



**Lemay-Yates
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Inc.**

**Next Generation Network Access:
A Canadian and international perspective on
why wholesale services should be regulated as essential
facilities**

Report presented to
MTS Allstream

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1. Executive Summary: Summary of Key Findings and Conclusions

The objective of this independent Report is to address the question of why access to wholesale access next generation services and specifically Ethernet services, should, or should not be mandated at cost based pricing in Canada, and thus be classified as essential services by CRTC.

This independent Report has been developed by LEMAY-YATES ASSOCIATES Inc. (LYA) on behalf of MTS Allstream Inc. (MTSA) in the context of its appeal to the Governor-in-Council following CRTC Telecom Decision 2008-118¹, which denied an application by MTSA to have wholesale Ethernet services defined as essential services by CRTC.

To answer this question, we have reviewed and analyzed information pertaining to the evolution of competitive telecommunications carriers serving the business market in Canada and of their fibre optic facilities deployed to serve these same markets, to determine if alternate supply of fibre optic facilities appears widespread to most business locations in Canada. If it were so, it would imply that competitive telcos serving this market could either self supply or negotiate agreements with at least two parties to provide services to medium and large business clients in a large proportion of these locations. If it is not so, then next generation Ethernet access facilities are indeed a bottleneck and this bottleneck jeopardizes the future of competitive, broadband, next generation service offerings to businesses across Canada.

A number of other countries worldwide, notably EU members, have already concluded following extensive analyses that local access networks and next generation local access

¹ Decision released December 11, 2008.



networks, specifically fibre optic based Ethernet access, are a bottleneck and that the incumbent local telephone company is a dominant player in these markets. Thus, we also discuss how these countries have addressed policy and competition issues related to access to wholesale next generation network broadband services as the needs of business clients are rapidly and increasingly migrating to these services, not only in Canada, but around the world.

The last element of our analysis is investment. It has been argued by a number of telephone companies that mandated access to wholesale facilities at cost based prices would adversely impact investment in new networks and technologies. We are thus discussing in this Report industry statistics and pertinent developments relating to investment in telecommunications networks when mandated wholesale access is a key building block as part of the regulatory framework.

Our key findings and conclusions are laid out below according to each major section of this Report.

1. On the availability of alternative fibre optic infrastructure to provide for today's and tomorrow's next generation access services to serve the business market in Canada

Our conclusion from this review and our analyses is that all market activity and network information points to the fact that there do not currently exist alternative or duplicate fibre optic facilities to a large proportion or to a majority of business locations in Canada and that this situation will remain for many years to come, if not for decades, in spite of continued investment by competitive telecommunications carriers such as MTSA and others.



This conclusion is based on the following analyses and discussion:

- on our analysis of the results of Canadian cablecos and of their activities addressing the business market, and
- on public information regarding the reach of the fibre networks of ex utelcos in Ontario, as well as
- on our review and analysis of out-of-territory wireline financial results reported by TELUS and Bell Canada.

We also touch briefly on the difficulties experienced by TELUS in fulfilling its commitment to Public Works and Government Services Canada (PWGSC) and for PWGSC to obtain transition services from Bell Canada, which are documented as part of a dispute in front of CRTC. This illustrates the difficulties in providing services and access to large business customer locations when a carrier, in this case a very experienced and knowledgeable ILEC, does not own its facilities to all locations required to fulfill the needs of a business customer with multiple locations. This is a common occurrence when a carrier is not the incumbent ILEC in a given area.

Indeed, while Canadian telecommunications carriers, both incumbents and competitors, have been deploying fibre optic facilities in local access networks for many years, the fact remains that a significant portion of business locations is still only accessible via the fibre optic facilities of incumbent carriers or that they may be no fibre optic facilities to that location.

For example, Toronto Hydro Telecom Inc. (now part of Cogeco Data Services) reported providing fibre access to 500 locations in the City of Toronto at the end of 2008. Construction of the THTI network started as far back as 1995 according to public reporting from Toronto Hydro. As there are more than 51,000 business buildings in the



City of Toronto alone², this corresponds to a 1% coverage of the number of commercial buildings after 10 years. At this rate, the task of providing alternate fibre facilities to all these locations would require not only many, many years, but decades. We highlight that there are more than 160,000 business establishments in the Toronto Census Metropolitan Area of which more than 75,000 are located in the City of Toronto itself³.

Thus, after many years, a telecom carrier whose sole business was to provide fibre optic access to businesses in Toronto, had 500 locations connected to its network. This example is one illustration of why the level of effort and of investment required to provide access to all business locations is a very significant challenge, why fibre optic local access links of incumbent carriers are still a major bottleneck and that this situation is expected to be sustained for many years to come, in spite of continued investment by competitive telecommunications carriers such as MTSA and others.

We also highlight in this Report the major retreat of many Canadian cablecos from serving the medium business and enterprise market segments. These cablecos have abandoned or significantly curtailed their business operations and chosen to focus on the SOHO market accessible from their residential focused networks.

In 2005, CRTC had submitted its view to the Telecommunications Policy Review Panel that Canadian cablecos would eventually provide alternate broadband access facilities to Canadian households and businesses across the country.

While this promise is being fulfilled in the case of residential markets across the country, it is quite the opposite when it comes to addressing the business market. Many cablecos have now concluded that it is too expensive to build facilities to reach business locations

² Information provided by D&B.

³ Information provided by Toronto Economic Development on its web site www.toronto.ca/tobusiness



and that profitability margins to offer telecommunications services to businesses over leased facilities are currently too low to continue offering such services.

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.

Instead, the CRTC interrogatories⁴ focused on assessing the percentage of competitor access and transport links (separately for DS-0, DS-1..., Ethernet) that were either self supplied, obtained from a third party or leased from an ILEC, on an aggregate basis. Based on the mostly confidential information filed by telcos made parties to this proceeding, the CRTC concluded that there was a significant evidence of self supply of Ethernet access facilities and that these facilities were duplicable.

However, we argue that evidence of self supply is not evidence that alternate Ethernet access facilities exist in a large proportion of business locations. Self supply may be required because of prohibitive rates charges by the owner of the only existing facilities. Self supply may also mean that many requests for proposals by potential customers can not be responded to by competitive carriers because of the lack of access facilities and that these customers have no choice but to deal with the incumbent telco. A high incidence of self supply does not mean that facilities are duplicable. It may just mean that in other locations and for other clients, competitive carriers chose not to bid or offer services since they could not secure access links at reasonable costs.

In addition, based on our experience at LYA, we know of many office buildings that have fibre optic facilities coming in from a number of carriers since they are very attractive locations, often with many large tenants. These would all be self supplied fibre based



broadband links. However, we also know that this does not imply that there exists widespread coverage of fibre optic facilities and Ethernet access services in other buildings close by or in any given other area.

We note that there has been no indication disclosed by the CRTC or other parties as to the percentage of business locations in any given city that is served by more than one provider of fibre optic broadband facilities.

On the other hand, the CRTC has relied extensively on similar indicators (for example, the percentage of households in a given area served by at least 3 facilities based carrier) as part of its decision making process regarding forbearance of local phone markets. We believe that it would be very useful to apply similar indicators regarding the availability of alternate fibre optic Ethernet access links serving business locations in a given area. When a specific threshold, such as 75% of the business locations served by 2 or more fibre facilities would be met, then Ethernet access links could be classified as no longer bottlenecks or essential facilities.

We also highlight that the OECD also casts a favorable eye on assessing facilities bottlenecks (comprised of essential facilities) on a geographic basis i.e. ex ante regulation **where needed**, to avoid the creation of new dominant positions by incumbent telcos for next generation networks.

⁴ For example, interrogatory 19Jul07-2001 PN 2006-14



2. On the perspective of other countries in ensuring wholesale access including access for next generation services

EU member countries have identified mandated access to wholesale facilities as a key foundation of their regulatory framework to enhance competition and increase investment in all market segments since 2002. This has resulted in significant increases in the level of competition in most retail markets among EU member countries.

The European Commission (EC) has discussed next generation networks and next generation access extensively as part of its proposal for a new telecommunications framework going forward. We highlight below the key principles guiding the EC, as expressed in public speeches from the EC Commissioner Ms. Vivian Reding.

“How we treat next generation access is therefore the single most important policy question in the telecoms sector today. We have to create incentives for investment whilst making sure that no-one (and I insist on this no-one), can be in a position to foreclose the market.

“A key element in my vision for Next Generation Access regulation is to ensure that all parties, entrants or incumbents have sufficient incentives to move in these markets.

Regulatory restraint as a carte blanche for incumbents to re-monopolise markets where the buds of competition are flourishing is not a policy option if we want competitive markets.”⁵

EU member countries and the European Commission firmly believe that it is increased competition that drives increased investment.

⁵ Europe’s Way to the High Speed Internet: Why Effective Network Competition is the Freeway to the Future, ECTA Annual Conference, Brussels, June 25, 2008



A similar view was expressed by the Honorable Minister of Industry Mr. Tony Clement in a paper published in the National Post on March 3, 2009 entitled “How Canada can compete in tough times”. Mr. Clement states that *“competition encourages efficiency and productivity which creates better opportunities for employers and employees alike” and that “Investment is vital for Canadian businesses to succeed—it improves our access to knowledge and technology and enhances our ability to innovate and research new markets”*.

As next generation access facilities are a bottleneck and thus adversely impact competition and thus investment, EU countries are taking appropriate action to ensure that these facilities will be made available on a mandated basis and at cost based pricing.

On March 3, 2009, in a major statement entitled “Delivering super-fast broadband in the UK- Promoting investment and competition”, Ofcom, the UK regulator, concurred with this view by mandating access to next generation wholesale access services and proposing that these wholesale services be provided by Openreach, the fully owned but functionally separate division of BT providing wholesale services to competitive telecommunications carriers and to BT on an equivalent basis. A key element of this new framework is the Generic Ethernet Access (GEA) wholesale service being developed by Openreach in cooperation with competitive telcos to meet the technical requirements of Ethernet Active Line Access.

Although there are differences between the EU countries reviewed in this Report, it is also apparent that steps are being taken in all these countries to ensure that competitors are provided mandated access to wholesale next generation access fibre based infrastructure and services. No regulator has concluded that the large scale deployment of fibre optic next generation facilities are easily duplicable by competitive carriers.



3. On the evolution of investment in telecommunications networks in countries where the regulatory framework relies extensively on access to underlying wholesale facilities, including next generation services

As noted earlier, it has been argued by some incumbent telecommunications carriers that mandated access to wholesale facilities will deter investment in new networks.

Our review of investment data provided by the EU as well as our analysis of the investment of BT in the UK indicates that mandated access did not result in reduced network investment. As a matter of fact, the EC claims just the opposite. Also, BT's capital intensity remained at a similar level before and after the launch of Openreach.

In addition, we highlight that in Canada, incumbent mobile carriers had strongly argued against any mandated access to their networks by potential new entrants during the consultation leading to the auction of AWS spectrum.

Nevertheless, once wholesale roaming was mandated, and new competitors acquired spectrum, TELUS and Bell Canada both chose to deploy a new HSPA network and thus to increase their level of investment to become stronger competitors to Rogers, to obtain the cost benefits of HSPA and to compete with the new mobile licensees. At the same time, they hope to provide new entrants with wholesale access to their networks and thus generate new revenues. It is thus expected that competition will be much increased in Canada by this new investment and that consumers will reap major benefits over the coming years.

Investment in Ethernet broadband networks in Canada has arrived at a key juncture point. Without mandated access to wholesale Ethernet local access services to support current and future needs, Canadian businesses will see reduced competition among Canadian



telcos willing or able to successfully address their business-critical broadband telecommunications needs, eventually leading to less investment, less innovation, and higher prices. This would occur in the middle of a severe economic downturn when the global competitive positioning of Canadian medium size businesses and enterprises is key to their long term growth and prosperity.

We conclude from our research and analyses that ensuring increased competition in next generation services via mandated access to next generation broadband access services, recognizing the status of next generation incumbent facilities as essential due to the lack of suitable alternatives, will increase competition which in turn will provide the key incentive for incumbent as well as competitive telcos to keep on investing in these networks.

If the current situation prevails and competitive telcos continue to not have mandated access to Wholesale Ethernet access services as per the CRTC Decisions, we would expect to witness a disinvestment in telecommunications networks serving the medium size and enterprise business customers in Canada. Only businesses located in key urban areas and in the selected best locations within these areas will be able to benefit from services being offered by competing facilities based carriers. The remainder will see a lessening in the choices offered to them and the expansion of competitive fibre optic facilities will be jeopardized.

Canadian telecommunications carriers, competitive carriers and incumbents alike, need certainty in terms of telecommunications policy and regulatory framework with respect to access wholesale facilities. Local access networks and next generation Ethernet access networks are recognized as significant bottlenecks and barriers to competition worldwide.



For a number of years, Canadian regulatory decisions have slowly but surely cast significant doubt on the objectives pursued to ensure sustainable competition in business telecommunications networks in Canada. The net impact has been to curtail investment in these market segments by competitive carriers.

No competitive carrier will invest on any significant scale in new fibre optic broadband facilities for the business market if it does not believe that access to next generation broadband facilities in the locations that it does not currently serve, can be available at prices that will provide reasonable margins for many years to come. The time horizon for these decisions is not a few months or a few years. In the end, Canadian businesses will pay the price for lack of competition, and lack of choice in telecom service providers.



2. Introduction

2.1 *Objective of this Report*

This Independent Report has been developed by LEMAY-YATES ASSOCIATES Inc. (LYA) on behalf of MTS Allstream Inc. (MTSA) in the context of its appeal to the Governor-in-Council following CRTC Telecom Decision 2008-118⁶.

The objective of this report is to address the question of why wholesale access to next generation services should, or should not be, be mandated at cost based pricing in Canada.

In order to address this issue, we first review the availability of alternate fibre optic facilities currently serving business telecommunications markets in Canada, with a focus on updating the perspective on the market impact of Canadian cablecos, of utility telcos ('utelcos') and of ILEC out-of-territory operations in these market segments over the last few years.

