppliers of communications connectivity into their homes. This level of choice applies to business as well. As will be discussed more fully in

¹² Canada's Economic Action Plan, Budget 2009, tabled January 27, 2009, page 153.

¹³ OECD statistics June 2008, Released October 2008, Source: <http://www.oecd.org/dataoecd/21/35/39574709.xls>

¹⁴ OECD statistics June 2008, Released October 2008, Source: <http://www.oecd.org/dataoecd/21/35/39574709.xls>

Section 5 below, 95% of Canada's small and medium sized businesses have access to cable-based services (voice, data and video) as well as telephony-based services.

3.1.1 Global Broadband Standing

The OECD regularly produces a survey that examines both business and residential broadband connections (subscriptions) as a proportion of the total population. As will be seen in Table 1 below, there is a balance between telephone companies (reflected as DSL connections) and cable companies in Canada, which distinguishes the Canadian competitive environment from that of most OECD countries; most OECD countries have an overweighting of DSL connections.

Rank		DSL	Cable	Fibre/LAN	Other	Total	Total subscribers
1	Denmark	22.5	9.8	3.2	1.1	36.7	1 996 408
2	Netherlands	21.2	13.7	0.4	0.2	35.5	5 806 595
3	Norway	24.1	5.9	2.6	0.7	33.4	1 554 993
4	Switzerland	22.5	9.7	0.3	0.3	32.7	2 471 592
5	Iceland	31.2	0.0	0.5	0.6	32.3	98 361
6	Sweden	19.9	6.4	6.0	0.1	32.3	2 933 014
7	Korea	8.4	10.5	12.2	0.0	31.2	15 059 029
8	Finland	26.1	4.0	0.0	0.5	30.7	1 616 200
9	Luxembourg	24.8	3.4	0.1	0.1	28.3	133 736
10	Canada	12.6	14.9	0.0	0.4	27.9	9 201 998
11	United Kingdom	21.7	5.9	0.0	0.1	27.6	16 710 169
12	Belgium	15.8	10.4	0.0	0.2	26.4	2 789 579
13	France	25.1	1.3	0.0	0.0	26.4	16 700 000
14	Germany	24.6	1.6	0.0	0.1	26.2	21 618 300
15	United States	10.1	13.2	0.9	0.8	25.0	75 009 521

Table 1: OECD Broadband connections per 100 inhabitants¹⁵

Table 1, *OECD Broadband connections per 100 inhabitants*, demonstrates that Canada leads the OECD in cable broadband; Canadians led other nations in the percentage of the population that has chosen high speed internet connections offered by cable companies. As

¹⁵ OECD statistics June 2008, Released October 2008, Source: <http://www.oecd.org/dataoecd/21/35/39574709.xls>

will be discussed in Section 4 below, Canadian cable companies have been leaders in delivering advanced technology to their customers and cable operators are serving residential and business customers with high speed internet connections.

Contrast Canada's cable adoption rate (55%) with the OECD as a whole, where 60% of all broadband connections are over DSL while only 29% are over cable.¹⁶ These are very important factors that must be considered when critics call for importation of European regulatory solutions to be imposed.¹⁷ The OECD figures reflect a healthy level of facilities-based competition in Canada, with cable and telephone companies both capable of providing service to most Canadians.

Canada's development of competitive residential infrastructure is more balanced than any of its OECD counterparts. The Lemay-Yates paper¹⁸ reviews mandated access policies in Sweden, France, Germany and the UK. A glance at the OECD figures in Table 1, comparing telephone company DSL connections to cable connections shows a clear dominance of DSL technology in those countries: Sweden (75.7%), France (95.1%), Germany (93.9%), UK (78.6%). Compared to the same ratio for Canada (45.8%), it is not surprising that regulators in those countries are looking for a means to increase choice to users.

However, it is inappropriate to import a European solution which imposes strong regulation on telephone companies when Canada does not share the same competitive situation with these European countries that are experiencing overwhelming dominance by incumbent telephone companies in the provision of facilities-based internet services.

¹⁶ OECD statistics June 2008, Released October 2008, Source: <http://www.oecd.org/dataoecd/21/35/39574709.xls>

¹⁷ For example, see section 4 of *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009.

¹⁸ see section 4.3 of *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009.

The CRTC has also reported on the availability of choice in broadband markets. The 2008 Communications Monitoring Report identifies three facilities-based options for most Canadian households:

Broadband service, greater than 5 mbps were increasingly available to Canadians. Services at these speeds were provided by a vast majority of Internet enabled cable systems (estimated to cover approximately 89% of all Canadian households). Based on data submitted by a number of entities, 60% of all telephone lines can provide Internet service at 5 mbps or higher. Actual performance of a broadband package is dependant on factors such as the technology employed. For example, cable BDU networks are sensitive to the number of simultaneous users; and DSL based networks are sensitive to loop length.

Fixed wireless was available to an estimated 65% of households. These systems are typically limited by the distance from the transmitter, the terrain, availability of spectrum, and the load imposed on the network by other subscribers served by the same transmitter.¹⁹

In its 2008 Communications Monitoring Report, the CRTC reviewed the state of regulation of next generation access (“NGA”) in a number of other jurisdictions. In examining how the US deals with NGA, the CRTC observed:

In the United States, the Federal Communications Commission (FCC) has not felt the need to emphasize access regulation because of end-to-end infrastructure competition that has existed for decades between telephone and cable. As well, investment in next generation infrastructure has been facilitated by FCC forbearance with respect to fibre access networks; as a result, once incumbents have upgraded their network to NGA, they are no longer obliged to offer access to it to other operators.²⁰

The CRTC said that the intent of its regulatory approach for next generation networks was to encourage investment in competitive telecommunications facilities.

In Canada, incumbent operators are obliged to provide competitors with access to essential network services at tariffed rates. The objective is to foster competition for consumers by providing alternative suppliers with access to

¹⁹ CRTC Communications Monitoring Report 2008, Section 5.3.

²⁰ CRTC 2008 Communications Monitoring Report, Section 6.2.

incumbents' "last mile" facilities which often act as a bottleneck in opening formerly monopoly markets to competition. The CRTC's Telecom Decision 2008-17 (the outcome of its review of the regulatory framework for wholesale services) is designed to encourage investment in competitive telecommunications facilities.²¹

The level of facilities-based competition that characterizes Canada's broadband services marketplace calls for a different policy approach than that in Europe.

It has been a light touch regulatory model that has successfully encouraged facilities-based competition in this country. Canada needs to be cautious that changes to this approach could inhibit further investment by telephone companies that are seeking to catch up to their cable company competitors.

²¹ CRTC 2008 Communications Monitoring Report, Section 6.2.

4 Residential networks

Canada has traditionally been a world leader in the deployment of cable TV technology. Cable TV started in Canada before most countries and adoption of cable TV is among the highest in the world, in part due to Canada's population density along the US border, leading to relatively easy access to US signals. Unlike European countries that may be close to foreign TV signals, most of Canada shares a common language with the neighbouring country, which thereby increased the attraction of basic cable TV services, since consumers were eager to have access to US television stations.

This effect can be contrasted with historically lower cable penetration rates in Quebec. However, cable companies in Quebec invested in infrastructure that passed each home, despite lower service adoption rates. As such, these cable companies may have had even more reasons to launch new services to try to improve their capital utilization.

Such innovation is seen to have been paying off. Cable TV adoption in Quebec has recently improved in part because of value propositions offered by Videotron, bundling its voice and internet services into a package that encourages homes to adopt cable TV as well.

Increased telephony penetration leads to superior basic growth which in turn is driving the bundling for other products. It's clear that the telephony product is an essential ingredient to the cable subscriber growth and subsequently the product remains priced to further drive bundle sales.²²

In January 2007, Videotron became the first cable company in North America to begin trials of a DOCSIS 3.0 based 100Mbps high speed internet service.²³ A year later, Videotron made these speeds commercially available with its TGV50 and TGV30 products, offering 50Mbps and 30Mbps speeds respectively, offering Montreal area consumers the fastest high speed internet

²² National Bank Financial, November 10, 2008, Quebecor Inc. Quarterly Results Q3 - Vidéotron Still Growth Engine But Maturity Trends Evident, Newspapers Weak, page 3.

