

# Voice over Internet Protocol (VoIP) Competitive Landscape

28 July 2005

***"For many, the phone jack in the wall  
that connects to the phone company's network  
is just a useless hole."***

Wall Street Journal; August 25, 2004

## Table of Contents

	<u>Page</u>
1.0 GENERAL .....	3
2.0 RESIDENTIAL MARKET .....	8
2.1 Introduction .....	8
2.2 Competitive Overview .....	9
2.2.1 VoIP Service Providers .....	9
2.2.1.1 Telephony Offered by Cablecos .....	16
2.2.1.2 VoIP Forecasts .....	24
2.2.2 Wireless Voice .....	26
2.2.3 Fixed Line Voice .....	29
2.2.4 Fixed and Wireless Text .....	31
2.3 Competitive Intensity .....	32
3.0 Business market .....	40
3.1 Introduction .....	40
3.2 Competitive Overview .....	42
3.3 Competitor Profiles .....	50
3.3.1 Bell West .....	50
3.3.2 MTS Allstream .....	50
3.3.3 Rogers Communications Inc .....	52
3.3.4 TELUS .....	53
3.3.5 Foreign Telecommunications Service Providers .....	55
3.3.6 Equipment Vendors/Systems Integrators .....	59
3.3.7 Municipal Electric Utilities .....	61
3.3.8 Other .....	62
3.4 Competitive Intensity .....	65

## 1.0 GENERAL

1. Voice over Internet Protocol (VoIP), or Internet Protocol (IP) telephony, is a disruptive technology that is transforming the telecommunications industry. As Michael Powell, former Chairman of the U.S. Federal Communications Commission, observed, when first experiencing Skype's service:

"I knew it was over when I downloaded Skype.... "When the inventors of KaZaA are distributing for free a little program that you can use to talk to anybody else, and the quality is fantastic, and it's free - it's over. The world will change now inevitably."<sup>1</sup>

2. Canada's communications industry today, like all others around the world, is virtually unrecognizable compared to a generation ago. Quite simply, Canadians no longer communicate the way they used to. To better understand the competitive landscape for VoIP service, it is helpful to briefly consider the three primary technologies driving the changes in the communications industry: wireless, broadband, and the Internet - or more specifically, IP networks and services.

3. Internet and wireless technologies are fundamentally changing the nature of voice communications competition. The SeaBoard Group estimated that by 2010 VoIP could take 20% of the traditionally defined local market while the wireless only segment could represent another 20%.<sup>2</sup>

4. There are a number of different general types of VoIP service. These are sometimes referred to herein in terms of four categories of VoIP. Category 1 consists of peer-to-peer services. These provide calling between two points on the Internet. Category 2 services use the public Internet to carry voice calls but also allow for calls to be originated or terminated on the public switched telephone network (PSTN). For Categories 1 and 2, the voice application is the service. The access, through the public Internet, is not part of the service. These services ride "over-the-top" of a customer's broadband Internet connection, which can be obtained from any provider (telco, cableco, or other Internet service provider (ISP)). Hence, these services are often termed "access-independent". Category 3 services use broadband connections, other

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<sup>1</sup> FORTUNE Magazine, Vol. 149, Issue 3, 9 February 2004, page 65.

<sup>2</sup> *An Exciting Year Ahead: SeaBoard's Views on the 2005 Communications Market*, SeaBoard Group, January 2005, pages 5 and 14.

than Internet connections, to access the voice application. The access portion is a constituent part of the service, hence these services are sometimes termed "access-dependent". Category 4 is a business application of IP-based features. Depending on the nature of the business VoIP service, access arrangements may or may not be part of the service. Where access is not part of the service (for example, with Bell Canada's MIPT service) it can be obtained from any number of LAN providers.

### *Wireless*

5. There are more than 15 million cellular<sup>3</sup> telephone service subscribers in Canada.<sup>4</sup> Included in this figure are roughly 600,000 Canadians who have given up their traditional fixed line telephone altogether in favour of using only a cell phone.<sup>5</sup> Canadians use their cellular telephones to make local and long distance calls, and to send text messages to other cell phone users.<sup>6</sup> Canada's wireless penetration rate has been growing at double digit rates or better since its commercial launch in 1984, but it still lags most other industrialized countries. For example, Canada's penetration rate of about 45 wireless subscriptions per 100 inhabitants lags the U.S. (59), Japan (70), France (71), the UK (99), Hong Kong (103), and Sweden (108).<sup>7</sup> As can be seen from these figures, in many countries people have more than one cell phone subscription - perhaps one for business use and one for personal use.