This review demonstrates that the Canadian industry structure addressing business telecommunications market is very similar to what is found in European countries and other OECD countries where alternate fibre optic facilities based provider do not have extensive market coverage.

Therefore, we also discuss how these countries have addressed policy and competition issues related to access to wholesale next generation network services as the needs of business clients are rapidly and increasingly migrating to these services, not only in Canada but around the world.



2.2 *Background for this Report*

In Telecom Decision 2008-118, the CRTC denied the MTSA request to Review and Vary its prior decision 2008-17⁷ regarding the classification of Ethernet access and transport services (as well as related services) as non essential, and following this classification, not subject to ex ante cost based pricing regulation⁸ subject to a phase-out period.

MTSA justified its request to Review and Vary the CRTC's determinations on the basis that the CRTC had erred in the following manner:

- in assuming that the allegedly high incidence of self supply by competitors is evidence of alternative wholesale supply,
- in finding that the broadband networks of the incumbent telephone carriers are practically and feasibly duplicable, and
- in finding that there are substitutes for Ethernet access and transport services.

The following excerpts reproduce the entire CRTC rationale in its May 2008 Telecom Decision 2008-17 for classifying Ethernet services, often also referred to as Next Generation Network (NGN) Services, as non essential.

Ethernet access services are typically offered at 10, 100 or 1000 Mb/s maximum bandwidth. The same determination was applied by CRTC to DS-3, OC-3 and OC-12 services, which are considered as part of legacy services and provide symmetrical dedicated bandwidth of 45 M/s, 155 Mb/s and 622 Mb/s respectively.

⁶ Decision released December 11, 2008.

⁷ Published in March 2008

⁸ Services classified as essential are to be provided on cost based pricing on the basis of Phase II costs plus a 15% mark up.



“117. The Commission notes that fibre-based access and transport services include CDN DS-3, OC-3, OC-12, and Ethernet services

118. 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.

119. Accordingly, the Commission determines that high-speed fibre-based access and transport facilities and related services are to be classified as non-essential subject to phase-out.”

During the proceeding leading to these decisions, CRTC interrogatories⁹ focused on assessing the percentage of access and transport links that were either self supplied, obtained from a third party or leased from an ILEC. Information was requested based on a segmentation according to Medium, Large and Major Metro Areas. No information was requested for any specific city. Based on the mostly confidential information filed by telecommunications carriers made parties to this proceeding, CRTC concluded that there was a significant evidence of self supply of Ethernet access facilities and that these facilities were duplicable.

However, we argue that evidence of some self supply is not evidence that alternate Ethernet access facilities exist in a large proportion of business locations. Self supply may be required because of prohibitive rates charges by the owner of the only existing facilities. Self supply may also mean that many requests for proposals by potential



customers can not be responded to by competitive carriers because of the lack of access facilities and that these customers have no choice but to deal with the incumbent telco. A high incidence of self supply of Ethernet access links does not mean that Ethernet facilities are duplicable. It may just mean that in other locations and for other clients, competitive carriers chose not to bid or offer services since they could not secure access links at reasonable costs.

We highlight that CRTC has not provided examples of a specific criteria or threshold used to determine the existence of facilities based competition for fibre optic access links such as Ethernet in upstream markets, such as for example, a minimum percentage of office locations that would be served by more than one or two fiber optic based telecommunications carrier, or some other criteria, but that it nevertheless considers that there is existence of competition.

The CRTC has merely stated that there was existence of competition in the wholesale or upstream market.

No mention was made of regional differences or even of differences between larger and smaller cities, city core urban areas versus suburban areas, all elements that exert significant impact on the availability of alternate fiber optic facilities to business locations.

We also highlight the fact that the CRTC does not indicate which services could be considered to be substitutes of fiber based next generation Ethernet services for access at 10, 100 or 1000 Mb/s or for the DS-3 and OC-3/12 legacy services. There is a limited supply of fixed wireless broadband services in some areas of the country, but in general, these services are difficult to deploy as they require line of sight, are not equal in quality,

⁹ For example, interrogatory 19Jul07-2001 PN 2006-14



security and performance to fiber based services and thus do not have the same acceptance by customers.

We note that a market coverage criterion was accepted by the CRTC in implementing the forbearance framework for local telephone services, such criteria being in this case the presence of independent facilities-based carriers capable of serving 75% of the number of local exchange lines that the ILEC is capable of serving.

To summarize the CRTC decisions regarding wholesale access links used mainly for business applications, the CRTC has determined that low speed legacy services, i.e. older and higher cost technology services, such as DS-0 and DS-1 access services providing symmetrical and dedicated bandwidth at 64 kb/s and 1.5 Mb/s respectively, are to be considered conditional essential services, similar to the unbundled local loops or the copper pairs of the incumbent telephone companies and ADSL access services and that they are to be provided at cost based regulated pricing.

We note that DS-0/1 services can be provided over copper pairs as well as fiber links and the CRTC's determination for the classification of these services is based on the ubiquity of copper pairs versus the lack of ubiquity of the fiber facilities deployed by competitors (at par. 69 of 2008-17), implying that these facilities have far from widespread coverage. Next generation network services such as Ethernet access, provide bandwidth well in excess of 1.5 Mb/s in order to meet today's and tomorrow's business needs and must in general be provided on fiber optic facilities.

So we highlight that the CRTC has concluded that it should continue to provide mandated access at cost based wholesale prices to older, lower bandwidth services that met the needs of Canadian business customers in the 1980s in the 1990s, because of the ubiquity of copper pairs, but not to fiber optic based higher bandwidth services including Ethernet services, which are rapidly becoming a requirement to fulfill the needs of



Canadian businesses. This has been decided by CRTC even in light of its own conclusion that *“the Commission does not consider the fibre-optic facilities currently deployed by competitors to be a sufficient alternative to the ILECs’ copper facilities used to provision low-speed digital access services to their retail customers.”*¹⁰

2.3 *The scope of this Report*

This Report discusses the conclusions reached and the responses being implemented or under consideration in other countries, when faced with the same challenges of ensuring the availability of a competitive supply of next generation, high bandwidth access and transport services to business clients.

We have focused our discussion on OECD and EU countries with an economic environment similar to that found in Canada.

Canada, as most EU and OECD countries, strives to foster facilities-based competition across all market segments to bring lower prices and innovative services to Canadian consumers and businesses while recognizing that in certain cases, access to and sharing of network facilities is a pre-requisite to sustaining competition.

In 2007, Industry Canada concluded that mandated access to the mobile network of not only one, but of all other national mobile carriers, was necessary to enable entry of new national or regional mobile carriers to enhance the competitive structure of the industry. This was done even though there were three other well established national mobile carriers and in view of the likely temporary GSM technology monopoly of Rogers.

¹⁰ CRTC Telecom Decision 2008-17, par. 69



Our discussion also highlights the impact of telecom policies related to next generation networks on the ensuing capital investment by incumbent carriers.

One of the key arguments against imposing mandated access and cost based pricing to next generation wholesale access services including Ethernet services, has been that this would result in reductions in capital investment by incumbent carriers, a result likely with negative consequences for the industry as a whole and for retail customers. However, our review dispels the view that regulation of wholesale access services has had a negative impact on investment.

However, before conducting this review, we believe it is of significant benefit to highlight the particular environment present in Canadian business markets as opposed to consumer markets from a network perspective.



3. Residential versus business markets: two very different technological platforms and market segments

In Canada, as in many other countries, the debate surrounding access to next generation services has largely been focused on the residential market segment with the evolution of residential broadband availability and penetration being touted as key benchmarks of success or failure.

The OECD as well as the EU both publish country comparisons of broadband residential penetration among consumers.

In Canada, the CRTC has also focused its market and industry monitoring activities on the availability and penetration of broadband Internet services among Canadian households. As a matter of fact, CRTC does not report on the penetration of broadband Internet access among Canadian businesses in its yearly monitoring report on the status of the industry.

The success of Canada's telecommunications policy and regulatory framework can be measured by Canada's early leadership among OECD countries in the penetration of broadband Internet among Canadian households as well as by the significant market share captured by cablecos in residential telephony since 2005.

The foundation of this success has been the close to ubiquitous household coverage provided by the broadband networks of cable TV operators across the country, which was in place **prior** to the implementation of a regulatory framework to increase competition in telephony. These networks were then modernized and upgraded over the years starting in the 1990s, thus enabling cablecos to expand their service offerings. The cable TV



operators of the 1990s are now full fledged telecommunications carriers, focusing on the consumer markets.

In 2005, the CRTC had expressed high hopes relative to the market impact of cablecos in increasing competition in Canadian telecommunications markets and thus providing benefits to Canadian consumers. We provide below an excerpt from the CRTC's submission to the Telecommunications Policy Review Panel entitled "CANADIAN TELECOMMUNICATIONS POLICY REVIEW" submitted on August 17, 2005 (Emphasis added).

*"While facilities-based competition in the local wireline market has been slow to develop, it has been successful in the wireless and long distance markets, which have been forborne from rate regulation for some years now. Even in the local wireline market, we may now, eight years after the decision to open the market, be on the verge of realizing the goal of broad-based facilities-based local competition. This is the promise of cable television companies' entry into the local telephone market using either circuit-switched networks to deliver traditional telephone services, or high-speed broadband networks to deliver VoIP services, in competition with the telephone companies. **If this promise materializes, Canada may find itself in the very enviable position of having two competing broadband networks to a significant number of Canadian homes and businesses, and all of the competitive services that can run over those networks.**"*

In this paper, the CRTC affirmed its view at the time that cablecos would provide a second broadband access alternative to a significant number of Canadian homes **and** businesses.

While this is now undoubtedly true for homes, it is nowhere close to reality in the business markets, even now that we are almost 4 years after the CRTC made the above statement.



We provide in Section 3.1 a review of the evolution of the business telecommunications activities of Canadian cablecos to highlight our conclusion that contrary to CRTC expectations, cablecos in general have focused on a quick retreat from the business markets, except from the very small businesses already served by their residential centric networks, and are thus not providing a second broadband facilities based access alternative to support competition in these markets.

3.1 The current state of business telecommunications activities by Canadian cablecos

What has happened since 2005 is essentially a retrench of the business telecommunications activities of cablecos as they have increasingly focused on providing services leveraging their current, residential market, network footprint and technologies, addressing a portion of the small and medium size business market that can served with a few telephone lines (typically less than 5) and a high-speed Internet connection akin to the service they provide to their residential customers or over fibre optic facilities already in place.

The following is a summary of the recent evolution and current activities of Canadian cablecos in business markets, focusing on the top 3 carriers, namely Rogers, Shaw and Videotron Ltd.



3.1.1 Rogers Business Solutions following the Call Net acquisition

Rogers Business Solutions (RBS), as it is known today, is essentially an evolution of the business telecommunications operations acquired from Call Net in 2005, that was integrated with the prior activities of RBS, which was already leveraging Rogers cable TV network to address the very small business market within range or already on-net within its cable TV network.

As per RCI, Rogers Business Solutions, after the Call Net acquisition, offered services to the medium size business market as well as to the enterprise market and to the carrier (or wholesale) segments. This is a very similar market positioning to that of MTS Allstream.

Table 1 summarizes the key business metrics at RBS since 2005, up to the latest IVQ 2008 results released on February 18, 009. A mix of leased and owned facilities was used to address these business segments as highlighted by the fact that carrier costs represented more than 50% of Rogers' revenues from 2005 to 2007 inclusively¹¹. This demonstrates that Rogers initially attempted to grow its business telecommunications operations from the second half of 2005, following the Call Net acquisition, to approximately mid-2007.

However, Rogers' strategy shifted dramatically at that time.

¹¹ Carrier costs were note reported in the 2008 results.



Table 1- Key Metrics at Rogers Business Solutions since the Call Net Acquisition

| Rogers Business Solution | 2005(1) | 2006 | 2007 (2) | 2008 (3) | 2008/2007 |
|--|---------|-------|----------|----------|-----------|
| Operating Revenue \$ Can M) | \$562 | \$596 | \$571 | \$526 | -7.9% |
| Sales and Marketing Expense (\$M) | \$71 | \$70 | \$75 | \$26 | -65.3% |
| Carrier charges, as a % of revenue | 53.5% | 57.5% | 55.0% | | |
| Operating profit (\$M) | \$54 | \$49 | -\$19 | \$54 | n/m |
| In-year RBS Capital Expenditures (\$M) | \$85 | \$98 | \$83 | \$36 | -56.6% |
| Total local lines equivalents (in thousands) | 171.6 | 205 | 237 | 197 | -16.9% |
| Total broadband data circuits (in thousands) | 21.5 | 31 | 35 | 34 | -2.9% |

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Sources: RCI reporting

(1) Call Net acquisition consolidated as of July 1st, 2005. Pro forma results presented including Call Net.

(2) Reflects Futureway acquisition with 14K local line equivalents and 1K broadband lines

(3) In IQ 2008, Rogers reclassified 4000 High Speed Internet subscribers from RBS to Cable HIS subscriber base.

Definitions provided by RCI:

Local lines equivalents include individual voice lines plus Primary rate Interfaces (PRI) at a factor of 23 voice lines each. Included both retail and wholesale circuits as per 2006 Annual Report.

Broadband data circuits are those customer locations accessed by data networking technologies including DOCSIS, DSL, E10/E100/1000, OC3/12 and DS1/3.

Revenues have decreased by close to 8% between 2007 and year-end 2008, after increasing in 2006.

Total local lines or phone lines have decreased by 17% in only one year and broadband lines are flat.

However, what is most telling is the 65% decrease in sales and marketing expenses coupled with the 57% decrease in capital expenditures for RBS between 2008 and 2007. As a matter of fact, 2008 capital expenditures were close to 65% lower than those incurred in 2006.



Basically, RBS has decided to retreat from the medium business and enterprise business markets and to focus on leveraging their existing core cable TV network to target very small businesses already covered by their network, as per the comments reproduced from RCI's fourth quarter 2008 and 2007 results.