²³ Cisco press release dated February 1, 2007

services of any North American cable company.²⁴ Videotron has continued to invest in upgrading its facilities to offer its highest speed internet services to more customers. According to Videotron, these ultra high speed DOCSIS 3.0-based services are now being offered to more than 900,000 households in 100 Quebec communities.²⁵

In February of 2009, Shaw began commercial availability of a 100Mbps high speed internet service in Saskatoon. The service, called “High-Speed Nitro,” is the fastest internet service available from any cable operator in North America.²⁶ Later that month, Shaw confirmed plans to roll out the service throughout its operating territory.²⁷

Rogers is Canada’s largest cable company, with 2.3M basic cable subscribers and 1.6M high speed internet subscribers. It has more than a million telephone lines in service²⁸ on top of its 7.9M mobile wireless subscribers. Rogers was the first major cable company in North America to offer a quadruple-play service bundle: TV, internet, mobile and fixed telephone services.²⁹

Beside its own cable TV infrastructure, which uses a hybrid fibre and coaxial cable architecture, Rogers has co-located equipment in 179 telephone company central offices, in the metropolitan areas of Toronto, Montreal, Vancouver and Calgary. These facilities support more than 200,000 circuit switched telephone customers, for both residential and business customers.³⁰

Cogeco is Canada’s fourth largest cable company, with 868,000 basic cable subscribers, out of the 1.5M homes passed. It has 503,000 high speed internet customers and nearly 255,000

²⁴ Videotron press release dated February 6, 2008

²⁵ Videotron press release, dated April 1, 2009

²⁶ CEDMagazine.com, “Shaw jumps to 100 Mbps with DOCSIS 3.0”, February 4, 2009

²⁷ CEDMagazine.com, “Shaw to expand 100 Mbps availability”, February 19, 2009

²⁸ 840,000 cable telephone subscribers plus 215,000 circuit switched subscribers.

²⁹ All statistics sourced from Rogers 4Q 2009 Corporate Fact sheet.

³⁰ Rogers 2008 Annual Report, at page 39.

telephone customers.³¹ The company is the second largest cable operator in each of its Canadian markets: Ontario and Quebec, and it has recently ventured into the business communications market by acquiring the telecom operations of the Windsor, Burlington and Toronto electric utilities.

Atlantic Canada has also seen technology leadership from products introduced by Eastlink. For nearly 10 years, since November 1999, Eastlink has been offering telephone service to its customers over its cable TV wires. Eastlink's service bundle, offering voice, TV and internet achieved noteworthy acceptance in the marketplace, rapidly grabbing close to a third of the available market. This was the first time that cable companies in Canada began to leverage their existing coaxial cable for other uses, to compete directly for the total communications requirements of residential users.

This marked the beginning of the battle for the broadband home.

4.1 Battle for the broadband home

In Canada, the communications industry "triple play" is often an expanded bundle of 4 or 5 services. Cable companies and phone companies are now each offering residential consumers a complete portfolio of competing products: TV, telephone, internet and in many cases, mobile wireless services and home security monitoring.

Virtually every cable company in Canada now offers a voice service, coupled with internet and TV. Canada's largest cable company, Rogers, is also Canada's largest mobile wireless service provider, enabling it to offer 4 communications services. Some of the other cable

³¹ Cogeco 2Q2009 shareholder report, April 9, 2009

companies currently act as resellers of wireless services and 3 cable companies³² and their affiliates acquired wireless spectrum in the summer of 2008 which will enable them to launch their own mobile services in the future.

All of Canada's major telephone companies are offering TV services. TELUS, Sasktel, Bell Aliant and MTS have deployed IPTV technology and Bell Canada offers a direct to home satellite TV service. All of these phone companies are mobile wireless carriers, operating on a regional or national basis, so each of them also offer a portfolio of 4 communication products in their household bundle: voice, internet, TV and mobile services. Sasktel and MTS are also significant providers of home security monitoring, adding a fifth product to their bundle.

A recent report from CIBC observes that "bundling is the future of telco / cableco competition."³³ The report indicates that "as customers bring their telephony business to cablecos, they are also bringing their other services, including broadband Internet." Competing for the complete communications needs of households, with a portfolio of TV, voice and internet, is an important strategy in improving customer loyalty, thereby inoculating customers from churning to a competitor.

High definition TV and increasing consumer demands for higher bandwidth services are calling for improvements in the total capacity of the communications links into the homes and into neighbourhoods. Telephone and cable companies are continually investing in fibre-optic upgrades in their connections to homes, in order to deliver greater capacity, capable of delivering all services for hyperconnectivity.

³² Shaw, Eastlink and Videotron. Of these companies, Videotron has publicly announced its intention to launch its mobile service in 2010, while Shaw has announced that it will not make material investments in wireless in 2009.

³³ CIBC, *Bell Aliant Regional Comm. Income Fund Solid Yield Story; BCE Take-in Unlikely Just Yet - Initiate At Sector Performer*, February 12, 2009

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Hyperconnectivity is more than simply delivering telephone and internet services and 250 channels to 3 or 4 TV sets in a household. It captures the concept of enabling high definition video, on demand, to any screen: TV, PC, handset or gaming module. Hyperconnectivity also considers the potential for machine-to-machine communications, such as security monitoring, medical telemetry, meter reading and home automation.

Certain applications can be very demanding of telecommunications performance. Voice and gaming are especially demanding of immediate delivery of signals (low latency): conversations are taking place in real-time and pauses can be meaningful in our interpretation of a conversation; a delay in delivery of gaming information can mean the difference in winning or losing for many types of these recreational activities.

On the other hand, video programming is primarily a one-way download of information that consumes massive amounts of bandwidth, but can tolerate a measure of delay or a few missing bits of information. Solutions include brief partial pixilation on programs, and delays in starting after requesting a program, in order to permit buffering.

In the battle for the broadband home, carriers are competing to research, invest and deliver the right mix of technology and service to win the loyalty of residential consumers. Selling more than one service to a client means more than simply increasing the size of the monthly revenue from a customer. As in many other industries, increasing the breadth of the relationship serves to strengthen the bond between the service provider and the client, reducing the likelihood of churn and thereby improving the value of the relationship.

4.2 Network architectures to compete

Policy makers are faced with the challenge of creating a regulatory environment that encourages industry participants to invest in advanced technologies while promoting competition to bring the benefits of choice to consumers.

4.2.1 Historical copper plant

Legacy copper networks evolved in a time where investment was fairly clearly identified, with predictable demand and a resultant lower investment risk. As shown in Figure 1 below, each home was connected to a central switching centre, referred to as a Central Office (“CO”), by a pair of wires that could be traced from end-to-end continuously. Investment in the copper facilities was largely tied to housing growth, with a predictable correlation between the capital investment and the revenues that would be returned to shareholders.

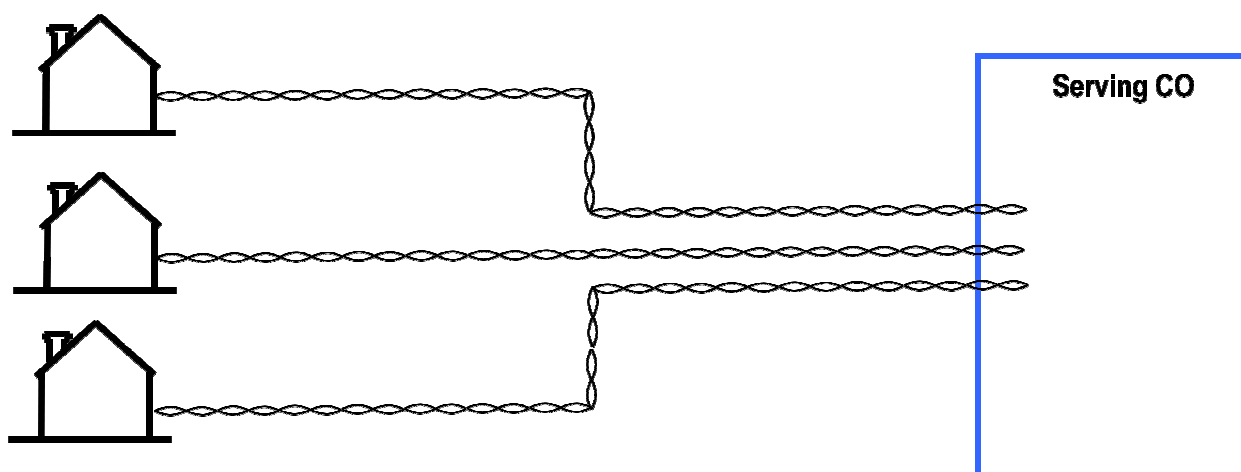


Figure 1: Historical copper plant

When local service competition began, some competitors located their own equipment in the telephone company’s CO and were able to connect to the homes of their own customers

through the copper connections. For competitors offering internet services, there is a continuous copper connection allowing the competitor to provide its own DSL equipment.