6. Wireless data services, either on a cell phone or through a computer connected to a wireless network, are also growing at a rapid rate. The proliferation of wireless data networks led industry analysts at IDC Canada to predict that Canada's commercial WiFi "hotspots" - public places where wireless broadband access is available to any user on an *ad hoc* basis - would grow from 450 at the end of 2003 to 4,200 by the end of 2007.<sup>8</sup> Worldwide, public

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<sup>3</sup> The terms "wireless" and "cellular" are used interchangeably in this document.

<sup>4</sup> Canadian Wireless Telecommunications Association (CWTA) web site, [www.cwta.ca](http://www.cwta.ca).

<sup>5</sup> The number of wireless subscribers that no longer used landline service at the end of 2004 has been estimated to be in the range of 500,000 to 700,000. This represents between 3.7% and 5.1% of all residential phone lines, including wireline plus wireless only users (*Canadian Local Telecom Services Market Report: 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 52) Statistics Canada's December 2004 Residential Telephone Service Survey (Catalogue #56M0001XCB) estimated that 330,000 Canadian households have wireless telephone service only.

<sup>6</sup> Not to mention surf the Internet, take and e-mail digital photographs, play games and a growing list of other activities.

<sup>7</sup> *Global Wireless Matrix 3Q04*, Merrill Lynch, 7 January 2005, page 2.

<sup>8</sup> *Hot off the Wire: Canadian Wireless LAN and Hotspot Market Forecast, 2003-2007*, IDC, June 2003, Table 4, page 17.

wireless local area networks are expected to grow at 47% annually.<sup>9</sup> Increasingly, voice and data applications are utilizing wireless networks.

### *Broadband*

7. Canadians are among the world's most active Internet users with 81% of the adult population having access in the home.<sup>10</sup> Furthermore, with about 5.5 million Canadian households subscribing to high speed Internet service using cable modems, digital subscriber lines (DSL) or other means,<sup>11</sup> Canada is among the world leaders in adoption of broadband Internet access.<sup>12</sup> This factor is important when considering the competitive landscape for VoIP, as, currently, most VoIP services require the user to have broadband access service. Figure 1 shows the rapid growth in online households and broadband subscribers in Canada. Note that many new broadband subscribers upgrade from dial-up Internet access service so the number of broadband subscribers is growing at a faster rate than the number of online households.

### *Internet*

8. As large as the impact of the Internet has been on the everyday lives of Canadians, its influence has been even more profound on the communications industry. The proprietary, special purpose networks of the past have been replaced by IP-based networks capable of carrying voice, data, video, music and anything else that can be digitized, packetized and transported. For example, cable networks were previously limited to broadcasting television signals and telephone networks were limited to carrying voice conversations. Now both networks are capable of providing both broadcasting and telephony services, as well as high speed Internet access.

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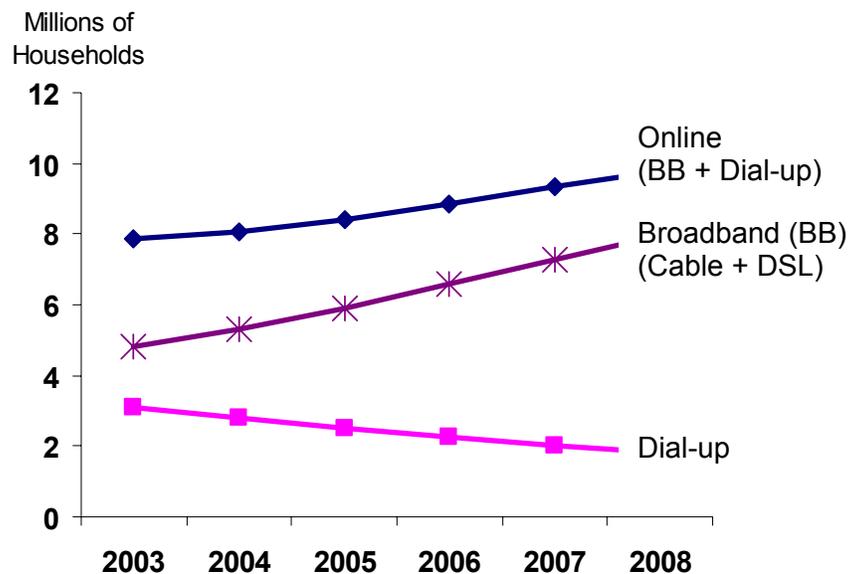
<sup>9</sup> *Getting returns from wireless LANs: Targeting niche opportunities*, Datamonitor, December 2004, page 66.