- IV Q 2008¹²

*“The decrease in RBS revenues reflects a decline in lower margin resale and legacy data service businesses, with a shift in focus to increasing the strength of profitable relationships and leveraging revenue opportunities over **Cable’s existing network**. RBS continues to focus on retaining its existing medium-enterprise and carrier customer base, but in late 2007 it suspended most sales and marketing initiatives related to acquiring new medium and large business customers other than purely on-net opportunities within Cable’s footprint. For the three months ended December 31, 2008, RBS data and local revenues declined \$9 million and \$4 million, respectively, while long-distance revenue increased by \$7 million compared to the corresponding period of the prior year.*

*RBS continues to focus on managing the profitability of its existing customer base and evaluate profitable opportunities within the medium and large enterprise and carrier segments, while **Cable Operations** focuses on continuing to grow Rogers’ penetration of telephony and Internet services into the small business and home office markets within Cable’s territory.”*

- IV Q 2007¹³

*“Capital spending requirements on information technology and network builds were also reduced. RBS will continue to maximize operating profit through its existing customer base while **Cable will increase its sales efforts on the smaller business portion of the market within its traditional cable television footprint** where it is able to serve customers with voice and data telephony services provisioned over its own infrastructure”.*

Rogers’ state of the art broadband cable TV network covers some of the best business cities in Canada, including a large portion of the Greater Toronto Area, Ottawa as well as key areas in the Atlantic Provinces. In addition, its extensive wireless network covers the

¹² Fourth Quarter 2008 Press Release, February 18, 2009

¹³ Rogers 2007 Annual report, p. 41 .



vast majority of the country's population and roads. Nevertheless, as clearly indicated, even for large business customers, RBS has decided to focus its activities on the smaller business clients already served by its core cable TV network.

This is a clear indication that building new fibre facilities on a grand scale to provide next generation services is not a viable business strategy for Rogers, even though it had acquired the business clientele of Call Net in 2005.

We believe the same conclusion has been reached by many other Canadian cablecos as evidenced by the next sections discussing the business telecommunications strategies of Videotron and Shaw.

We are thus witnessing disinvestment in business telecommunications networks addressing the small, medium and large business market clients in core cities that are essential to the growth and vitality of the Canadian economy.



3.1.2 The business telecommunications operations of Videotron Ltd and of Shaw Communications Inc.

Videotron Telecom (VTL), the original business telecommunications affiliate of Videotron, was integrated within the cable operations of Videotron Limited in January 2006.

VTL had been set up in the mid 1990s to support the entry of Videotron into business markets. From the outset, VTL was focused on providing dedicated high speed fibre optic connections to business customers and to meet the internal communications needs of Videotron itself, such as interconnection of its various cable TV head-ends across the province.

When Videotron was acquired by Quebecor in late 2000, VTL pursued business opportunities within the Quebecor group of companies. For example, in 2004, Quebecor World selected VTL as a major supplier of telecommunications services as per the information reproduced below¹⁴.

“Quebecor World Inc. has retained Videotron Telecom to outsource all of Quebecor World Inc.’s corporate information technology services. This transaction is effective as of July 2004 and contemplates:

- the purchase by Videotron Telecom of the information technology infrastructure equipment of Quebecor World;*
- the provision of consulting services by certain Quebecor World Inc. personnel to Videotron Telecom for corporate information technology services; and*
- the provision of information technology managed services by Videotron Telecom to Quebecor World Inc. in North America.*

Under the seven-year information technology managed services agreement, Videotron Telecom will provide infrastructure services in support of hosting server-based

¹⁴ Quebecor World Annual Results, 2004.



applications in the Videotron Telecom data centers and services related to computer operations, production control, technical support, network support, regional support, desktop support for certain sites, help-desk and corporate assistance, firewall and security support, business continuity and disaster recovery and voice and video support. The monthly revenues for such services are \$1,512,205, for an annual total of \$18,146,471. The agreement will expire on June 30, 2011.”

The revenues of Videotron Telecom stood at approximately \$79M in 2005¹⁵ and had declined to \$74.4 M in 2006, to \$70.2 M in 2007 and a further 9.4% decline in 2008 yielding total revenues of \$65M¹⁶. Internally generated revenues are estimated to generate a substantial proportion of the VTL revenues at that time, as also reported in the results of Videotron for 2005 and 2006.

Since the integration of VTL into the core cable TV company in 2006, Videotron has focused on providing services leveraging its existing network to small business customers, for example providing high speed Internet and up to four cable modem based telephone lines to very small businesses. This is very similar to the strategy pursued by Rogers.

Furthermore, even though Videotron also acquired the downtown Toronto fibre optic facilities of Stream Communications, it has also decided up to now not to pursue business telecommunications opportunities in these markets.

Shaw Communications’ business telecommunications operations are also focused on meeting the internal needs of Shaw and on leveraging its North American wide fibre optic network.

¹⁵ Reported at \$102 M including \$23.5 M from the cable telephony service launched in 2005 which was later reclassified as part of revenues generated by the residential cable TV segment.

¹⁶ Quebecor Inc. 2008 IV and Annual Results, Supplementary Information, released February 25, 2009.



The following excerpts from Shaw's 2008 Annual Report provide additional insight into Shaw's business telecommunications strategy and clearly demonstrate it is similar, but not identical, to the strategies of Rogers and of Videotron.

Shaw offers telephony and high speed Internet access (cable modem based) to small businesses covered by its cable network footprint. Shaw has clearly focused on providing inter city fibre transport across a number of Canadian and US cities. Its business operations were actually called Big Pipe Inc. for a number of years, as a reflection of its operational focus.

Excerpts from Shaw Annual Report: Aug 31, 2008,

*“Shaw Business Solutions develops and manages Shaw's inter-city fiber network that serves as the primary Internet backbone for Shaw's broadband Internet customers and provides Internet, data connectivity and telecommunication services to large businesses and other organizations. **Shaw's extensive fiber network provides international connections through interconnection agreements and strategic alliances with other service providers.** Shaw's strategy is to leverage its network by providing additional services beyond traditional cable.*

.....

Its network consists of a redundant two route fibre backbone transecting Canada and the United States. The southern route consists of approximately 6,400 route kilometers (4,000 miles) of fibre located on routes between Vancouver (via Calgary, Winnipeg, Chicago, Toronto and Buffalo) and New York City and between Vancouver and Sacramento. The northern route consists of approximately 4,000 route kilometers (2,500 miles) of fibre between Edmonton (via Saskatoon, Winnipeg and Thunder Bay) and Toronto. In addition, as a result of arrangements with Group Telecom, Shaw Business Solutions has additional capacity to connect the cities of Toronto (via Montreal and Boston) to New York City, Seattle to Vancouver, Edmonton and Toronto.”



“The fibre network that serves as the primary Internet backbone for the Corporation’s broadband Internet customers is operated by Shaw Business Solutions (see “Description of Shaw’s Businesses — Cable Division- Internet Infrastructure”). The network, which is designed with fibre optic technology and has redundant capacity, extends from Victoria to New York, with connectivity to major Internet peering points in Seattle, Washington; Palo Alto, California; Chicago, Illinois; and Ashburn, Virginia.

This backbone network is also used to carry Shaw Digital Phone capacity and video signals. In addition, Shaw Business Solutions’ facilities are available to Internet service providers (“ISPs”), cable companies, broadcasters, governments and other businesses and organizations that require end-to-end Internet, data and voice connectivity. In particular, 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. Business Solutions.

Shaw Business Solutions’ southern route principally consists of approximately 6,400 route kilometers (4,000 miles) located on routes between Vancouver (via Calgary, Winnipeg, Chicago, Toronto and Buffalo) and New York City and between Vancouver and Sacramento. The northern route consists of approximately 4,000 route kilometers (2,500 miles) of fibre between Edmonton (via Saskatoon, Winnipeg and Thunder Bay) and Toronto. This route provides redundancy for the existing southern route. The marine route consists of approximately 330 route kilometers (200 miles) located on 2 fibres on the route from Seattle to Vancouver Mainland (via Victoria). In addition, Shaw Business Solutions has secured additional capacity to connect the cities of Toronto (via Montreal and Boston) to New York City, Seattle to Vancouver and Edmonton to Toronto.”



The common thread among the business telecommunications operations of Rogers, Videotron and Shaw is that building fibre optic facilities to reach business locations across Canada is not a priority for any of them and that the promise of “competing broadband networks to a significant number of businesses” is not being realized via network expansion of cablecos in major cities and business markets that include Toronto, Ottawa, Montréal, Quebec City, Gatineau, Winnipeg, Calgary, Edmonton and Vancouver.



3.2 *The market impact of utilities backed fibre facilities in Ontario and other carriers*

Municipal Ontario electrical utilities entered the telecommunications market in the 1990s and early 2000 years by building fibre optic facilities linking their various buildings to provide for their internal telecommunications needs. The next step was to offer dark fibre to large enterprise customers as well as to other telcos such as the newly minted competitive local exchange carriers as they strived to extend their footprint. Some of these telecom affiliates focused their operations on the governmental and para governmental sectors (schools, local government, hospitals) offering low cost Internet access, often provided without redundancy or back up.

As an example, when Telecom Ottawa was launched as a 100% owned affiliate of Hydro Ottawa in December 2001, it already benefitted from 170 kms of fibre cable and access to 80 buildings within the City, built with the support of Hydro Ottawa¹⁷.

Eventually, the larger utility telecommunications operators ('utelcos') including Telecom Ottawa and Toronto Hydro Telecom evolved their product line to include next generation Ethernet access links and transport services¹⁸.

¹⁷ December 13, 2001 Press Release.

¹⁸ We have excluded Hydro One Telecom as they focus on inter city transport services and do not build facilities to commercial properties. As per the 2007 Annual Report of Hydro One, "Our other business segment contributed revenues of \$31 million in 2007 and has assets of about \$106 million, which constitute less than 1% of our total assets. This segment primarily represents the operations of our wholly owned subsidiary, Hydro One Telecom Inc., which markets fibre-optic capacity to telecommunications carriers and commercial customers with broadband network requirements.



Although revenue growth followed the significant investments by municipal utilities, total revenues remained relatively modest, as reported by Hydro Ottawa in its 2004 Annual report, p. 23.

“Telecom Ottawa had consolidated revenues of \$13.1 million in 2004, compared to \$6.9 million in 2003 of which 95% were derived from the provision of broadband data services mainly to public sector organizations and 5% from internet services provided to residential users. The companies have a total of 72 employees. Certain of its activities are regulated by the Canadian Radio and Television Commission.”

Three years later, reported sales of Telecom Ottawa had increased to approximately \$16M¹⁹, from \$13M in 2004, while its debt reportedly stood at \$32M²⁰.

Over the last few years, local electrical utilities have chosen to sell their telecom affiliates. Telecom Ottawa, as well as a number of others, including FibreWired in Hamilton, was sold to Atria Networks, a regional fibre based carrier in Southern Ontario.

In February 2008, when Telecom Ottawa was sold for \$63M, it was reportedly providing services to 200 businesses in the Ottawa area and it was still actively engaged in building its network, as reported in the 2007 Annual Report of Hydro Ottawa ²¹(p. 19), in spite of relatively low revenue growth from 2004 to 2007. Excluding government and MUSH sectors, there were more than 29 000 businesses in Ottawa²², so less than 1% of Ottawa businesses were effectively served by Telecom Ottawa, when it was sold.

¹⁹ Derived from Press release of Atria Networks, February 25, 2008

²⁰ “Utility puts Telecom Ottawa on the block”, Ottawa Business Journal, Dec 12, 2007, by Roman Zakaluzny “The telecom business owes its creditors \$32Million, which will be paid off through some of the proceeds of the sale”.

²¹ *“In 2007, the company increased the number of commercial buildings accessing its network by 11 percent, grew its IP broadband business by 17 percent, and added 72 route kilometres to its network*

²² Source: InfoCanada 2007



Toronto Hydro Telecom Inc. (THTI) also exhibited similar growth as Telecom Ottawa, as highlighted by these excerpts from the annual reporting of its parent company, Toronto Hydro, in the years 2005 and 2007. As can be seen, THTI added only 59 locations to its network within the City of Toronto over 2 years for a total of 514 at year end 2007. We also highlight that it took 10 years for this network to reach this level of coverage.

From Toronto Hydro Annual information Form for 2005

“4.5 Toronto Hydro Telecom Inc.

Telecom is a provider of "dark" fibre optic capacity and "lit" communications services to telecommunications carriers, business customers and large institutions in the City of Toronto. Telecom owns \$22.1 million of Capital Assets comprised primarily of a network of fibre optic cables located in ducts, on poles and in other parts of the electricity distribution system of LDC. The network is currently connected to 455 buildings located in the City of Toronto.

*Telecom leases "dark" fibre optic cable capacity to customers which "light" the fibre using their own technology. The leases typically range from one to five years in length and provide for monthly payments and one-time connection fees. **Construction of the network began in 1995.** Most of the fibre optic cables were supplied and installed by a third party contractor.*

Telecom also provides a portfolio of "lit" data services that includes private line access, Ethernet services, dedicated Internet access and data centre co-location services. These services are delivered over Telecom's fibre optic network and are managed by Telecom's network operations centre. No material capital costs are incurred by Telecom until such services are under contract.

Telecom is considered to be a "Telecommunications Common Carrier" as defined by the Telecommunications Act (Canada), and as such is regulated by the CRTC. Telecom is registered with the CRTC as a Non-dominant, Facilities-Based Carrier.”

From Toronto Hydro Annual information Form for 2007

Next Generation Network Access Services:
A Canadian and international perspective on
why wholesale services should be regulated as essential facilities



“4.4 Toronto Hydro Telecom Inc.

Telecom is a telecommunications company with 79 employees as at December 31, 2007. Telecom's core businesses include the provision of "dark" fibre optic capacity and data communications services including private line access, Ethernet services and dedicated Internet access and data centre co-location services to telecommunications carriers, business customers and large institutions in the City of Toronto.