This all-copper architecture characterizes most telephone companies' outside plant for the first century of the telephone industry beginning in the 1870's.

4.2.2 Digital loop concentrators

In the 1970's, digital technology enabled a savings of some copper facilities by placing a remote concentration device in the neighbourhoods and then using digital multiplexing to concentrate the voice lines onto digital facilities. Twenty-four voice connections could be multiplexed together onto a 1.544 megabit per second digital connection and then broken back up into individual copper connections back at the CO, as illustrated in Figure 2 below.

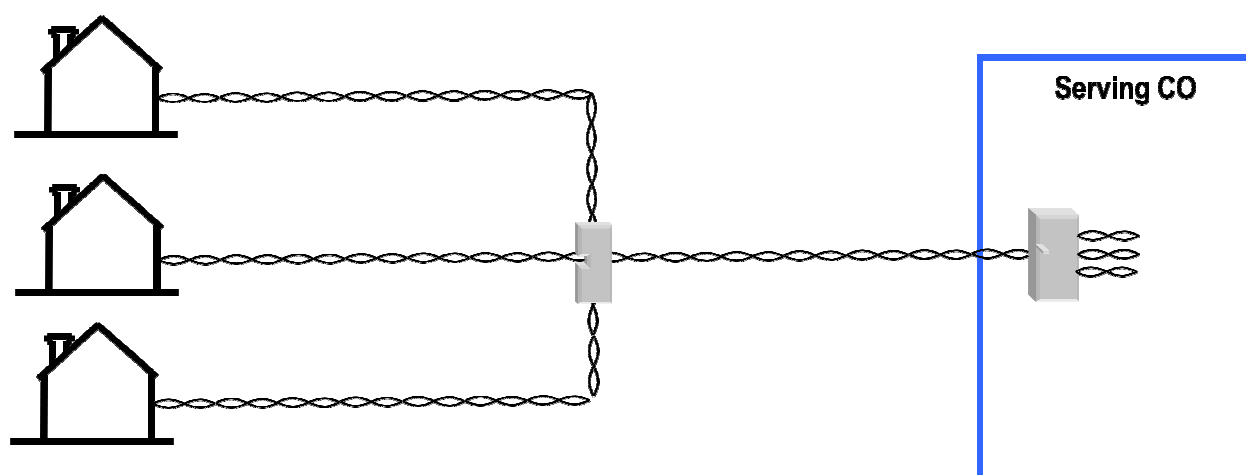


Figure 2: Early Digital loop concentrators

4.2.3 Fibre in the loop

Over time, the digital loop concentrators began to be connected by fibre optic connections, as illustrated in Figure 3 below.

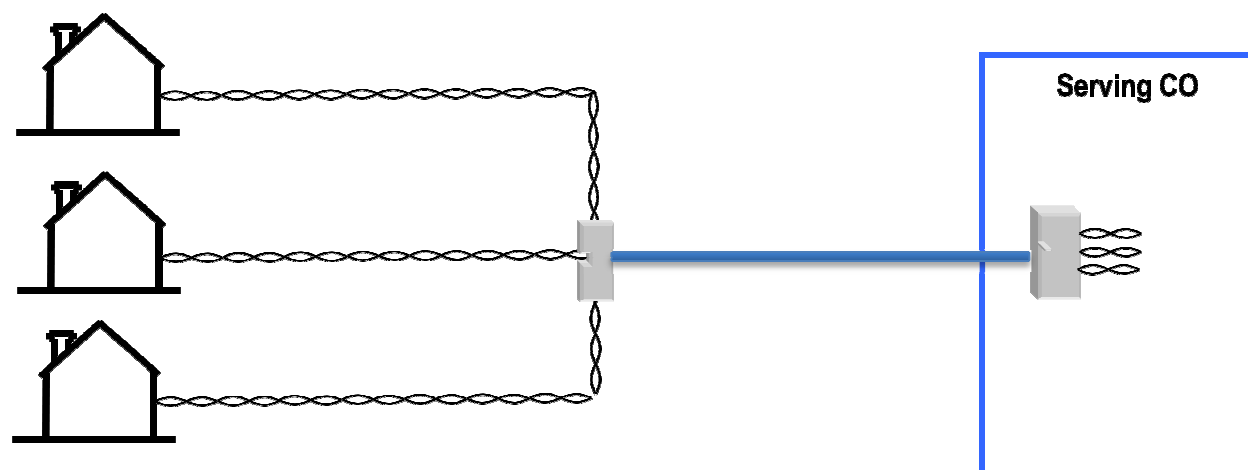


Figure 3: Fibre connected digital loop concentrator

In many cases, there was still a copper connection available from the central office. With this architecture, competitors were still able to install their own equipment in order to provide their own high speed internet services. In addition, the telephone companies developed an aggregated wholesale version of their high speed service as an alternative.

4.2.4 Fibre to the Node

In 2004, Bell began implementing a fibre to the node access (“FTTN”) architecture, in order to deliver even higher speed data services into the homes of its customers. The FTTN architecture represents a discontinuity in the evolution of the access architecture.

For the first time, there are two separate paths from the neighbourhood: copper that can be used for voice; and, fibre connectivity for high speed services including internet and video.

Until now, the access network made use of existing copper for both voice and data. New access technologies were deployed in new areas as a means to reduce the number of pairs of new copper wires that needed to be strung from the central office out to the user’s premises.

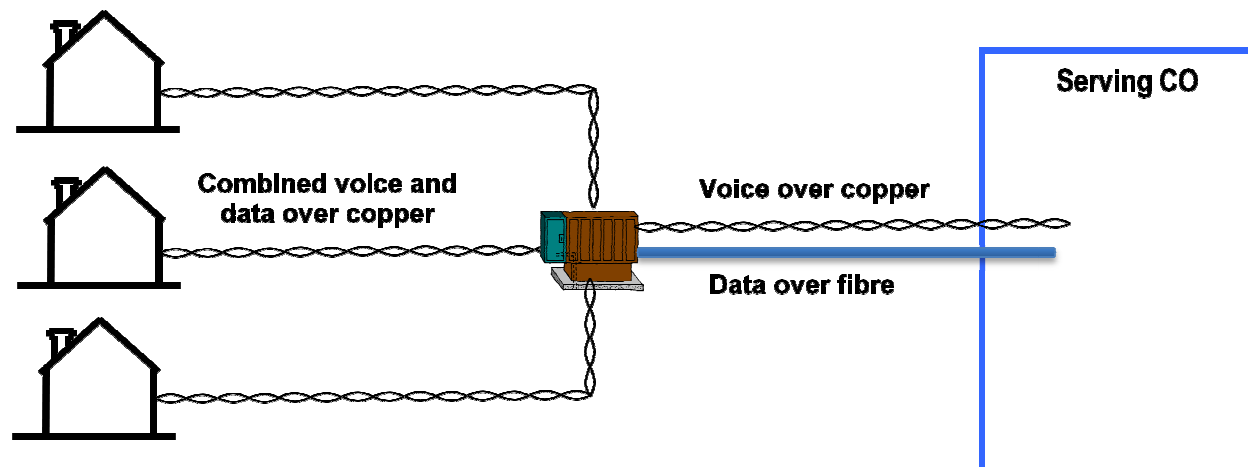


Figure 4: Fibre to the Node Architecture

The FTTN architecture puts more fibre into the network, overlaying an optical connection closer to customers, with a design objective of nodes being located within 1000 metres of the premises and approximately 500 households served by a node.

According to regulatory filings, Bell Canada planned to deploy approximately 11,000 nodes by 2012 at a total cost of approximately \$1.3B, of which approximately \$650M had been spent by the end of 2008.³⁴

Unlike previous approaches, the FTTN architecture maintains a copper connection for voice service, while peeling off the data stream at the fibre node in the neighbourhood as illustrated in Figure 4, above. FTTN represents a new overlay network, building on top of existing copper (as illustrated in Figure 4 above) and hybrid copper/fibre networks (as illustrated in Figure 5 below).

³⁴ Bell Canada, letter to CRTC dated January 23, 2009 as part of CRTC file 8622-C122-200816738.

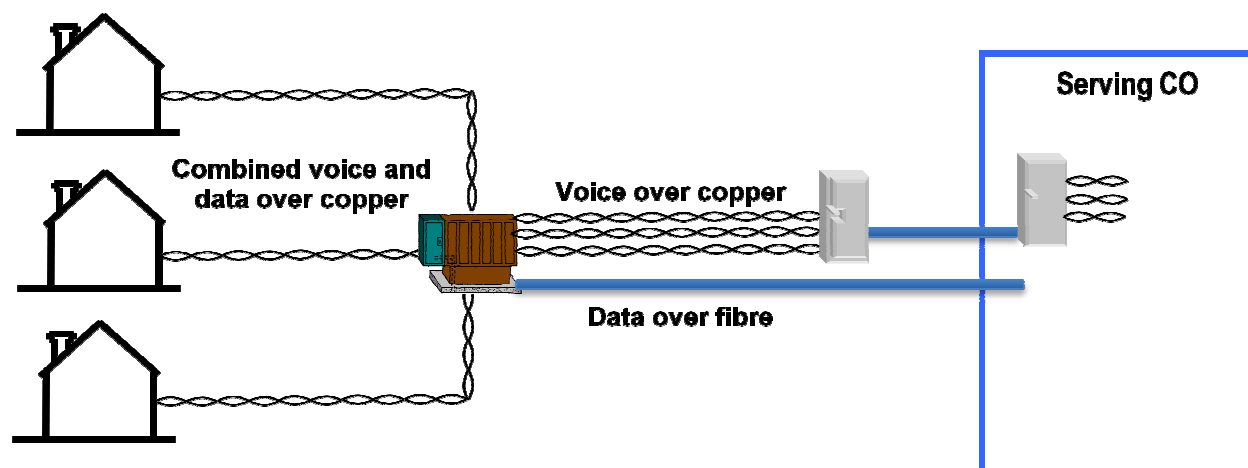


Figure 5: Fibre to the Node overlay with DLC

Since FTTN represents an overlay of the legacy access plant, alternate service providers are still able to access the copper wire in the central office for delivery of their own services to the same extent they could before the addition of the FTTN overlay.

FTTN is capable of delivering higher speed data services capable of supporting faster residential internet services as well as supporting IPTV and it is the technology being deployed for Aliant TV in a number of cities in Atlantic Canada³⁵. Aliant TV offers more than 150 digital TV channels, including high definition services over the FTTN access architecture.

The technology that has been deployed is such that the data stream for IPTV and the residential high speed internet service are co-mingled over a shared data channel coming from the home. This has significant customer benefits in that consumers might have access to even more internet capacity at times that the TV service is less demanding. For example, if no one is watching TV, more capacity is available for internet service. It is important to note that this is different from cable TV system architectures, which use separate channels for

³⁵ According to a Bell Aliant press release dated February 11, 2009, Aliant TV is being offered in Halifax, Dartmouth, Bedford, Lower Sackville, Nova Scotia; Moncton, Saint John, Fredericton, New Brunswick; and St. John's, Paradise, and Mount Pearl, Newfoundland and Labrador

various services: internet, broadcast video and voice all use separate paths within the cable TV delivery system.

If the CRTC's order to offer the telephone companies' higher speed internet service to third party internet service providers is maintained, then the telephone company will be unable to offer its IPTV services to clients of those internet service providers. As such, a CRTC order to share FTTN facilities not only impacts the margin on internet revenues, but it precludes the phone company from garnering any television revenues from that customer. In contrast, cable companies' TV revenues are unaffected by an order to provide higher speeds to competitors as their TV signals are not physically transported in the same spectrum. This has the effect of changing the economics of the business case for the telephone companies' fibre to the node architecture, which is dependent on being able to attract sizable revenues from more than one product in order to justify the capital investment. The resultant losses in multi-service revenues and multi-product loyalty are such that the business case for further investment in the FTTN infrastructure project in some communities has been put in jeopardy.

As discussed in Section 4.1 (Battle for the broadband home) above, selling more than one service to a client means more than simply increasing the size of the monthly revenue from a customer. Increasing the breadth of the relationship serves to strengthen the bond between the service provider and the client, reducing the likelihood of churn and thereby improving the value of the relationship.

Traditional engineering economic analysis required that the revenues from a new product or service covered the new capital and operating cost associated with its introduction. The installation of fibre and electronic equipment closer to the home represents a substantial investment that cannot be economically justified by any one service. To make the economics

work requires a critical mass of customers to subscribe to a package of services - the broadband home (as described in the section called “Battle for the broadband home” at page 17). The investment in FTTN is recovered by customer revenues generated through the subscription to bundles of enhanced internet, digital TV, voice services.

4.3 Consumer networks summary

Unlike most countries around the world, most consumers in Canada enjoy access to internet services provided by at least two distinct facilities-based competitors. Cable companies have succeeded in providing Canadians with the fastest internet speeds available in the world and have led their peers in introducing innovation in services to compete for the broadband home.

The risk of imposing open access regulations on telephone companies’ FTTN networks is that continued investment in infrastructure could be slowed. While FTTN networks have been established in certain markets, the business case in other communities may not support the loss of bundled revenues associated with permitting third party access to the infrastructure, which would preclude the ability to generate revenues from other services such as IPTV. As such, the business case reassessment could result in reduced capital being invested in advanced communications infrastructure in many communities.

5 Business networks

As discussed in Section 2.1 above, the focus of the MTS Allstream petition deals with wholesale competitor access for business data communications. The relief sought by MTS Allstream is to have direction to the CRTC “to categorize both Ethernet and DSL facilities as ‘conditional essential’ which are sought to be unbundled and provided by the incumbents to competitors at cost-based rates.”³⁶

The MTS Allstream concern is about gaining access to cost-based services to permit competitors to reach their customers. For low speed services, MTS Allstream has sought to have DSL designated as an essential service. This type of designation would result in a specific regulatory treatment that requires the incumbent telephone companies to make the service available at cost. The CRTC guidelines for designating a service as “essential” requires a finding that “it is not practical or feasible for competitors to duplicate the functionality of the facility.”³⁷

These lower speed services are most likely in demand by small and medium sized business, or for use by smaller branch offices of larger enterprises. There are a number of connectivity options available for such locations. For example, in many cases, competitors are able to co-locate their own equipment in the telephone company central office and access unbundled loops at mandated rates. In addition, besides the DSL services of the phone company, there are copper-based Competitor Digital Network (“CDN”) services or facilities from the local cable company.

In its evidence in the proceeding that led to Decision 2008-17 (the “Essential Services Decision”), Bell presented an analysis that showed 95% of small and medium sized businesses

³⁶ MTS Allstream, Petition to the Governor in Council, March 11, 2009 at paragraph 109.

³⁷ Telecom Decision CRTC 2008-17, paragraphs 36-37.

located within Ontario and Quebec are located within the footprint of at least one cableco.³⁸

As such, it is just not possible to suggest that “it is not practical or feasible for competitors to duplicate the functionality” of DSL facilities when cable companies are on the doorstep of the overwhelming majority of this market.

For the enterprise level of business, data services access is via fibre optic facilities in order to deliver the types of speeds that are required by these larger companies. Therefore, the types of statistics in the Lemay-Yates report³⁹ that look at competitor fibre access as a percentage of total business addresses are completely irrelevant: most business addresses are small and medium businesses that do not subscribe to services requiring fibre access and do not have access to fibre-based services from the telephone company.