*Telecom owns \$38.1 million of Capital Assets comprised primarily of a network of fibre optic cables located in ducts, on poles and in other parts of the electricity distribution system of LDC. **The network is currently connected to 514 buildings located in the City of Toronto.***

Telecom is a "telecommunications common carrier" as defined by the Telecommunications Act (Canada), and as such is regulated by the CRTC. Telecom is registered with the CRTC as a Non-dominant, Facilities-Based Carrier.

On January 22, 2008, the Corporation announced that it intends to solicit expressions of interest from third parties with respect to a possible sale of Telecom. There can be no assurance that this process will result in the completion of a transaction.”

Cogeco acquired Toronto Hydro Telecom, as well as a few other telecommunications affiliates of local hydro utilities. These acquisitions include FibreWired Burlington Hydro Communications in Burlington, already covering part of cable TV areas served by Cogeco, and Windsor based MaXess Network, also covering part of cable TV areas served by Cogeco.

In early 2009, Cogeco Data Services highlighted that the reach of its network in Toronto is as follows:

*“Cogeco Data Services owns and operates over 500 kilometres of fibre optic network connecting more than **500 buildings** throughout the city of Toronto, and owns and operates the largest WiFi network in North America.”*



In 2007, THTI provided fibre connections to 514 buildings according to reporting from Toronto Hydro. In early 2009, the acquirer Cogeco put that number at more than 500 buildings. Based on the above information provided by Cogeco Data Services, we deduce that no or very few new business locations were added to the THTI fibre network in 2008.

The coverage of the Cogeco Data Services network in Toronto amounts to 1% of total commercial buildings at the start of 2009. At this rate, it is easy to see that the task of providing alternate fibre optic access to all business locations in Toronto would require many years and even decades before it could be completed.

Total 2007 revenues for the two largest utelcos combined did not exceed \$100M while the total business market for Internet services and data communications services was estimated at more than \$7B by CRTC²³. This corresponds to a less than 1.4% market share for the 2 largest utelcos.

And this of course excludes the entire voice communications segment, which was not addressed by utelcos and remains the “chasse gardée” of ILECs in and out of territory and of a few resellers such as Primus Canada.

Our conclusion from this analysis is that the overall market impact of “utelcos” has been fairly small up to now, even after close to 10 years in operations, while certainly worthwhile for those customers potentially obtaining lower priced Internet access and next generation fibre based Ethernet local links.

²³ CRTC 2008 Communications Monitoring Report, Table 5.4.2. The \$7B includes close to \$1.6B for data communications liaisons.



The acquisitions of utelcos by Cogeco, especially those entities operating within its cable TV network footprint, also in our view, demonstrate the difficulties in addressing the business market when expanding from a residential broadband network. Cogeco appears to have believed it needed to buy these additional fibre based infrastructures in order to compete in these markets as its own cable TV based network could not provide the required reach at a reasonable cost.

It is also worthwhile to highlight that addressing the needs of medium and large business clients also requires extensive data communications expertise coupled with IT expertise, for example expertise in security systems. Business solutions that include connectivity are often what is being sold to business clients as opposed to connectivity by itself. Developing this expertise is a significant investment for all telecom carriers providing services to this segment. Canadian utelcos have traditionally focused on providing connectivity services and thus did not significantly develop their offering related to business solutions. This has had an impact on the growth of their market share for data communications services and illustrates the challenges associated with providing services to the medium and large business clients.

A few examples of other data service communications providers

MTO Telecom, a carrier addressing the business market indicated at par. 32 of its June 16 2008 submission to the Part VII Application by Bell for forbearance of intra-exchange dark fibre services throughout its serving territory that, it, MTO Telecom, “has its own fibre facilities to **less than 5 percent** of all commercial buildings”, in the areas defined as metropolitan Montreal, where MTO Telecom is most active.

In addition, there are a number of other service providers of high speed Internet capacity and Internet services to Canadian businesses. Q9, with data centers in Toronto and Calgary, providing specialized hosting, back up and security services, is an excellent



example of this type of service provider. However, these service providers are not carriers and therefore rely on the availability of access and local transport links from facilities based carriers in order to provide their services.

Our overall conclusion is that alternate fibre optic facilities to a large proportion of commercial or business locations is far from being *a fait accompli* in Canada.



3.3 The out of territory investments to address the business market by Canadian ILECs out of territory

MTSA as well as Bell Canada and TELUS have been providing services to medium and large businesses outside of their ILEC territories for a number of years. MTSA was formed by the amalgamation of Allstream, one of the original independent competitive local exchange carriers in Canada, with MTS.

MTSA's CLEC operations serving the business market have been deploying fibre optic and next generation Ethernet access links of business locations across Canada for a number of years. MTSA operates in all major and large markets across Canada. AT&T Canada, a predecessor company of MTSA, was authorized as a CLEC in major markets in Canada starting on 1997. MTSA has invested more than \$2.5B to date in infrastructure to serve the business markets across Canada on a national basis. MTSA has been generating positive EBITDA from these operations for a number of years.

Table 2 below summarizes key operating metrics of MTSA's national business operations from 2000 to year-end 2008. These metrics highlight that substantial capital was invested in network infrastructure in the telecom boom years up to 2002, significantly above industry norms, and that capital investment was returned to more acceptable levels in the years since.

Based on published results, in recent years, MTSA has generated one of the the highest EBITDA margin among telcos addressing the business markets as a competing, facilities based carrier.



Table 2 – Key operating metrics of MTSA’s national business operations

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Revenues (\$M) | \$ 1,505 | \$ 1,545 | \$ 1,488 | \$ 1,299 | \$ 1,154 | \$ 1,115 | \$ 1,052 | \$ 1,007 | \$ 1,001 |
| EBITDA (\$M) | \$ 69 | \$ 153 | \$ 223 | \$ 257 | \$ 216 | \$ 159 | \$ 167 | \$ 177 | \$ 172 |
| CAPEX (\$M) | \$ 560 | \$ 419 | \$ 144 | \$ 82 | \$ 108 | \$ 125 | \$ 107 | N / A | N / A |
| EBITDA Margin (%) | 4.6% | 9.9% | 15.0% | 19.8% | 18.7% | 14.2% | 15.9% | 17.6% | 17.1% |
| CAPEX Intensity (%) | 37.2% | 27.1% | 9.7% | 6.3% | 9.4% | 11.2% | 10.2% | N / A | N / A |

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Source: MTS Allstream 2008 Q4 financial results
MTS Allstream 2007 Q4 financial results
MTS Allstream 2006 Q4 financial results
MTS Allstream 2005 Q4 financial results
MTS Allstream 2004 Q4 financial results
Allstream 2004 Q1 financial results
Allstream 2003 Q4 financial results
AT&T Canada 2002, 2001 & 2000 financial statements

Both Bell Canada and TELUS launched CLEC operations to address the business markets in each other’s respective territory in the year 2000²⁴.

We highlight below key financial results of TELUS related to these operations from 2000 to 2006. In-year capital expenditures are highlighted, where available. This demonstrates that TELUS has invested close to \$900M in the years 2001 to 2005 and likely more since then.

Revenues grew from \$67M in 2000 to \$657M in 2006. However, revenue growth rates decreased significantly after 2002, and consequently the level of capital investment allocated to these operations also decreased. TELUS has since stopped reporting financial results specifically related to these operations. TELUS appears to have generated fairly low EBITDA margins from these operations, which would in turn impact its capital

²⁴ TELUS received its CLEC authorization letter from CRTC on June 5th 2000 and Bell Intrigna, the ancestor of Bell West, was authorized as a CELC on April 13, 2000.



investment decisions to serve these markets. Thus capital intensity for TELUS decreased to more acceptable levels in later years, similar to what also occurred at Allstream.

Table 3 – Key operating metrics of TELUS out-of-territory CLEC operations

| | 2000* | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---------------------|---------|----------|----------|---------|---------|--------|--------|
| Revenues (\$M) | \$ 67 | \$ 335 | \$ 527 | \$ 556 | \$ 560 | \$ 632 | \$ 657 |
| EBITDA (\$M) | \$ (85) | \$ (146) | \$ (107) | \$ (29) | \$ (22) | \$ 21 | \$ 32 |
| CAPEX (\$M) | N / A | \$ 303 | \$ 214 | \$ 123 | \$ 138 | \$ 115 | N / A |
| EBITDA Margin (%) | -126.9% | -43.6% | -20.3% | -5.2% | -3.9% | 3.4% | 4.9% |
| CAPEX Intensity (%) | N / A | 90.3% | 40.6% | 22.1% | 24.6% | 18.2% | N / A |

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 * Starting with Q2 2000
 Sources: Telus Communications 2006 Q4 quarterly report
 Telus Communications 2005 Q4 quarterly report
 Telus Communications 2004 Q4 quarterly report
 Telus Communications 2003 Q4 quarterly report
 Telus Communications 2002 Q4 quarterly report
 Robert McFarlane presentation of the 2003 Q4 quarterly review
 Robert McFarlane presentation of the 2004 Q4 quarterly review

Recent comments from TELUS on February 13, 2009, indicate its continued investment and participation in these markets, but that up-front investment remains dilutive to earnings. For example, ²⁵ “TELUS was selected by the Government of Quebec to deliver and manage the province’s data network. This was a significant milestone for out of reach and expansion and focus on key industry verticals, notably the public sector. Network planning is underway and although this is a long-term up to **10-year agreement**, it’s likely to be a typical enterprise investment that’s dilutive to earnings in the near term before the revenues ramp up and cash flow turns positive.”

One can understand TELUS’ willingness to invest up-front for a large 10-year contract with a major new customer. However, we note that very few private business clients are



actually willing to enter into 10-year contracts with their supplier of telecommunications services.

Bell West is the name of the Bell CLEC serving business markets in Alberta and BC where Bell does not benefit from its own incumbent network. Bell Canada has been even more cautious than TELUS regarding information disclosure on the results of its out-of-territory CLEC operations. Nevertheless, the following comments made recently by Mr. Cope²⁶ shed some light as to their perspective for future growth and investments in these markets.

First of all, Bell West has now been consolidated as part of the SMB (small and medium business) division of Bell ²⁷ *“We consolidated SMB and Bell West”* (at p. 15 of the transcript)

During the Q&A, Mr. Cope provided additional details on the current status activities of Bell West serving the business market (at p.31 of the transcript)

*“Third, we are not putting a lot of capital into what’s known as the CLEC or Bell West. We think the economic returns on that versus using it as a channel of distribution don’t work for our shareholders, and so we’re being very, **very careful how we invest capital in our CLEC. We have it for competitive reasons—and that’s why we have that.** We have a huge business out west with Bell TV and Bell Wireless, and we have now got our Bell West business. And I think Charles Brown who was responsible, **basically got that just about EBITDA breakeven now on Bell West this year. But we’re not putting a lot of capital there.** So that opens up some capital for us, and then all the dollars go to the five imperatives and so we’re comfortable.”*

²⁵ <http://about.telus.com/investors/en/newsevents/events/4Q2008.html>, at p. 6 of the transcripts

²⁶As provided by excerpts from the transcripts of the BCE February 11, 2009 analyst meeting of BCE. <http://www.bce.ca/en/news/eventscalendar/webcasts/2009/20090211/>

²⁷ <http://www.bce.ca/en/news/eventscalendar/webcasts/2009/20090211/>



As Mr. Cope indicates, Bell West is just EBITDA positive this year, or 9 years after its launch.

The key findings from this review regarding investment for the business market by out of territory ILECs are:

- Bell is not investing significant capital to serve business markets out of their ILEC territory. Comments indicate that the economic returns are not seen as sufficient to justify investment, at least from the Bell perspective.
- TELUS has reported declining steadily capital investment expenditures from 2002 to 2006 in this market segment when this metric was disclosed. Based on our analysis, Telus invested of the more than \$900M to serve these markets to date based on information in Table 3. In 2009, TELUS is still a major participant in this market, outside of its ILEC areas, and invests in infrastructure only once it has secured significant long term contracts.
- MTSA is a key participant in this market on a national basis. MTSA has invested more than \$2.5B to date in infrastructures to serve these markets and is continuing to invest.
- As the results and experience of MTSA and of TELUS demonstrate, the business model of incurring very high capital expenditures for a prolonged period to build alternate fibre access facilities to reach a large proportion of business locations has been evolved to building access facilities only when a reasonable return on investment can be earned from a specific location or contract. This is the only reasonable and viable approach for firms who intend to be carriers serving the Canadian market for the long term. This also means that many business locations are still to this date unserved by alternate facilities and will remain so for years to



come, hence the importance of wholesale access to next generation Ethernet services to ensure competition for all business clients across Canada, and not just for a lucky few, and to ensure that everyone can benefit from competition for Ethernet services, and not only for yesterday's DS-1 services.

The information and analyses provided herein regarding the out-of-territory ILEC operations indicate that these carriers are still investing and growing their operations in these markets, albeit with different focus and strategies.

However, these analyses do not support the conclusion that fibre optic facilities to serve the business markets are easily duplicable or readily available and thus that a majority of business clients in Canada can benefit from competition from a number of carriers for next generation Ethernet access services.

On the contrary, ILECs out of territory are still investing to build facilities where it makes economical sense and when a good return can be earned. This means investing for very large clients willing or able to enter into very long term contracts.

By the same token, it also means that there are many, many business locations where these facilities are not available and that ensuring that these customers continue to benefit from competition in next generation services will require the availability of wholesale next generation Ethernet access services at prices that enable all carriers to earn a reasonable margin.

As is shown in Section 3.4, providing services to large business clients outside of one's ILEC territory can turn into quite a headache, for the client as well as for the competitive carrier, and even after a fair amount of capital investment has been allocated to develop these markets for a number of years, as is the case for TELUS.



3.4 *Lessons learned from the TELUS contract with Public Works: an illustration of the difficulties by out of territory ILECs when serving multi location large businesses outside of their ILEC coverage areas*

The dispute regards rates charged for transition services to be provided by Bell Canada to Public Works and Government Services Canada (PWGSC), after the latter awarded a major contract to TELUS. The events leading to this dispute provide support for our view that alternate fibre optic facilities do not provide close to ubiquitous coverage of business locations in Canada.