The relevant statistic is an examination of competitor fibre access as a percentage of incumbent fibre. This compares similar data and as we will show, this is precisely the test that the CRTC employed in its examination of high speed Ethernet access in the Essential Services Decision.

The facts are that there are competitors that have been able to build alternative fibre networks in many cities, with a presence that is comparable to that of the telephone companies. It is therefore impossible to conclude that it is “not practical or feasible for competitors to duplicate the functionality” of high speed fibre-based Ethernet services, one of the required tests of finding a service to be “essential.” In view of the experience

³⁸ Telecom Public Notice CRTC 2006-14, The Companies’ Evidence, Appendix 6, A Market Evaluation of Wholesale Services, 15 March 2007, at paragraph 95 and footnote 37.

³⁹ For example, at page 32 of *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009, the authors indicate that Atria Networks (the successor to Telecom Ottawa) is only providing service to 200 businesses out of a total of 29,000 businesses in Ottawa. However, the scale and presence of the company is substantially larger than this statistic indicates. There are more than 1000 route kilometres of fibre, connecting more than 950 buildings, implying that the customers being served are operating in multiple locations and the network is capable of providing an alternate source of fibre connectivity across a large footprint in the city.

associated with high-speed CDN facilities provided over fibre facilities, it is important to recognize the risk of damaging incentives for investment in constructing competitive telecommunications facilities if Ethernet services are designated as essential.

5.1 Competitive Ethernet Access

Ethernet access can be provided over various types of physical facilities, depending in part on the speed required. The CRTC's examination of the criteria for forbearance on retail digital network access is instructive, because it follows a framework for differentiating between legacy copper facilities and advanced fibre infrastructure.

In Telecom Public Notice 2005-8, the CRTC initiated a proceeding to establish a framework for forbearance from the regulation of high-speed intra-exchange digital services.

In that proceeding, the CRTC examined the state of competitive supply of high speed digital access services, and determined the availability of fibre alternatives to the incumbent telephone companies. Further, the CRTC recognized that regulation has the potential to be detrimental to the construction of alternative fibre facilities.

5.2 Disincentive to invest

In Telecom Decision CRTC 2002-34, *Regulatory framework for second price cap period*, ("Decision 2002-34"), the CRTC established the idea of a special class of services designed for wholesale customers and the Commission acknowledged that the pricing of ILEC services can impact the incentives for third parties and competitors to create an alternate supply of facilities.

Competing local, long distance and wireless carriers, as well as resellers, rely on a variety of ILEC services in order to interconnect with the ILECs' networks,

configure their own networks and provide services to their end-users. The pricing of these ILEC services has an important impact on the ability of the competing carriers to succeed in the marketplace, as well as on the incentives for them to construct their own facilities.⁴⁰

That Decision established interim rates for Competitor Digital Network (“CDN”) access services that were intended to permit competitors to cost effectively subscribe to “last mile” facilities belonging to the incumbent phone company.

Telecom Decision CRTC 2005-6, *Competitor Digital Network Services*, (“Decision 2005-6”), established the rates for CDN, retroactive to the June 2002 date of Decision 2002-34. During this proceeding, the CRTC reviewed the state of self-supply of access facilities and examined the availability of third parties to offer competitive access and concluded at that time that “there is a need for the ILECs to develop and offer CDN services.”⁴¹

The CRTC was aware of the potential for these CDNA services to act as a disincentive for the construction of competitive facilities. In 2002, the Commission observed:

The Commission considers that, in order to foster facilities-based competition, mandated cost-based rates are necessary for certain facilities and services. However, it is also important to ensure that such pricing be justified on a case-by-case basis, and that these services be priced at a level that does not create a disincentive to the construction of facilities.⁴²

The significant lowering of rates as a result of the introduction of CDNA services was a clear reduction in the level of construction of competitive access facilities. Even the CLEC affiliates of the major ILECs, Bell and TELUS, halted activity in the construction of most of their competitive local access facilities because the price of leasing was so much more favourable than the cost of building their own facilities. Smaller access services companies were also

⁴⁰ Telecom Decision CRTC 2002-34, paragraph 109.

⁴¹ Telecom Decision CRTC 2005-6, paragraph 85.

⁴² Telecom Decision CRTC 2002-34, paragraph 160.

affected and these companies informed the CRTC of the impact of its decision on their businesses.

In the course of the proceeding that led to Decision 2008-17⁴³, a number of facilities-based competitors, including Atria Networks, ENMAX Envision, Hydro One Telecom, SCBN Telecommunications, Telecom Ottawa and Quebecor Media all confirmed that CDN services had a detrimental impact on their investment in facilities and revenue.⁴⁴ These companies each told the CRTC proceeding that CDN pricing was impacting their revenues and their investment in infrastructure.

Telecom Ottawa stated:

CDN services were a barrier for alternative service suppliers such as Telecom Ottawa. Both the wholesale pricing and terms of service pre-empted Telecom Ottawa from being a competitive alternative supplier to other carriers in metro Ottawa.

CDN monthly charges and terms associated with T-1 or DS-3 services were so low and flexible that the business case economics could NOT justify the capital costs to build expanded fibre facilities to service other carriers. As a result, not only did CDN services prevent new competitors from entering the business, but existing carriers had no alternative but to obtain metro services from the incumbent ILEC.⁴⁵

Atria Networks began operations as a variety of local utility telecommunications companies, functioning independently under the various municipal electric companies in its principal operations cities. It was launched in September 2005, with the combination of FibreTech (Waterloo Region) and Guelph FibreWired to create a new, community-owned telecommunications company.

⁴³ Telecom Public Notice 2006-14, *Review of regulatory framework for wholesale services and definition of essential service*, initiated the proceeding that led to Decision 2008-17, the Essential Services Decision.

⁴⁴ Refer to interrogatory responses Atria(The Companies)12Apr07-20, ENMAXEnvisionInc.(TheCompanies)12Apr07-20, HydroOneTelecom(TheCompanies)12Apr07-20, SCBN(The Companies)12Apr07-20, TelecomOttawa(TheCompanies)12Apr07-20 and QMI(The Bureau)12Apr07-22.

⁴⁵ TelecomOttawa(TheCompanies)12Apr07-20

In the proceeding that led to Decision 2008-17, Atria Networks wrote that CDN pricing prevented the company from constructing competing facilities:

The pricing associated with the CDN services was at a level that prevented Atria from constructing facilities that would allow Atria to compete with the CDN services offered by the ILEC. As a result other service providers purchased CDN access services from the ILEC rather than local access and transport services from Atria. The impact from Atria's perspective was slower growth, overall reduction in revenue as rates for all services were forced lower due to low CDN rates, and less competitive infrastructure being constructed.⁴⁶

Quebecor Media ("QMI") is the parent company of Videotron, the largest cable operator in Quebec. QMI wrote:

CDN service prices were set at a level which severely undermined the ability of Videotron and other competitors to compete in the market and greatly decreased the incentive for new entrants to build competing facilities.⁴⁷

Given that so many facilities-based competitors indicated that the CRTC's mandated pricing for CDN served to inhibit their business case for constructing new facilities during the period between 2006 and 2008, it is not surprising that Lemay-Yates found that competitors such as Toronto Hydro Telecom had no substantial construction during this period.⁴⁸ However, we believe that Lemay-Yates draws an incorrect conclusion from its analysis. As the alternate providers have indicated, regulatory intervention produced the unintended consequence of inhibiting construction of fibre facilities.

In Telecom Order CRTC 2007-20, *Ethernet Services* ("Order 2007-20"), the CRTC examined the issue of wholesale Ethernet access services and again expressed concerns about the

⁴⁶ Atria(The Companies)12Apr07-20.

⁴⁷ Evidence of Quebecor Media Inc., 15 March 2007, at paragraph 57, in response to Telecom Public Notice 2006-14, *Review of regulatory framework for wholesale services and definition of essential service*.

⁴⁸ See section 4.4 of *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009.

potential disincentive on investment, if such fibre based services were categorized as essential.