The CRTC recently published its decision in this matter (CRTC Telecom Decision 2009-85) of which a few excerpts reproduced below illustrate the fact that more than 18 months after the original contract date, TELUS was still not in a position to transfer services for PWGSC to its own network. **(Emphasis added)**. In its Decision, CRTC selected a final offer of Bell Canada to set rates for service to be offered during the transition period. The rates were selected using final offer arbitration.

“

5. *In 2006 PWGSC initiated a competitive bidding process to determine the provider of the services in question upon expiry of the CSA in June 2007. Although the request for proposals provided for a 12-month transition period, the tariff was amended, at PWGSC's request, to provide for 18 month-to-month extensions in case of delays – that is, until 15 December 2008.*
6. *Following the competitive bidding process, PWGSC selected TELUS Communications Company (TCC) to replace Bell Canada as the service provider. The last of the 18 month-to-month extensions of the CSA with Bell Canada expired on 15 December 2008.*
7. *In 2008 it became apparent to PWGSC that it would continue to require many of Bell Canada's services after 15 December 2008 in order to operate the vital network described above during the transition period. In October 2008 PWGSC began negotiations with Bell Canada for continued provision of those services during the transition period (the Transition Services).*
28. *The Commission considers that this proceeding involves unique circumstances that include 1) national security considerations that both parties agreed make service*



*interruption untenable; 2) a custom-designed integrated network that Bell Canada admitted is inseparable at this time; and 3) **the fact that there is no alternative provider that can deliver the Transition Services without an interruption in service delivery.***

31. *Regarding the provisioning of the Other Services, **the Commission notes that there have been significant delays in the transition to TCC as the new service provider.** The Commission notes that for the transitioning of each service, first TCC must migrate the service onto its own network and then DND must complete its internal processes to assure itself that it is possible to proceed with issuing an order for disconnection from the Bell Canada network.*

This dispute illustrates the difficulties in providing services and access to large business customer locations when a carrier, in this case a very experienced and knowledgeable ILEC, does not own its facilities to all locations required to fulfill the needs of a business customer with multiple locations. This is a common occurrence when a carrier is not the incumbent ILEC in a given area and supports our conclusion that alternate fibre access facilities and services are not a fait accompli, even for locations needed to serve large businesses.

TELUS has requested a leave to appeal this CRTC Decision from the Federal Court of Appeal on February 27, 2009. At page 2 of its memorandum of fact submitted to the Federal Court of Appeal, TELUS states that “*Incumbent suppliers, particularly in the case of large complex arrangements, are in a virtual monopoly situation when it comes to transitions arrangements **because there is no alternative supplier** of transition services. In order for the large customer or “enterprise” market to function effectively, **regulatory oversight of migrations may be necessary** if reasonable arrangements cannot be negotiated”.*

These comments clearly highlight that Bell Canada is currently the only carrier capable of providing said services to the business locations of PWGSC, that they are in a monopoly situation and that in this case, negotiating for reasonable rates for transition



services, after Bell Canada had lost the contract to TELUS, has proved fruitless and thus that regulatory intervention is required.

The comments above from TELUS provide a good description of the environment for alternate access facilities and thus for Ethernet access services to business customers in many, many locations in Canada.

3.5 Conclusions of the availability of alternative wireline broadband facilities

We highlight the fact that in the more than 10 years since the regulatory framework was put in place in Canada for the introduction of competition in local markets, no new wireline network, i.e. that was not already in place providing services to retail clients, has been deployed to serve either the residential nor the business market on any kind of mass market scale.

Canadian cablecos have realized the promise of providing a facilities-based alternative service provider to the incumbent local telephone companies addressing the residential market but have retreated from their foray into business markets focusing their efforts in many cases on providing service only to the small business and SOHO markets addressable directly via their existing cable TV network.

Without the prior existence of these alternate networks, it is unlikely that Canada would have achieved the current duopoly in broadband wireline facilities serving Canadian households and SOHO market.

One cableco, Cogeco, has chosen to expand and invest into fibre based business telecommunications services in Ontario via acquisitions. We highlight that they have acquired network assets covering in some cases the same areas as those covered by their



existing residential cable TV networks, in line with our conclusion that residential cable TV networks are not a suitable platform to expand into business telecommunications market in a cost effective and profitable manner.

Nevertheless, the impact of the ex utelcos remains limited to the Ontario market and the two largest utelcos generated less than **\$100M** of revenues in 2007, a very modest market share overall and as we point out, a very limited network footprint in spite of the significant capital investments made by these enterprises.

Over the last few years, the ex utelcos and cable TV carriers have apparently reached the conclusion that the objective of investing into fibre optic facilities to reach business customers is unprofitable and thus an unattainable goal. This is the same conclusion reached by MTS Allstream a number of years ago.

The impact of this is diminished competition among service providers addressing the business markets now and in the future.

Our conclusion, in light of the unavailability of alternate fibre facilities addressing the business market, is that regulated access to wholesale next generation services is a critical element to ensure that Canadian businesses, across the country, in large as well as in smaller cities, have continued access to competitive and innovative broadband services, a major underpinning of continued and sustained productivity enhancements supporting economic growth.

It is our view that this type of framework is necessary to provide a true choice to Canadian businesses and maintain a high level of innovation and affordable pricing.

The sustained competitiveness of Canada's business telecommunications services will not be built on increased competition for yesterday's legacy services which provide less



bandwidth at a higher cost. Next generation Ethernet services are what is required to serve business clients now and over the coming years.

Without a clear policy and regulatory framework that will indicate to Canadian telcos that wholesale access to today's as well as tomorrow's next generation services will be continued, we would expect to witness continued disinvestment in these networks and a decrease in the true choice and innovation being offered to Canadian business clients.

Our analysis also demonstrates that structure of telecommunications networks addressing business markets in Canada is similar to that found in many other countries such as EU and OCED member countries. There are no readily available alternate fibre facilities with any kind of significant market coverage.

For this reason, many of these countries have chosen to ensure mandated access at regulated prices for access to next generation services. Supporting current and future investments as well as ensuring competitive offerings for business customers are key drivers of these initiatives. We address these issues in the next sections of this Report.



4. Why many countries are ensuring mandated access to wholesale next generation access facilities at regulated, cost based prices

The question of ensuring competition for next generation broadband services, of which Ethernet access services are a key component, is being addressed by a number of countries as well as by international agencies involved in economic development and telecommunications policy.

4.1 OECD perspective

We highlight four recent Reports published by OECD discussing these matters, discussing options available to governments and regulatory agencies as well as investment requirements;

- 1) Convergence and Next Generation Networks, Ministerial Background Report, declassified in March 2008 and drafted by Claudia Sarrocco and Dimitri Ypsilanti of the OECD Secretariat.
- 2) Developments in Fibre Technologies and Investment, a paper from the Working Party on Communication Infrastructures and Services Policy, April 3rd 2008, drafted by Rudolf van der Berg, from the Ministry Economic Affairs of The Netherlands.
- 3) The Influence of Market Developments and Policies on Telecommunications Investment, January 12 2009, a paper from the Working Party on Communications Infrastructures and Services Policy, paper for prepared by Mr. Yoshikazu Okamoto.
- 4) Broadband Growth In OECD Countries, July 2008.

All above papers discuss to various degree the types of network architecture available and their impact on policy options under consideration to deploy fibre based next generation access, mainly to households and thus to residential customers across OECD



countries. There is little or no discussion of alternatives as they relate to ensuring competition in next generation networks and services to provide services to business clients.

We highlight below excerpts from 1)²⁸ which provide a good summary of the issues and challenges under consideration by regulators (**emphasis added**). While this summary is mostly concerned with next generation networks serving the residential market, the approach and analysis can also be applied when discussing the challenges to achieve competition for next generation access services serving the business markets. More complete excerpts from the OCED commentary on this issue is provided in Appendix A.

“Access to next generation access fibre networks

There is widespread agreement that infrastructure-based competition provides the most sustainable and effective level of competition in the communications market. In those circumstances where the establishment of networks competing with incumbents’ NGA networks is not considered feasible, the pursuit of policies to promote inter-modal or service-based competition is an important goal. **There is also general agreement that availability of next generation networks access is a crucial element in the provision of new broadband-based services and applications. Although regulators understand that the policy challenge for NGN access is to strike an appropriate balance between market incentives and ensuring an appropriate level of competition in access network markets, there is much less agreement on how to implement this policy challenge and ensure that such networks are made available with maximum geographic coverage and at affordable prices.**

.....

The limitations faced by new entrants are significant, especially with respect to the reach of their existing networks and their ability to obtain access to rights of way and ducts. It is thus difficult for new entrants to replicate an NGN access infrastructure. Incumbents have the financial power to obtain financing for such access networks relative to new entrants. Their market position provides them with much more certainty in obtaining financing since incumbents have much higher revenue streams from existing services than new entrants and they are less likely to go bankrupt.

²⁸ At p. 25



.....

Much of the debate around new network investment has focused on the fact that, since such investment is new, this implies that the incumbent does not have ipso facto dominance, whereas the actual issue is whether the existing dominance is transferred to the new network. Many incumbents in the communication market still have market power which arises from their former monopoly position so that, even though investment in fibre networks is “new”, incumbents are still leveraging their historical market power and there is a risk that, if exempt from regulation, such investment would result in the creation of new dominant positions.

Under this second scenario regulators would maintain ex ante regulation and be proactive by ascertaining potential bottlenecks where regulatory action is required as fibre is brought closer to the consumer. Increasingly, a number of incumbent operators that are subject to asymmetric regulation have argued that with respect to next generation access networks there should be asymmetric geographic regulation, that is, regulatory forbearance should be adopted in geographic areas (usually the more densely populated cities) where facility-based competition is developing.”

4.1.1 Discussion of the OECD summary

The OECD recognizes that the availability of next generation access networks is crucial to the provision of next generation broadband services and that new entrants face significant limitations with respect to the reach of their existing networks and access to rights of way. It comments that “It is difficult for new entrants to replicate an NGN access infrastructure”.

These comments are in opposition to the conclusions reached by CRTC regarding the duplicability of NGN access infrastructure.

However, our review of the retreat of cablecos from addressing the business market at large with their own facilities and the small market coverage provided by other fibre optic carriers providing alternate facilities in Canada capable of providing next



generation access to businesses (Section 3) leads us to agree with the conclusions of the OECD when it comes to next generation fibre access networks serving the business market. Although in 2005, CRTC may have been hopeful that Canadian cablecos would build alternate facilities to address the business market, this is clearly not the case now in 2009.

The OECD raises the issue that investments by incumbents in next generation networks could result in the “the creation of new dominant positions”. The Canadian industry does appear at risk of seeing the creation of new dominant positions by incumbent telephone companies in next generation networks and services serving business clients if access to mandated Ethernet and next generation services is not provided on reasonable terms and conditions. There are no substitutes for next generation Ethernet access services and it appears that, in the majority of business locations, the incumbent local exchange carrier is the only facilities based provider.

The OECD also discusses assessing facilities bottlenecks (comprised of essential facilities) on a geographic basis i.e. ex ante regulation **where needed**. A similar approach has been used extensively to date by CRTC in implementing forbearance for local phone service.

However, CRTC has chosen not to apply this approach regarding next generation fibre based Ethernet access. It determined that Ethernet next generation access facilities were not essential facilities across the country although no criteria regarding the availability of alternate facilities to serve a high percentage of businesses in any given area were ever put in place or demonstrated.

The determination regarding Ethernet access as a non essential service is being applied on a national scale, irrespective of local conditions, although our review of the availability of facilities indicates significant geographic differences. For example, there



are no ex utelcos fibre optic facilities outside of selected Ontario cities. While core downtown areas in some cities may already be well served by fibre optic facilities from telcos such as MTS Allstream, TELUS and Bell as well as ex utelcos in Ontario, the same can not be demonstrated for areas outside of the core business locations in these same cities nor for all cities across the country.

OECD also emphasizes the need for adequate access to rights of ways and ducts for new entrants, if they are to build alternate fibre optic facilities. While this subject matter is not part of the scope of this Report, we highlight that Canada has seen its share of battles regarding access to rights of ways and infrastructures such as poles and ducts as well as in-building infrastructure such as riser cables. Laying fibre cable in most Canadian cities is fairly complex, time consuming as well as a very expensive undertaking. The OECD Report mentions that “Construction costs are estimated at around 60% to 80% of total costs in rolling out a FTTH network”. A similar assessment can be drawn for the roll out of fibre optic facilities to business locations in Canada.

The CRTC has already assessed that access to these infrastructures should be provided on a wholesale basis at regulated, cost based prices. Facilitation of access to rights of ways and ducts and poles does not lower the civil engineering costs of actually laying cables of crossing streets but it can substantially reduce other costs and speed up the deployment of new fibre optic infrastructure.

4.2 The European Commission recommendations regarding the regulatory framework for next generation services



The European Commission (EC) is committed to promoting facilities based competition as is Canada and other OECD countries. Competition is a key driver for investment as well as more innovative and affordable prices for consumers and businesses.

In 2002, the EC had set out an extensive regulatory framework comprised of 18 individual market segments, both retail and wholesale, that were then subject to market analyses in every country. If the analyses of each market segment conducted by the each national regulatory agency concluded that an operator exerted Significant Market Power (SMP) in that market segment, ex ante price regulations were then considered to be a necessary remedy in lieu of market forces, until a stronger competitive environment emerges.

In its five year review of their framework completed in 2007, the EC has concluded that their approach has been successful in stimulating competition in many key market segments such as retail national and local residential and business telephone services from a landline. In view of the significant increase in the market share of competitors, the EC has proposed to reduce the number of regulated market segments from 18 to 7 on a going forward basis.

Wholesale access to the local loop for broadband and voice services as well as wholesale broadband services are part of the 7 market segments where regulation is still required. The EC explains these market segments as follows:

- “Wholesale access to the local loop for broadband and voice services: Wholesale access to the “last mile” of the public fixed telecommunications network connecting the subscriber to the local exchange and to the main network. Once access is granted, new market entrants can provide both voice and data services over the so-called local loop rented from the incumbent operator.



- Wholesale broadband access: Enables new market entrants to offer broadband access services using their own network and the “local” parts of the incumbent’s network. Also known as “bitstream”.²⁹

As part of its recommendation for the reform of the EU telecommunications framework, the EC has also addressed the subject of “functional separation” as a remedy to ensure continued access to facilities of the incumbents by own entrants.

Functional separation is defined as splitting incumbent telephone companies into retail and wholesale divisions organized in such a way that the wholesale division provides its services to other telcos as well as to its sister company on similar, equitable terms. Legacy and new services are offered by the wholesale divisions thus set up. The UK was a pioneer in the implementation of functional separation with the launch of the BT division called OpenReach and we address this further in the next section of the Report.

We note that, similar to the CRTC processes, the EC consultations and determinations on broadband are focused on the residential market. This focus is partly the result of the fact that the level of development of cable TV networks among EU countries is much smaller than what is found in Canada or in the US and that in 2002, development of high speed Internet access to households in Europe was significantly lagging compared to what had been achieved in North America. As an illustration of this characteristic, it has been reported that DSL technology had an 81% market share among broadband lines in January 2007 in the EU, much higher than what is found in Canada and in the US where cablecos have a more significant market presence.

In a presentation at the 8th ECTA Regulatory Conference held in Brussels in November 2007, Roberto Viola, ERG Chairman, reported that ECTA views on what ERG should do

²⁹ 2007 EU Telecom reform, #9, From 18 to 7 regulated markets, November 2007



next includes to “Establish and apply best practice for business access including wholesale Ethernet services and bitstream”.

Since their publication in November 2007, the proposed reforms to the EU telecom regulatory framework have undergone some amendments, mainly relating to the question of a centralized regulatory body, and are progressing in the legislative review. The next step is a vote in second reading in the plenary of the European Parliament expected in April 2009.

The EC regulatory reform proposals have brought the issues related to regulation of next generation core and access networks to the forefront. A number of incumbent telephone companies have requested a regulatory holiday and no obligation to wholesale their next generation infrastructure in exchange for making these significant investments.

The following excerpts from speeches of Ms. Viviane Reding, EC Member responsible for Information Society and Media, highlight the position of the Commission on this issue and the rationale as to why the concept of regulatory holiday for next generation access has been rejected by the EC. **(Emphasis added)**. The concepts of technology neutrality and of continuing to foster increasing competition leading to higher overall investment in networks are central to the framework proposed by the EC. More complete excerpts from the speeches of Ms. Reding are provided in Appendix B.

How we treat next generation access is therefore the single most important policy question in the telecoms sector today. We have to create incentives for investment whilst making sure that no-one (and I insist on this no-one), can be in a position to foreclose the market.

.....

Regulation has a role to play here. I see it as entirely appropriate for regulators to allow infrastructure providers to make a reliable return on next generation access investments in return for testable guarantees of non-discrimination and an agreed plan



for infrastructural investment that will lead to an open, high speed infrastructure. By the way, one of the potential attractions of functionally separating access networks is to make this incentive structure clearer and more operational.”³⁰

On June 25, 2008, Ms. Reding further added ³¹“

- *“A key element in my vision for Next Generation Access regulation is to ensure that all parties, entrants or incumbents have sufficient incentives to move in these markets.*
- *Regulatory restraint as a carte blanche for incumbents to re-monopolise markets where the buds of competition are flourishing is not a policy option if we want competitive markets.*

...

The EU Telecoms Reform

We are currently in the middle of a legislative procedure on the reform of the EU's regulatory framework for the telecoms markets. The Commission's reform proposals have been made with Next Generation Networks in our mind. However, we did not need to propose a major overhaul of the Framework to cater for these networks. Already in 2002, the EU's Framework was made open and technologically neutral so as to deal with new technological deployments. Let me go further. The move to Next Generation Access Networks does certainly not change the logic when assessing the need for regulation in order to ensure effective competition. The rationale underpinning the Commission's approach has been the following: if telephony and broadband are the basic products sought by end users, then whether they are delivered over metallic or fibre loops is largely irrelevant to the analysis because the framework is based on the principle of technological neutrality. In the Commission's view, it would be a fatal mistake to deviate from the pro-competitive approach of the current framework.

....

What is relevant when considering whether to intervene on a certain telecoms market, is the state of competition on that market. Unless there is a competitive access market,

³⁰ January 14 2008 Speech by Ms. Viviane Reding to the KPN Annual Event

³¹ Europe's Way to the High Speed Internet: Why Effective Network Competition is the Freeway to the Future, ECTA Annual Conference, Brussels, June 25, 2008



access regulation can be expected to continue irrespective of the underlying technology.”

In late summer 2008, the EC published its draft recommendation on regulated access to Next Generation Access Networks (NGA) in line with the above comments. Comments on this recommendation were provided by various parties. The consultation was closed for comments in November 2008.

4.2.1 Discussion of the EC proposal on Next Generation Access networks in the Canadian context

Access networks addressing business clients throughout Canada exhibit the same characteristics as most telecom networks serving both residential and business markets in the EU, i.e. the last mile is often only supplied by the incumbent telephone company, whether it be on fibre optic or copper facilities.

Therefore, when CRTC determines that Ethernet next generation access services are not essential facilities, or not a bottleneck, and therefore duplicable, in light of the evidence provided in Section 3 of this Report, we conclude that this provides a regulatory holiday for Canadian ILECs and that the concept of technology neutrality has not been applied by CRTC in this case.

This raises the distinct possibility that the markets for high speed next generation access services, or the future of broadband communications for business services, could be increasingly foreclosed for competing Canadian telcos. This would lead to reduced competition among telcos addressing the business market with negative repercussions on



investment in networks in Canada, as well as on the productivity of Canadian businesses and on their global competitive positioning.

4.3 An overview of mandated access to wholesale access services in selected countries

Many countries and national regulators have held debates and consultations regarding mandated wholesale services, especially recently in the context of next generation networks and access services.

As discussed in Section 4.2, the EC is recommending mandated access to wholesale access next generation services and facilities at regulated prices. We provide herein an overview of the initiatives underway in a number of countries that have been at the forefront of this debate as to the steps they have taken in the context of the new EC proposals on regulation of wholesale next generation access services.

The European framework considers wholesale access to physical infrastructure, including ducts, poles, risers within buildings, as well as broadband access services such as wholesale Ethernet access. They are often referred to as “passive network elements” in the case of physical infrastructure and “active network elements” in the case of full fledged telecom services. Each country applies the EU regulatory framework taking into account its specific circumstances.

4.3.1 In Sweden

TeliaSonera is the incumbent national carrier in Sweden. Sweden is also characterized by the existence of many local fibre infrastructure companies that were launched and are operated by municipal or regional governments. Stokab in Stockholm is such as example.



The following is a brief overview of Stokab. These organizations provide fibre optic facilities within many of the cities and regions of Sweden on a non discriminatory basis to other telecommunications service providers.

”Stokab was founded in 1994 and is owned by the company group Stockholms Stadshus AB, which is in turn owned by the City of Stockholm.

The purpose of Stokab’s operations and the infrastructure provided by the company is to promote economic growth and thereby stimulate the telecom market and IT development in the Stockholm region, particularly in the City of Stockholm.

Stokab’s core tasks are to build, operate and maintain the fiber optic communication network in the Stockholm region and to lease fiber optic connections. The company is competition-neutral and provides a network that is open to all players on equal terms. Stokab cooperates to facilitate the rollout of infrastructure for wireless communication and drives development of the broadband market in the Stockholm region.

.....

Today there are interurban networks to all municipalities in the County of Stockholm, to Uppsala, parts of the archipelago, to some of the municipalities in the Mälars region via Mälarringen and also to Gotland.

This network comprises 5,600 kilometres of cable and in total 1,200,000 kilometres of fibre.”³²

³² <http://www.stokab.se/templates/StandardPage.aspx?id=775>



Nevertheless, Sweden was not satisfied with the progression of fibre optic, next generation broadband facilities and take up rates across the country. At the request of the Swedish government, in June 2007, PTS, the telecommunications regulatory agency in Sweden, issued a report entitled “Improved broadband competition through functional separation - Statutory proposal for non-discrimination and openness \in the local loop”. This proposal called for the functional separation of TeliaSonera into wholesale and retail operations. As quoted in the foreword to this Report:

“A functional separation will resolve the problems related to discriminatory behaviour and create a functional marketplace for wholesale products in the broadband sector. It removes the vertically integrated operator's incentive and opportunities to exploit its position as a network owner to the benefit of its own retail organisation, but to the detriment of competition. In the long term, the winners will be the consumers and businesses demanding broadband services. “

The Swedish approach is similar to what has been set up in the UK for BT.

In December 2008, PTS initiated a consultation on its proposed obligations to apply when operators offer broadband services via TeliASonera’s **fibre and copper networks**³³. This Proposal calls for obligations on TeliaSonera to provide access to fibre optic cables and ducts in addition to its copper network. In the wholesale broadband access services, PTS is considering imposing geographical or product differentiated obligations to TeliaSonera.

³³ PTS Press release (English), December 18 2008, “PTS is proposing new obligations for broadband markets”. The comment period closed on February 9, 2009.



4.3.2 In France

The French regulator ARCEP, as well as the French government, has been very active in developing a framework for next generation fibre optic facilities in France. We highlight herein some of the key undertakings under way to bring fibre optic access to all French residents and businesses. ARCEP has also started monitoring the status of very high speed fibre based access in France (“le tableau de bord du très haut débit”).

In July 2008, the French government adopted the “Loi de modernisation de l’économie”, which essentially consists of an obligation for any one that has fibre optic facilities reaching the physical locations of end users and that can be used to provide high bandwidth electronic communications, to meet reasonable requests for access to these facilities. On March 5th 2009, the regulator indicated that experimental installations of joint fibre access in buildings were under way in 20 locations so that operators could properly assess technology, operational as well as economic issues related to these common deployments.

In France, two July 2008 decisions by ARCEP. (Decisions no. 2008-0835 and no. 2008-0836, published July 24 2008) provided the analyses and justification for their determinations regarding fibre access and infrastructure to deploy next generation networks as well as broadband access services.

Some of the key elements are:

- Obligation by France Telecom to provide cost based wholesale services for access to its civil engineering plant, where it owns such plant.
- Obligation to offer cost based wholesale services high bandwidth access services including Ethernet.



We provide below some excerpts of decision 2008-0836 (at p. 70) dealing with the types of access services considered.

“Offres d’accès

- *offre d’accès haut débit activée sur DSL permettant une couverture nationale à travers un raccordement infranational, en une vingtaine de points ;*
- *offre d’accès haut débit activée sur DSL permettant une couverture nationale à travers un raccordement départemental en une centaine de points ;*
- *offre d’accès en interface IP et soit en interface **Ethernet** dès lors que celle-ci est disponible, soit en interface ATM dans le cas contraire ;*
- *offre d’accès monocanal et bi-canal ;*
- *offre d’accès en ADSL, en ADSL2+ et, pour les offres destinées in fine au marché professionnel, en SDSL ;*
- *offre d’accès de type « professionnel » et « résidentiel »*

ARCEP has identified Ethernet as the technology providing the best opportunity for the future in replacement of ATM technologies.

In both Decisions 2008-0835/0836, we also highlight that ARCEP specifically identified that France Telecom, the incumbent carrier, would have to develop different wholesale offers for competing carriers depending on whether the intent is to serve the residential or the business market. The wholesale offers for business clients are to include enhanced quality of service characteristics to serve the needs of a business clientele.

In light of the efforts put in place to deploy fibre optic facilities jointly owned by telecommunications carriers, ARCEP has for the moment decided not to mandate specific fibre optic cable wholesale offers. However, ARCEP also states that it will review the situation if market conditions evolve and warrant regulation of such services in the future.



4.3.3 In Germany

Germany has often been at odds with the EU regulatory framework for electronic communications in place since 2002 and a similar situation has evolved in addressing the regulatory framework for next generation services.

In 2006, the German regulator had determined that Deutsche Telekom should provide wholesale access to its next generation VDSL local access network owing to its dominant position in the broadband market in Germany as well as a certain level of obligations to provide information and access to ducts (so that other telcos could use them to lay their own fibre) or to dark fibre (in the event that access to the cable conduit would not be possible). This view was welcome by the EC, as shown below.

*“On 21 July 2006, the German telecom regulator BNetzA notified to the Commission measures to remedy the dominant position of Deutsche Telekom on the German broadband market. Already in December 2005, BNetzA had found that Deutsche Telekom holds a position of significant market power on the German wholesale broadband access market. **The Commission agreed with this analysis, after it had been amended to include also, in principle, the new VDSL-infrastructure of Deutsche Telekom**”*

In parallel to these developments, Deutsche Telekom (DT) was pursuing its lobbying efforts with the objective of not being subjected to mandated wholesale obligations at regulated prices in exchange for deployment of a new next generation broadband access network. Amendments to the German Telecommunications Act were adopted in February 2007. The result is, according to the EC, that the revised law governing telecommunications in Germany potentially provides a regulatory holiday to DT in the deployment of its next generation access network and that it interferes with the discretion of the regulator in analyzing markets. This interpretation is being challenged by the



German government which indicated that the types of services being subjected to regulation are determined by the regulator and not by the legislator.

Undaunted, the EC was still of the view that the new amendment to Telecommunications Act fell short of meeting the requirements under EU Telecom Rules. Thus, the EC has initiated infringement procedures against Germany, as highlighted below.

“The Commission decided today to send Germany a letter of formal notice after repeated warnings not to adopt legislation that could grant Deutsche Telekom a 'regulatory holiday' in spite of its dominant position on the German broadband market.