The Commission notes that in Decision 2005-6 it considered that third-party fibre-based suppliers have the potential to increase their supply of these services to competitors. The Commission also considers that the incentives to construct these facilities would be unduly diminished if the Ethernet access services were to be classified as Category I competitor services.⁴⁹

In its essential services determination in Decision 2008-17, the CRTC found that CDN facilities at DS-3 and above were no longer essential and the service could be phased out.

The Commission notes that the record indicates a high incidence of competitor self-supply or alternative supply of fibre-based access and transport facilities. The Commission considers that the reported level of alternative supply demonstrates the existence of competition in the upstream market for such facilities.⁵⁰

As a result, with Decision 2008-17, the CRTC has been able to remove the disincentive for construction of fibre optic access facilities and investment activity by alternate providers is expected to continue.

5.3 Fibre in the urban core

As we will show, over the course of a number of proceedings culminating with the proceeding that led to Decision 2008-17, the CRTC canvassed industry participants and determined that there was a substantial level of self-supply and third-party alternatives to the facilities of the ILECs.

The Lemay-Yates report, attached to the MTS Allstream appeal to the Governor in Council, challenges the CRTC's results, claiming as an example that in a city like Toronto, alternate suppliers of fibre cover only 500 buildings out of a total of more than 75,000 business

⁴⁹ Telecom Order CRTC 2007-20, paragraph 82.

⁵⁰ Telecom Decision CRTC 2008-17, paragraph 118.

establishments.⁵¹ The implicit suggestion is that the remainder can only be accessed by using fibre facilities from the incumbents - Bell Canada, in the case of Toronto. That is not the case.

The ability of competitors to supply fibre optic facilities to the majority of business addresses is not relevant. The reality is that the majority of business addresses are currently unserved by fibre facilities supplied by any carrier - including the phone company - and further, the majority of business addresses do not subscribe to services that need fibre facilities.

The issue of adequate competitive presence is not whether competitors are able to supply fibre to all or even a majority of business addresses. This would be an absurd standard.

The CRTC examined precisely this question in the context of establishing the forbearance criteria for retail high speed digital access services, which are similar to Ethernet.

The Commission considers that, in arriving at the appropriate competitor network presence criterion, it is not necessary to ensure competitive supply parity with the ILEC, i.e., to ensure that competitors are present in as many buildings as the ILEC. Rather, the Commission is of the view that it is sufficient to ensure that there is, and will be, sustained competition in the forborne market.⁵²

Certain addresses, such as the major office towers, have fibre from multiple suppliers, creating a vibrant competitive opportunity for advanced services for customers housed within these buildings. The CRTC established a test, as described below that is designed to ensure sustainable facilities-based competition when it forbears from regulation.

⁵¹ *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009, pages 3-4.

⁵² Telecom Decision CRTC 2007-35, paragraph 102.

5.4 Presence of telcos

The CRTC's methodology for surveying the presence of competition in the business community is not new.

In 2007, the CRTC issued Telecom Decision CRTC 2007-35: *Framework for forbearance from regulation of high-speed intra-exchange digital network access services*, which established a methodology for assessing applications for forbearance from regulation of high-speed digital network access (DNA) services in wire centres with 25 or more buildings connected to high-speed DNA-capable networks. The methodology set out in that Decision was challenged by Bell Canada and Bell Aliant and the CRTC issued a subsequent determination in Telecom Decision CRTC 2008-38 that re-affirmed its approach.

The CRTC's retail forbearance standard applies a calculation of the number of buildings with competitor fibre divided by the sum of this number of buildings with the number of ILEC fibre equipped buildings in each wire centre. If the arithmetic result exceeds 0.30 (30%), then the competitive presence threshold for forbearance has been met.

5.5 Presence of competitors

Despite such stringent criteria for forbearance in retail high-speed Digital Network Access (DNA), Bell Canada has received forbearance in 31 wire centres, locations that represent more than 57% of Bell's total high-speed DNA access services⁵³. The CRTC has identified⁵⁴ an additional 27 wire centres where the competitive presence test is greater than 20%, but less than the 30% required for forbearance. These wire centres represent an additional 26% of Bell's high-speed DNA accesses.

⁵³ • Bell Canada internal study, dated March 2009.

⁵⁴ CRTC letter re: *Disclosure of information filed in confidence with the Commission pursuant to Telecom Decision 2007-35*, November 20, 2007

This means that for 83% of the high-speed digital accesses used by business customers, the CRTC had already determined that there is a substantial presence of alternate fibre facilities. This is based on a wire centre by wire centre detailed analysis that asks all carriers to identify how many buildings are connected to the carrier's network.

The CRTC then looked at the competitive presence issue from a different angle.

In the course of the essential services proceeding that led to the determinations at issue in the MTS Allstream appeal, the CRTC asked carriers to look across all customers in all locations to assess the percentage of connections that were either self supplied by competitors, obtained from a third party or leased from an ILEC. Based on this analysis, the Commission determined "the record indicates a high incidence of competitor self-supply or alternative supply of fibre-based access and transport facilities."

5.5.1 Emergence of MEUs

Over the past decade or more, virtually every Municipal Electric Utility ("MEU") in Ontario became involved in some way with the telecom industry. At the very least, support structures, such as poles, towers and conduit are provided to telecom carriers on a wholesale level. The next level of involvement is to permit telecom carriers to place fibre over the electric utility ground wire, which quickly evolved into the next stage of evolution: the MEU becoming a condominium fibre builder.

The MEUs have moved along the telecommunications value chain to provide lit transport services, fully managed private line services (including the rental and configuration of customer premises transmission equipment), and network based services such as high speed internet services. Once the final stage of telecom maturity arrived, the MEUs quickly began to

recognize the business opportunities arising from large corporate users seeking reliable, facilities-based alternatives to the incumbent local exchange carriers.

The reach into telecommunications services by Ontario MEUs may have been driven in part by the threat of privatization and competition that was raised by a provincial government. Coinciding with the tail end of the telecom boom, many of these companies saw opportunities to drive shareholder value when their core business, electricity distribution, was coming under competitive pressures.

Telecommunications is a logical adjacent business for electric utilities, leveraging the physical infrastructure, the rights of way and the trained and mobile workforce of the MEU. In many cases, the electric utilities were placing already fibre strands for use in their internal supervisory, control and data acquisition (“SCADA”) requirements. Competitive telecom carriers began to ask utilities to add extra strands of fibre beyond the SCADA requirements and this exposed the electric utility industry to the opportunities in telecom. For city-owned electric utilities, the MEU often was called upon to provide advanced fibre connectivity to public service agencies, often referred to as the MUSH sector (“Municipal, Universities, Schools, Hospitals”).

In the past few years, political pressures for privatization have changed and some MEUs have found that there are willing buyers for their telecommunications business units, often at a substantial profit.⁵⁵

⁵⁵ In February, 2008, Hydro Ottawa sold its telecom subsidiary to Atria Networks for \$63M, realizing a gain of \$20M, according to its press release dated February 25, 2008. Toronto Hydro Telecom was sold to Cogeco for \$200M according to a press release dated June 18, 2008.

5.5.2 Successors to MEUs

The capital intensive nature of the telecommunications business, coupled with city hall shareholders looking for assets to sell have combined to lead many MEUs to divest their telecommunications divisions. In just the past two years, Atria Networks has acquired a number of the former MEU telecommunications companies, acquiring assets from MEUs in Simcoe County, Vaughan, Markham, Hamilton, Ottawa and Peterborough.

Atria operates what it terms “one of Ontario’s largest fibre-optic networks”⁵⁶ with 4300 route kilometres of fibre-optic network, linking Ottawa, Waterloo Region, Vaughan, Hamilton, Markham, Orangeville, Barrie, Guelph, Cornwall and surrounding areas, together with intra-city networks in numerous communities.

Atria Networks offers MPLS switched data services as well a variety of high speed data connectivity services including 100 Mbps and Gigabit Ethernet interfaces. Atria Networks boasts that “your data travels entirely over fibre, not copper.”⁵⁷

Cogeco Data Services is the successor to Toronto Hydro Telecom. According to its corporate profile,

Cogeco Data Services runs over 500 kilometres of wholly owned fibre optic network throughout the GTA connecting more than 500 buildings and owns and operates the largest WiFi network in North America.