In the Commission's view, the German law, as now adopted, jeopardises the competitive position of Deutsche Telekom's existing competitors and makes it much harder for new competitors to enter German markets. It also attempts to influence the German regulatory authority in charge of electronic communications (the 'Bundesnetzagentur') on whether or not to grant competitors access to the new VDSL-network currently being built by Deutsche Telekom. The new law therefore interferes with the authority's discretion in defining and analysing markets under EU rules. It is a legislative response to Bundesnetzagentur's decision in September 2006 to address Deutsche Telekom's significant market power in the German wholesale broadband market. The remedy proposed by Bundesnetzagentur on 21 July 2006, and endorsed by the Commission on 21 August 2006, requires Deutsche Telekom to open its broadband networks (including those using VDSL technology) to competitors

.....

The infringement procedure started today is the sixth proceeding pending against Germany under EU telecom rules³⁴”

There has been no conclusion as of yet to this legal procedure.

4.3.4 In the United Kingdom

³⁴ Commission launches "fast track" infringement proceedings against Germany for "regulatory holidays" for Deutsche Telekom', February 26 2007 Press release



Ofcom in the UK has been a worldwide leader in fostering competition in all market segments and in promoting equal access by all telecommunications service providers to the underlying infrastructure, to ensure that all residents and businesses in the UK have access to competitive services.

To this end, BT, the UK national incumbent telecommunications carrier, had agreed to split itself into two functional divisions, retail and wholesale, each with its own management. The new wholesale division is called Openreach. Openreach was launched in January 2006.

The objective of Openreach is to provide wholesale access to infrastructure such as unbundled loops to BT as well as other telcos active in the UK on terms referred to as “Equivalence of Inputs”. Equivalence of Inputs means that BT shall provide a number of wholesale products to all operators (including its own retail operation) on the same terms, at the same prices and with the same quality of service which covers elements such as delivery times, level of service, IT systems and processes.

This approach has resulted in rapid increases in the number of local loops accesses deployed by competing telcos which now reach in excess of 5 million, up from 123,000³⁵ access loops three years ago.

The UK has mandated access to fibre based wholesale Ethernet access services (“active products that use both the physical infrastructure of BT and its electronic equipment”) to be provided to BT Retail as well as to competing telcos by Openreach, always on the basis of Equivalence of Inputs.

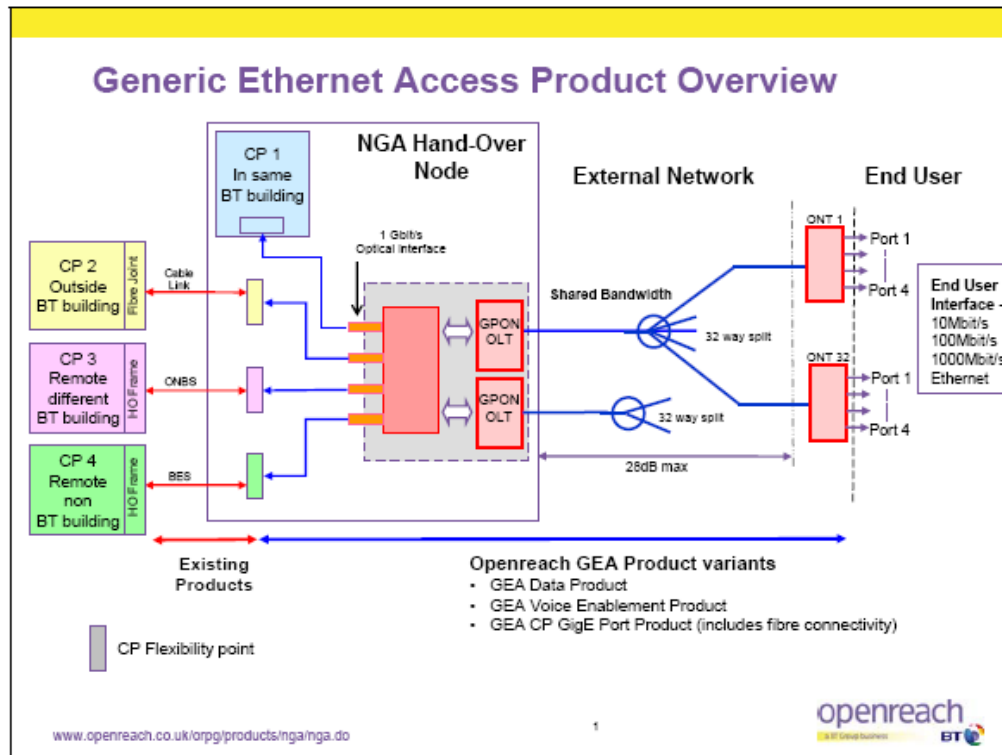
³⁵ “ In three years, the number of “unbundled” lines has increased from 123,000 to over 5 million, offering consumers more choice and better value for money” , Ofcom , December 5, 2008



A wholesale Generic Ethernet Access (GEA) service is a key building block of the framework for next generation access being put in place in the UK. Figure 1 provides a schematic representation of such a service developed by Openreach in collaboration with other telcos. It highlights end users services at 10, 100 and 1000 Mb/s. The figure also highlights that different flavors of this service will be used to support data and voice services as well as fibre connectivity.



Figure 1- Wholesale Ethernet Access Service from Openreach to BT Retail and other Telcos in the UK



One change as part of a proposed new framework for fibre-to-the-cabinet deployment by BT is that pricing from Openreach on this service will not be regulated, at least for the time being.

However, Equivalence of Inputs still applies, which means equal pricing for all telcos including BT retail³⁶. Thus, BT retail will not benefit from cost advantages when using these services to compete with other telcos in the UK for fibre-to-the-cabinet deployment.

³⁶ “Subject to the outcome of the consultation, this variation will require Openreach to provide active wholesale products to all service providers on an Equivalence of Inputs basis.”, Par. 1.40 of Ofcom March 3 ,2009 Statement entitled “Delivering super-fast broadband in the UK- Promoting investment and competition”.



Furthermore, Ofcom has indicated that they may go back to regulated pricing for these services if they see evidence of margin squeeze³⁷.

4.3.5 Conclusion on our international overview

Although there are differences between the EU countries reviewed, it is also apparent that steps are being taken in all these countries to ensure that competitors are provided mandated access to wholesale next generation access fibre based infrastructure and services. No regulator appears to have concluded that the large scale deployment of fibre optic next generation facilities are easily duplicable by competitive carriers.

If we transpose this to the Canadian market, we would certainly conclude that there already exist alternate facilities and a duopoly serving the residential market. But, we have not found evidence that there exists now duplicate fibre optic facilities serving a large proportion of the business locations, nor that these facilities are easy and cost effective to duplicate in a majority of business locations. Thus, we conclude that a framework providing mandated access to wholesale next generation Ethernet services would be a key element to guarantee continued competition in business markets in Canada, similar to the EU framework.

³⁷ Par 8.34 of Ofcom March 3 ,2009 Statement entitled “Delivering super-fast broadband in the UK- Promoting investment and competition”.



5. On the impact of mandated wholesale access services on capital investment

One of the key arguments put forward by incumbent telephone companies in many countries has been that initiatives by regulators to set regulated prices for mandated access to wholesale next generation networks will have a significant negative impact on their own investment and network deployment plans with adverse consequences for consumers.

We provide below information and analyses garnered from the EU, UK and Canadian recent experiences which indicate that this may not be the case in reality.

5.1 The EU perspective on investment

The EU has been recording sustained increases in overall industry investment since it has been implementing its regulatory framework for electronic communications starting in 2002. This framework is premised on the availability of mandated access to wholesale facilities at regulated prices to increase competition in the downstream retail markets and benefit consumers and businesses.

The objectives of this approach are to ensure that competitors can expand their operations to better compete at the service level and while doing so, increase their investment in their own networks in line with their level of success in the market. This is sometimes referred to as the “ladder of investment”.



Investment statistics from a January 2008 speech by Ms Viviane Reding, EU commissioner³⁸, highlight four years of consecutive growth in network investment.

“The European model is empirically proven to promote not just choice, competition and innovation but also investment: in 2006, investment in the EU telecom sector reached another peak of over €47 billion, 5% up on 2005. This was the fourth year on year increase since 2003. By the way, European investment is at least at the same level as other major regions (Asia Pacific: €44.3 billion and North America: €43.7 billion).”

The EU is so satisfied with the success of this approach that, as discussed earlier in this Report, wholesale next generation access facilities available at regulated prices are a cornerstone of the EU revised telecommunications framework now under final review at the European Parliament.

The same view is espoused in a recent OECD report discussing investment in next generation access networks³⁹, as highlighted below. The OECD expresses its conclusions that appropriate regulations that support competition will not adversely affect the incentives of incumbents to invest. They also refer to significant costs savings generated by next generation networks as a major incentive to justify their deployment by incumbents.

“In recent years several incumbent telecommunication operators having tried to forge a direct link between regulation and investment, in particular with respect to protecting investment in fibre networks, ensuring that these would not be subject to open access conditions. Some countries have supported this position, considering that the way forward is thorough the roll-out of high speed networks and platform competition. In other countries LLU has been used as a phased approach to meet the same objectives.

³⁸ ³⁸ January 14 2008 Speech by Ms. Viviane Reding to the KPN Annual Event

³⁹ OECD, p. 30



*In general, incumbents need to invest in upgrading their existing networks in order to maintain their client base and to regenerate revenue growth. Under present market conditions they are already losing a large number of clients. For example, with the development of VoIP services the main revenue base of incumbents is being whittled away. Although experiences differ by country, competition is building up in broadband markets through the upgrading of CATV networks, through investment by new entrants in infrastructure. Competition from high speed wireless networks may also eventually impact on the client and revenue base of incumbents. Next generation access networks will provide the means for incumbents to compete effectively with new entrants and provide a range of value-added services allowing for new revenue opportunities. At the same time next generation access networks allow for significant cost savings (maintenance, etc.) which, when supplemented by new revenue sources, will be important for revitalizing the profitability of incumbent operators. **Thus appropriate regulations which help create competition do not necessarily affect the incentive of incumbents to invest. The impact of increased competition, as well, helps to stimulate the rapid take up of new services and thus, even with lower prices, tends to provide a quicker return on investment.***

5.2 The evolution of capital investment in the UK, post functional separation

The UK is a precursor and a leader in ensuring widespread availability of wholesale facilities and services and the ensuing impact on investment in telecommunications is therefore of particular interest.

The OECD report on next generation networks⁴⁰ refers to investment in the UK, post functional separation and the widespread offer of wholesale of facilities by Openreach. **(Emphasis added)**. The OECD notes that functional separation and access to wholesale facilities have resulted in increased investment from new entrants and incumbents alike.

“The first case of functional separation is the BT Openreach model in the United Kingdom, where the incumbent, BT created an operationally independent unit aimed at

⁴⁰ OECD, p. 31



*ensuring that all the telecommunications industry, including other parts of BT, have fair and equal access to the local and backhaul networks. Openreach offers access to wholesale products (LLU, wholesale line rental, etc.) to new entrants on the same terms as BT offers its own retail entity. BT Openreach signed a number of undertakings with the regulator, OFCOM, and set up an Equality of Access Board aimed at monitoring compliance with undertakings and the code of Practice of Openreach and ensuring that it meets requirement to provide products and services on an “Equivalence of Inputs” basis. **The United Kingdom has found that the introduction of functional separation has led to significant new investment from new entrants in that it increased confidence that the regulatory system will address anti-competitive behaviour. The incumbent has also increased investment viewing that functional separation has increased regulatory certainty.** In Sweden, TeliaSonera has decided to establish an infrastructure subsidiary selling its products on equal terms to TeliaSonera’s wholesaler customers and the company’s own operations. In contrast to BT, TeliaSonera separated the whole network – including core and access – from the provision of services. New Zealand’s incumbent also is in the process of implementing a separation plan.*

The following figure highlights a number of operating metrics of BT and of Openreach before as well as after the launch of Openreach in January 2006.

BT’s overall capital intensity, including Openreach, was fairly constant at approximately 16% of total revenues from 2005 up to the year ending March 31 2008. Capital intensity for the 9 months ending at December 31 2008 stood at 14.8%, slightly lower than in previous year, a relatively small decrease in the midst of a major recession. Total yearly investment increased from in excess of 3 million pounds in 2005 to over 3.3 billion pounds in 2007.

The evolution of the two revenue segments of Openreach is also interesting to discuss. Internally generated revenues (BT retail) still represented 82% of Openreach revenues in 2008, down from close to 87% in 2007. So while market activities by competing telcos demonstrate a significant growth rate, this analysis also highlights that BT retail clearly remains the dominant player in the market, further supporting the need for Openreach now and in the future for next generation networks.



Figure 2- Evolution of capital investment by BT post functional separation

| in millions of pounds | | | | | |
|--|-------------------------|-----------|-----------|-----------|-----------|
| | Dec 31 2008 9 months | 31-Mar-08 | 31-Mar-07 | 31-Mar-06 | 31-Mar-05 |
| Total Revenues | £15,917.0 | £20,704.0 | £20,223.0 | £19,514.0 | £18,429.0 |
| Openreach Revenues (launched Jan 2006) | £3,938.0 | £5,266.0 | £5,223.0 | | |
| <i>Internal</i> | £3,210.0 | £4,380.0 | £4,538.0 | | |
| <i>External</i> | £728.0 | £886.0 | £685.0 | | |
| Total BT Capex | £2,330.0 | £3,339.0 | £3,247.0 | £3,142.0 | £3,011.0 |
| Total BT Capital Intensity | 14.6% | 16.1% | 16.1% | 16.1% | 16.3% |

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Sources: BT Dec . 2008 9 months results and Annual Reports for prior years

In its March 3 2009 statement on “Delivering super-fast broadband in the UK”, Ofcom proposes to expand the role of Openreach to provide “*equivalent*” active services to BT retail and other telecommunications carriers. Clearly, Ofcom sees mandated wholesale next generation access services as a cornerstone of its policy to bring **competitive**, super fast broadband, next generation services to all UK residents and businesses. As discussed earlier in this Report, wholesale Ethernet access services are a major building block to ensure that this objective is achieved.



5.3 *A parallel to the investment in next generation mobile networks in Canada*

Interestingly, and closer to home, TELUS and Bell Canada signed their second network sharing agreement since 2001. The October 2008 agreement calls for the joint deployment of a next generation HSPA network across Canada in 2009 to be launched and available nationally in early 2010.

This agreement is interesting for two key reasons.

1. It represents significant additional investments in new networks by two key incumbent telephone companies, just after the implementation of new regulations mandating access by new entrants to these networks.

For example, Mr. G. Cope, CEO of Bell Canada, indicated that this agreement would be worth of the order of \$500M in capital investment savings to Bell Canada⁴¹. Nevertheless, capital intensity at Bell has increased significantly in late 2008, reaching 22.5% overall in fourth quarter 2008, as a result of the investment to start deploying this next generation mobile network⁴².

2. During presentations at the Feb. 11th, 2009 analyst meeting and at the Feb. 17th 2009 annual meeting (for the year 2007), Bell Canada has clearly indicated that it will market this new network to new entrants to generate wholesale revenues, as they are required to by their new condition of license, during presentations at both the February 11 analyst meeting and February 17 2007 annual meeting. The

⁴¹ Presentation at Bell Canada 2008 Annual Meeting, Montreal, February 17 2009

⁴² Presentation by Mr. Siim Vanaselja, Chief Financial Officer, Bell Canada Analyst Meeting, February 11, 2009



interesting point in that by investing into HSPA, Bell and TELUS have also chosen to deploy a new technology that enables them to compete for new entrant mobile revenues once their networks are up and running. The potential for wholesale revenues to be generated by their current technology EVDO or by moving faster to LTE 4G mobile technology would have been much lower than what they could potentially and eventually attract with HSPA.

We highlight that this very significant investment takes place just after both Bell and TELUS strenuously argued against mandated roaming in the context of prior public consultations by Industry Canada.

*“Measures such as spectrum caps, set-asides, mandatory roaming and tower sharing act as restrictions on doing business and amount to serious and significant government intervention in a competitive marketplace. They distort the normal practice of commerce, inhibit innovation and **discourage investment in the industry.**”⁴³*

“Bell Canada submits that any proposal to mandate digital roaming amongst competing carriers is not practical, would impose unwarranted economic costs on the entire industry and would seriously distort competition throughout Canada.”⁴⁴

One of the key arguments put forward above was that market interventions such as mandated roaming would discourage investment by industry.

Nevertheless, once wholesale roaming was mandated, both companies chose to increase their level of investment to become stronger competitors to Rogers, to obtain the cost benefits of HSPA and to compete with the new mobile licensees, at the same time as they

⁴³ Excerpts from the Bell Canada Bell Canada's Response to: Canada Gazette Notice No. DGTP-002-07 – Consultation on a Framework to Auction Spectrum in the 2 GHz Range including Advanced Wireless Services May 25, 2007, p. 6

⁴⁴ Excerpts from Part 5: Bell Canada's Response to Specific Questions Raised in the Department's Consultation Paper, p. 19



hope to provide them with wholesale access to their networks. It is thus expected that competition will be much increased in Canada by this new investment and that consumers will reap major benefits over the coming years,

5.4 *Conclusion from our review of the evolution of investment in networks*

The key conclusion we derive from our analysis of industry investment when wholesale facilities are mandated, including new networks, is that it is competition, including competition at the service level, that drives investment, as opposed to a telecommunications policy solely focused on facilities-based competition.

Thus we believe that increased competition in next generation services via mandated access to next generation access services, recognizing the status of next generation incumbent facilities as essential due to the lack of suitable alternatives, will increase competition among facilities-based carriers, which in turn will provide the key incentives for incumbent telcos to keep on investing into these networks. The major investment in HSPA networks by both Bell and TELUS in the face of increased competition provide a proof that this argument holds true in the Canadian context.



6. Appendix A: Excerpts regarding OECD NGN perspective

- Convergence and Next Generation Networks, Ministerial Background Report, declassified in March 2008 and drafted by Claudia Sarrocco and Dimitri Ypsilanti of the OECD Secretariat.

“Access to next generation access fibre networks

There is widespread agreement that infrastructure-based competition provides the most sustainable and effective level of competition in the communications market. In those circumstances where the establishment of networks competing with incumbents' NGA networks is not considered feasible, the pursuit of policies to promote inter-modal or service-based competition is an important goal. **There is also general agreement that availability of next generation networks access is a crucial element in the provision of new broadband-based services and applications. Although regulators understand that the policy challenge for NGN access is to strike an appropriate balance between market incentives and ensuring an appropriate level of competition in access network markets, there is much less agreement on how to implement this policy challenge and ensure that such networks are made available with maximum geographic coverage and at affordable prices.**

The existing model used by the majority of OECD regulators to promote competition where there is significant market power is through local loop unbundling. This model will be limited in use in a fibre environment. ...

In the context of fibre networks policy makers and regulators have, in general, three broad scenarios to choose from. They can:

1. Allow free rein to the market – no ex ante unbundling requirements

The market would be allowed to determine the development of fibre networks. This choice would accept arguments that investment in fibre networks by incumbent operators is taking place in a market open to competition as compared to investment in copper networks financed by monopoly rents and cross subsidisation. In such a scenario such new investment should not be subject to ex ante regulation.

There are two possible market scenarios arising where investment in new fibre networks takes place without any ex ante regulation. The first is that competition develops as new entrants also invest in fibre or develop alternative network infrastructures capable of



delivering NGA functionality. The economics of certain next generation network technologies may make deployment more or less likely in particular geographic areas...

The limitations faced by new entrants are significant, especially with respect to the reach of their existing networks and their ability to obtain access to rights of way and ducts. It is thus difficult for new entrants to replicate an NGN access infrastructure. Incumbents have the financial power to obtain financing for such access networks relative to new entrants. Their market position provides them with much more certainty in obtaining financing since incumbents have much higher revenue streams from existing services than new entrants and they are less likely to go bankrupt. For the same reason they are likely to obtain cheaper loans. In a number of countries the fact that incumbents are partially government owned and may, in the eyes of the financial market, be the designated universal service provider also puts them in a more favourable position. In addition, a large percentage of costs in rolling out new fibre networks are construction costs related to conduits and rights of way. Construction costs could be significantly higher for operators if they do not already have access to rights of way and ducts.

.....

2. Regulators can be proactive and determine where bottlenecks are likely to emerge and take action accordingly

Much of the debate around new network investment has focused on the fact that, since such investment is new, this implies that the incumbent does not have ipso facto dominance, whereas the actual issue is whether the existing dominance is transferred to the new network. Many incumbents in the communication market still have market power which arises from their former monopoly position so that, even though investment in fibre networks is “new”, incumbents are still leveraging their historical market power and there is a risk that, if exempt from regulation, such investment would result in the creation of new dominant positions.

Under this second scenario regulators would maintain ex ante regulation and be proactive by ascertaining potential bottlenecks where regulatory action is required as fibre is brought closer to the consumer. Increasingly, a number of incumbent operators that are subject to asymmetric regulation have argued that with respect to next generation access networks there should be asymmetric geographic regulation, that is, regulatory forbearance should be adopted in geographic areas (usually the more densely populated cities) where facility-based competition is developing. At the same time, it could be possible to explore whether a distinction can be made between the geographic markets approach, where multiple markets are defined, and a single national market approach, with varied remedies by geography. A geographic market approach would require defining a market for access and services at the geographical level and



then undertaking market power assessments for each of the designated geographic areas. Asymmetric geographic regulation may also result in geographic price differentiation at the wholesale and retail level – lower prices in competitive cities and higher prices in smaller cities and regions. There would also be an incentive for the dominant operator to try and gain market share in large cities including through cross-subsidisation. In addition, it may be difficult to identify the relevant criteria for the definition of geographic markets, and the segmentation of the market may be excessive, resulting in an overly complex regulatory environment.

The purpose of ex ante regulations is to ensure that barriers to market entry are minimised. In this context, the first requirement is to define what ex ante regulation means in the context of the roll-out of fibre networks. Maintaining unbundling as the cornerstone of regulation is not helpful if, for technical and/or economic reasons, unbundling is not possible. Therefore, short from mandating that the network topology chosen by a firm with an existing dominant position in the fixed access market should allow for unbundling (see scenario 3 below), the main barriers to market entry in the roll-out of fibre are likely to be construction costs and access to homes/buildings. Construction costs (civil engineering costs) are estimated at around 60-80% of total costs in rolling out a FTTH network and constitute a large percentage of total network costs. Incumbents have a significant advantage because their historical monopoly position has given them existing rights of way and they usually own the ducts used by copper networks (which often means they do not pay for rights of way). Other utilities, such as electric power companies, also have access to rights of way and ducts. The number of administrative layers (local municipal councils, regional bodies, etc.) often creates difficulties for new entrants in obtaining access to rights of way and ducts. Where municipalities are pro-active in trying to ensure that fibre networks are developed, they often provide access to municipal rights of way and ducts on reasonable terms. For FTTN networks street cabinets and access to them are important. Several authorities in OECD countries are addressing this issue. In the United States the Telecommunications Act of 1996, as well as various FCC orders that implement the statute, set forth numerous requirements that US local carriers must meet in order to provide competitive carriers reasonable and non-discriminatory access to ducts and rights-of-way. In France the ARCEP published at the end of 2007 the results of a consultation on duct sharing, and initiated at the beginning of 2008 technical work with the operators on infrastructure sharing and on the localisation of the adequate points of mutualisation. In Japan a guideline for use of poles, ducts, conduits and similar facilities owned by public utilities was amended in 2007 to add provisions regarding procedures to facilitate the installation of lines in the last mile.

In this context, the main ex ante regulations needed to reduce bottlenecks include:

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 A Canadian and international perspective on
 why wholesale services should be regulated as essential facilities



- *Ensuring access to rights of way at reasonable prices, and preferably at no charge, for new entrants and incumbents.*
- *Ensuring access by new entrants to existing ducts/poles of both network operators and utility companies and municipalities.*
- *Regulations to ensure the sharing of access to the inside wiring of apartment buildings and homes.*
- *Facilitate access to street cabinets and collocation in street cabinets. Regulators need to work with municipalities to find solutions to avoid excessive duplication of street cabinets and/or restrictions on investing in street cabinets by new entrants.*
- *Municipal networks can play an important role in enhancing competition in fibre networks. If these develop governments should encourage them to be open networks, that is providing dark fibre to service providers rather than becoming themselves service providers. Nor should the existence of a municipal network providing dark fibre mean that investment in other fibre networks in that municipality should be prevented.*
- ***Where mandated, ensuring wholesale broadband access is provided on a non-discriminatory basis which must ensure that the quality of service provided to wholesale service providers is the same as that of the owner and operator of the network.***
- *Where adequate facilities-based alternatives do not exist, consider applying local loop unbundling policies to new fibre networks, in particular sub-loop unbundling since with certain fibre configurations (FTTN) new entrants will need access to street cabinets.”*



7. Appendix B: Excerpts on EC views regarding NGA mandated access

Excerpts from speeches by Ms. V. Reding, EC Commissioner.

But there is an important new question to answer as we look at next generation networks offering high bandwidth, available everywhere, cheap and open to innovation and competition. Where will the investment come from to move us from legacy copper networks to new high bandwidth networks?

It is clear that next generation core networks are interesting to market investors: we have seen investments in such networks across most of Europe. But access networks are more difficult for two reasons. The cost of the upgrade is high (between 300€ and 1000€ per household on average, in many places even more!). Second, access is the bottleneck and therefore it creates competition problems. If one player can get hold of this bottleneck he will have the means and motivation to shut off the market to other players – or at least give access to who he wants and on the terms he wants.

How we treat next generation access is therefore the single most important policy question in the telecoms sector today. We have to create incentives for investment whilst making sure that no-one (and I insist on this no-one), can be in a position to foreclose the market.

What are the incentives to invest? The key is a stable and predictable regulatory environment. Investment decisions are finely balanced. If we are to encourage market players to invest in upgrades to the access networks, they will need to be able to offer a long term return on investment to their investors.

Regulation has a role to play here. I see it as entirely appropriate for regulators to allow infrastructure providers to make a reliable return on next generation access investments in return for testable guarantees of non-discrimination and an agreed plan for infrastructural investment that will lead to an open, high speed infrastructure. By the way, one of the potential attractions of functionally separating access networks is to make this incentive structure clearer and more operational.⁴⁵

⁴⁵ January 14 2008 Speech by Ms. Viviane Reding to the KPN Annual Event



On June 25, 2008, Ms. Reding further added ⁴⁶“

- *“A key element in my vision for Next Generation Access regulation is to ensure that all parties, entrants or incumbents have sufficient incentives to move in these markets.*
- *Regulatory restraint as a carte blanche for incumbents to re-monopolise markets where the buds of competition are flourishing is not a policy option if we want competitive markets.*

...

The EU Telecoms Reform

We are currently in the middle of a legislative procedure on the reform of the EU's regulatory framework for the telecoms markets. The Commission's reform proposals have been made with Next Generation Networks in our mind. However, we did not need to propose a major overhaul of the Framework to cater for these networks. Already in 2002, the EU's Framework was made open and technologically neutral so as to deal with new technological deployments. Let me go further. The move to Next Generation Access Networks does certainly not change the logic when assessing the need for regulation in order to ensure effective competition. The rationale underpinning the Commission's approach has been the following: if telephony and broadband are the basic products sought by end users, then whether they are delivered over metallic or fibre loops is largely irrelevant to the analysis because the framework is based on the principle of technological neutrality. In the Commission's view, it would be a fatal mistake to deviate from the pro-competitive approach of the current framework.

If third party access is a prerequisite for functioning competition, we of course have to ask ourselves, when applying the current regulatory framework, how competitors benefiting from current access obligations will secure adequate access and a level playing field in the future, without jeopardizing incentives to invest for any market players.

What is relevant when considering whether to intervene on a certain telecoms market, is the state of competition on that market. Unless there is a competitive access market, access regulation can be expected to continue irrespective of the underlying technology.”

⁴⁶ Europe's Way to the High Speed Internet: Why Effective Network Competition is the Freeway to the Future, ECTA Annual Conference, Brussels, June 25, 2008