The Lemay-Yates report suggests that its growth has stagnated⁵⁸. In fact, the company is growing at a dramatic pace. In December 2008, Cogeco Data Services announced⁵⁹ that it is in

⁵⁶ Atria Networks website, April 4, 2009: <http://www.atrianetworks.com/about.php>

⁵⁷ Atria Networks website. http://www.atrianetworks.com/products_and_services.php, viewed April 7, 2009

⁵⁸ *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009. At page 35

⁵⁹ Press release, December 15, 2008, available at http://www.cogecodata.com/media_centre/downloads/CogecoDataTDSBNewsReleaseEnglishFINAL.pdf

the midst of adding an additional 500 route kilometres of fibre, doubling its Toronto network coverage and adding an additional 600 buildings over the next 30 months, just to satisfy a contract with the Toronto public school board.

Not only will Cogeco Data Services have more than 1100 buildings connected with its own fibre, its construction program that will provide fibre optic connectivity to every school in Toronto means that the company will be in every corner of the city, facilitating access to other businesses.

This project is hardly an exception. Atria Networks is providing services to the Ottawa Carleton Catholic School Board under the terms of a 10-year agreement signed in September 2003.⁶⁰ A few months later, a similar agreement was signed with the Ottawa Carleton public school board.⁶¹ The significance of these agreements is the resultant extension of alternate supplies of fibre optic communications facilities being built throughout the city, well beyond the urban core.

In the city of Ottawa, Atria Networks has 1000 route kilometres of fibre connectivity to at least 950 buildings,⁶² indicating a more substantial presence than the impression that may have been left by a superficial examination of its number of customers served.

The utility-backed telecommunications industry created a strong foundation for the alternate supply of fibre optic based competition in the local access business.

⁶⁰ Hydro Ottawa Holdings Inc. Press release dated April 28, 2003.

⁶¹ See, for example, itBusiness.ca story dated January 19, 2004, "*Ottawa school board forges long-term IT partnership*"

⁶² Interrogatory Response TelecomOttawa(Cogeco)12Apr07-1 PN2006-14 (proceeding leading to Decision 2008-17). Telecom Ottawa was sold to Atria Networks in February, 2008.

5.5.3 Cable business solutions

Videotron is a formidable player in the Quebec access market. It has actively courted businesses of all sizes. Videotron's business network services leverages 200,000 km of fibre optic cables, "that reaches the majority of the metro areas of Quebec."⁶³ Videotron promotes its readiness to accommodate next generation requirements for business networks.

Do you want your network to be ready for next-generation applications? Do you want to integrate your voice, data and video services to connect your various business centres on a single reliable and robust network? We have deployed an extended fibre-optic network to offer you optimal, very high-speed transmission services. Your voice, data and video communications have never travelled better.

Using SONET, ATM and IP technologies, our Network Solutions offer end-to-end digital transmission services that connect to local area networks, video equipment and multiple interface telephone switches. We also offer a number of frame configuration options. Whether SONET, ATM or Ethernet technologies, Videotron Business Solutions offers a variety of network access options and upgradeable capacity point-to-point or multipoint links.⁶⁴

Videotron also has a fibre presence in parts of Ontario.

Shaw Business Solutions also operates a substantial network with metropolitan networks in major cities in its operating territory. It has an international fibre backbone with connections along the US west coast from Winnipeg to Chicago and from Toronto through Buffalo to New York City. Shaw offers a full range of business connectivity services, including Private Line, Internet Gateway, Ethernet and MPLS and the company views the marketplace as very competitive.

Through its Shaw Business Solutions subsidiaries, Shaw competes with other telecommunications carriers in providing high-speed broadband communications services (data and video transport and Internet connectivity services) to businesses, ISPs and other telecommunications providers. The telecommunications services industry in Canada is highly competitive, rapidly

⁶³ Videotron corporate website, <http://www.vtl.ca/en/reseau.asp>, viewed on April 6, 2009

⁶⁴ Videotron corporate website, <http://www.vtl.ca/en/solution.asp>, viewed on April 6, 2009

evolving and subject to constant change. Shaw Business Solutions competitors include incumbent local exchange carriers (“ILECS”) (such as Telus Corporation and Bell Canada), competitive access providers, competitive local exchange carriers, ISPs, private networks built by large end users and other telecommunications companies.

According to Shaw, its Business Solutions organization is focussed on precisely the kinds of access capabilities that are sought by large enterprise customers and other carriers.

Shaw Business Solutions is focused on being a major account and wholesale provider offering third parties advanced high speed data connectivity and Internet services in Canada and the United States. Its offerings currently include data, voice and video transport and Internet connectivity services.

Shaw Business Solutions launched its operations in Canada in March 2000 and commenced operations in the United States in 2002. In recent years, Shaw Business Solutions continued to grow its revenues with a focus on the large and medium customer market. It also continues to establish public and private peering arrangements and high speed connections to major North American, European and Asian network access points and other tier-one backbone carriers. In the latter part of fiscal 2007, Shaw Business Solutions started to offer a commercial voice service for businesses.⁶⁵

Rogers Business Solutions took time in 2008 to re-position its business services portfolio, preparing to offer high bandwidth scalable services such as 100 Mbps and Gigabit Ethernet. Rogers has deployed a cross-Canada MPLS network that serve its internal requirements as well and Rogers has already begun to sell those services in-territory. Rogers is expected to concentrate on migrating existing customers to its new network and expanding its fibre into the customer premise in key locations.

A 10-year agreement to provide advanced integrated communications services to the York Region district School Board is an example of a major customer network won by Rogers which extends its fibre network within its serving territory, reaching well beyond the urban core.

⁶⁵ Annual Information Form, Shaw Communications Inc., November 25, 2008. Pages 10-11

Rogers installed an IP (Internet Protocol) fibre optic network in all of the Board's schools as well as in its two regional headquarters locations and five area offices.

Using advanced MPLS (Multi-Protocol Label Switching), the network delivers 100 Mb into and out of schools and 2 Gb into their headquarters.⁶⁶

Rogers has re-launched its small and medium business services portfolio, offering TV, phone and internet service bundles under a banner of "EasyToManage.ca".

We disagree with the impression left by the Lemay-Yates report⁶⁷ that Rogers has halted its activities in the large business market. While Rogers may have temporarily suspended some of its Business Solutions activities in 2007 outside of its cable areas, our research shows that Rogers is now a more focussed competitor within its core operating territory.

Rogers is providing Gigabit Ethernet access to business customers and it is cultivating an array of wholesale customers. Rogers is expanding relationships with many global carriers to be able to provide high speed connectivity to the Canadian locations of these multi-national corporate networks and provide backbone facilities to their international partners.

While Rogers may not focus on providing national business solutions, it has an extensive fibre network completely independent of that of the incumbent telephone companies and it is successfully leveraging that network to offer retail and wholesale business access services.

5.5.4 Non-ILEC competitive activity

Some telephone companies have built fibre optic networks in territories outside of their incumbent operating areas. For example, when it won the Government of Ontario business in

⁶⁶ Case Study from Rogers website, viewed April 19, 2009:

<http://www.your.rogers.com/business/wireless/solutions/yorkregion.asp>

⁶⁷ *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009. At page 24

September 2006, TELUS announced that it had invested \$7.5B in the province since 2000.⁶⁸

Investment in Ontario currently stood at \$10.7B by the end of 2007.⁶⁹ TELUS has constructed a fibre optic network in Toronto, with up to 864 strands of fibre.⁷⁰

TELUS has invested \$5.2B in the province of Quebec since 2000.⁷¹ It has invested hundreds of millions of dollars extending a fibre optic network into the Montreal business core.

5.6 Business networks summary

The Lemay-Yates paper suggests that the CRTC's analysis was incomplete in developing its conclusions on the duplicability of fibre-based access:

In its Decisions 2008-17 and 2008-118, the CRTC did not indicate which proportion of business locations were already served by more than one fibre optic access facility, as a result of the analyses it would have completed. As a matter of fact, the record of the proceeding indicates that this question was not posed to industry participants.⁷²

We disagree.

The CRTC has examined the state of competition for digital access for the business market a number of times in the context of various regulatory proceedings.

First, in the examination of forbearance for retail high-speed Digital Network Access (“DNA”) and in the examination associated with its examination of essential services. In the examination of high-speed DNA forbearance, the test looks at each wire centre and examines the number of buildings having connections to competitors’ fibre networks compared to the number of buildings having connections to the incumbent’s fibre network. That process

⁶⁸ TELUS press release, September 13, 2006

⁶⁹ TELUS Community Board release “We Give Where We Live: TELUS in Toronto”, April 2008

⁷⁰ TELUS press release, May 11, 1999

⁷¹ TELUS Community Board release “We Give Where We Live: TELUS in Montreal”, April 2008

⁷² *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009. At page 5

established that a substantial proportion of business locations are able to be served by more than one fibre optic facility, in wire centres representing the majority of Bell's high-speed accesses.

Second, in the Essential Services examination, the CRTC looked at the issue from a different angle. Across all customers in all locations, the CRTC examined how accesses were provided to determine the percentage of connections that were self-supplied by competitors, leased from third parties or leased from an ILEC. Again, the CRTC determined that a substantial proportion of fibre optic accesses are being provided by parties other than the incumbent.

Both examinations indicated that there is a high incidence of alternate supply of fibre-based high speed access services, beyond the incumbents.

The Policy Direction requires that:

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

Given that the CRTC had been able to establish using two different statistical analyses the degree to which competitors can self-supply their own facilities or make use of alternative suppliers, precisely the criteria for ruling that the fibre facilities are non-essential.⁷³

⁷³ To be considered "essential", paragraph 36 of Decision 2008-17 found that a facility, function, or service must satisfy all of the following conditions:

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

We believe that it would be inappropriate to adopt a further exchange-by-exchange examination as has been suggested by Lemay-Yates.⁷⁴ Such an approach would be unnecessarily inefficient and burdensome.

⁷⁴ *Next Generation Network Access: A Canadian and international perspective on why wholesale services should be regulated as essential facilities*, Lemay-Yates Associates Inc., March 11, 2009. At page 6

6 Summary

In mid-December 2008, the CRTC issued a series of decisions that have impacted the incentives for telephone companies to invest in infrastructure. This paper reviewed the competitive landscape for the provision of high speed digital services in the business and residential markets and concludes that a reliance on competitive market forces best serves the interests of stimulating investment in broadband facilities and providing innovation and choice for Canadians.

An objective of telecom policy should be to encourage the development of a sustainable competitive marketplace for customers to choose between facilities-based suppliers. Facilities-based competition encourages improved reliability, continued investment in upgrades and feature development and a more vibrant array of choices for customers. Conversely, a policy that relies on investment by only one party, with regulation mandating resale, will serve to limit choice and discourage the benefits of facilities-based competition that have been shown to be delivered best through the operation of market forces.

As we discussed in this paper, the CRTC's requirement for incumbent telephone companies to create low-priced digital network access tariffs for competitors produced an unintended consequence of inhibiting the development of competitors that had been building alternate supplies of fibre optic facilities. We caution that history could repeat itself.

6.1 Residential broadband

In 2004, Bell Canada began implementation of its fibre-to-the-node ("FTTN") network. By the end of 2008, \$650M had been invested with announced plans to be investing an additional \$700M over the next 3 years for a total investment of \$1.35B to install optical network connections closer to its customers.

FTTN represents a discontinuity in the evolution of access networks. For the first time, the access architecture segregates data and video services, carrying them over a new overlay fibre optic network, while maintaining the traditional legacy voice services infrastructure.

To date, Bell has largely completed the FTTN network in Toronto and Montreal and Bell Aliant has implemented FTTN in Halifax, Dartmouth, Bedford, Lower Sackville, Moncton, Saint John, Fredericton, St. John's, Paradise, and Mount Pearl. However, the business cases for further investments in implementing FTTN are under review, as a result of the CRTC decisions under appeal by Bell and Bell Aliant.⁷⁵

The investment in FTTN enables much higher speed connections, permitting broadcast video and ultra-high speed internet service to be offered over the same wires, on top of regular telephone service. It is this combined revenue opportunity from internet and TV services that offsets the risk associated with investing in FTTN for the shareholders of Bell and Bell Aliant.

However, the nature of the technology architecture is such that if a competitor uses the FTTN connection for high speed internet, the phone company is unable to share the connection for any of its next generation services, such as broadcast distribution. The CRTC order to share FTTN facilities not only impacts the margin on internet revenues, but it would preclude the phone company from garnering any television revenues from that customer. The resultant losses in multi-service revenues and loyalty are such that the business case for further investment in the FTTN infrastructure project has been said to be put in jeopardy.

Remarkably, unlike most other markets in the world, telephone companies in Canada are not the dominant suppliers of residential high speed internet service; that distinction belongs to

⁷⁵ Bell Aliant Regional Communications, Limited Partnership and Bell Canada, Petition to the Governor in Council, March 11, 2009 at paragraph 4

Canada's cable companies. Further, the cable companies lead in market share and in technical capabilities, with speeds of up to 100 Mbps being offered to consumers.

As such, we find that it would be inappropriate to burden telephone companies with regulations that can inhibit their investments in more advanced infrastructure.

6.2 Business Ethernet

When examining business data communications services, there is a distinction drawn between fibre and copper-based services. Generally, for data speeds of DS-3 (45Mbps) or above, there is an assumption of fibre.

The issue of adequate competitive presence is not whether competitors are able to supply fibre to all or even a majority of business addresses. This would be an absurd standard. The reality is that the majority of business addresses are currently unserved by fibre facilities supplied by any carrier - including the incumbent phone company - and further, the majority of business addresses do not subscribe to services that need fibre facilities.

In an assessment of actual business data requirements, the CRTC determined that a large proportion of high-speed access and transport services, including Ethernet, were either self-provided by competitive carriers or obtained from third parties.⁷⁶

The CRTC found that competitors have both the opportunity and incentive to invest in constructing network facilities required to provide Ethernet access and transport services, which led to their conclusion that the regulatory obligation to provide these services to competitors should be phased out.

⁷⁶ Telecom Decision CRTC 2008-118, paragraph 16.

Consistent with government policy, the CRTC determined that ILECs would “continue to offer Ethernet access and transport services to competitors for five and three years, respectively.”⁷⁷ The phase out period established in the CRTC’s Essential Services Decision⁷⁸ was intended to provide competitors with sufficient time for business planning, expanding their own local access networks or making arrangements (such as negotiating with competitive suppliers), to remove the dependence on mandated ILEC wholesale services.⁷⁹

These regulatory decisions follow a consistent pattern in recognizing that mandated access to facilities can lead to inhibiting the evolution of facilities-based competition, as the industry learned when the CRTC created special wholesale rates for digital network access facilities. Given that there are alternate suppliers of high speed Ethernet access facilities, there is no reason for the government to mandate the types of access being sought by MTS Allstream. Indeed, there is a risk that such an order could serve to arrest the development of competing service providers.

6.3 Conclusion

We believe that a policy of fostering facilities-based competition continues to be the approach that best enables the continued evolution of regulation to increasingly rely on market forces to the maximum extent.

When the CRTC aggressively intervened in establishing Competitive Digital Network Access tariffs, the effect of mandated cost-based rates was to drive competitors from the marketplace, inhibit the development of a facilities-based competitive access market. As this applies to the market for high speed business Ethernet access, which enjoys a competitive

⁷⁷ Telecom Decision CRTC 2008-118, paragraph 27.

⁷⁸ Telecom Decision CRTC 2008-17

⁷⁹ Telecom Decision CRTC 2008-118, paragraph 27.

supply of services, the CRTC's determination to apply a light touch approach to regulation in the business market should be upheld in order to avoid unintended consequences as a result of regulatory intervention.

Given that the telephone companies have a lower market share than cable companies in the supply of copper-based DSL-rate services and lag behind their cable competition in speeds, it is difficult to reconcile how regulation of this market continues to be consistent with a move to lighter touch regulation.

There is a vibrant competitive marketplace for high speed internet and Ethernet access in Canada, characterized by innovation and rivalrous market-driven investment in facilities and new services. Government policy should be to stand aside and allow the marketplace to work.