<sup>10</sup> *CyberTRENDS, TRACKING THE PULSE OF THE CANADIAN INTERNET*, ComQUEST Research Inc., Spring 2005, page 16.

<sup>11</sup> *Broadband Battle: Canadian Broadband Forecast & Analysis 2003-2008*, IDC, September 2004, page 30.

<sup>12</sup> In December 2004, Canada ranked fifth in the OECD in broadband penetration after Korea, Netherlands, Denmark and Iceland according to the "Key ICT Indicators" table, available at [www.oecd.org](http://www.oecd.org).

**Figure 1**  
**Households Subscribing to Broadband in Canada<sup>13</sup>**



9. In the "no barriers" world of IP, the intelligence of the network moves from the centre, where it was controlled by the network operator, to the edge, where services can be implemented by many new providers on a variety of communications devices. It also means that the barriers that once existed - capital requirements, technology limitations, customer inertia - have all but disappeared. Vonage, a leading VoIP service provider, provides an illustration of the low barriers to entry afforded by VoIP. Vonage was able to launch service in over 100 U.S. markets with an investment of less than U.S. \$30 million.<sup>14</sup> Though this is a significant amount of money, it is nowhere near the billions of dollars that had to be invested by old style telephone companies. As Orion Securities stated:

"Bottom line: VoIP technology appears to be enabling a mutation of the CLEC boom that happened in the 1990s. In this case however, the new entrants need to invest substantially less capital and seem to have a much better chance of success."<sup>15</sup>

<sup>13</sup> Chart constructed using data from *Broadband Battle: Canadian Broadband Forecast and Analysis, 2003-2008*, IDC, September 2004, page 30.

<sup>14</sup> Vonage press release, 24 November 2003 at [http://www.vonage.com/media/pdf/pr\\_11\\_24\\_03.pdf](http://www.vonage.com/media/pdf/pr_11_24_03.pdf). Vonage's rapid success at disrupting the communications industry has recently attracted significant investor interest. In May 2005, Vonage announced \$200M (U.S.) in new financing, allowing it to fuel its growth and expansion for years to come. To date, Vonage has raised \$408M (U.S.) in financing. See Vonage press release, 9 May 2005 at [http://www.vonage.com/corporate/press\\_index.php?PR=2005\\_05\\_09\\_0](http://www.vonage.com/corporate/press_index.php?PR=2005_05_09_0).

<sup>15</sup> *VOICE OVER IP: YOU AIN'T SEEN NOTHING YET*, Orion Securities, 28 June 2004, page 11.

10. The technology improvements that now allow voice conversations to be carried over IP networks have changed telecommunications forever and continue to do so. FORTUNE magazine suggested that "VoIP's impact will be more profound than that of either cellphones or the Internet, largely because it encompasses both."<sup>16</sup> The manic pace of technology and market innovation related to VoIP led Rana Foroohar of Newsweek to remark: "The promise of Internet phone calls is advancing so fast that some financial analysts who cover the subject have given up writing research reports, and simply do their own daily blogs [web logs] instead."<sup>17</sup>

11. For consumers the benefits are plain - greater choice, more innovation, and greater value. It is also clear that many service providers see an opportunity, as demonstrated by the rapidly growing number of VoIP providers – more than 50 in Canada, more than 400 in North America<sup>18</sup> and more than 1,100 worldwide.<sup>19</sup> For traditional service providers, the impact of this gold rush will be huge. A recent report by the investment firm Credit Suisse First Boston observed:

"We expect the move to IP or next generation networks (NGN) to lead to significant revenue deflation in the sector, as voice pricing converges further towards that of data and with IP-based data services priced at a significant discount to existing legacy data products."<sup>20</sup>

12. In summary, VoIP is just one form of personal communications used by Canadians. In its most recent report on the status of competition in telecommunications, the CRTC acknowledged the multiple means that Canadian consumers have available to meet their communications needs when it stated that: "...52% of Canadian households spent \$75 per month or more on telecommunications services. This would suggest that a large proportion of Canadian households have multiple means of meeting their communications needs."<sup>21</sup> In fact, Canadians have an abundance of alternatives when it comes to personal communications. Figure 2 provides a framework for considering the alternatives.

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<sup>16</sup> Stephanie N. Mehta, *The Future is on the Line*, FORTUNE, 26 July 2004.

<sup>17</sup> Rana Foroohar, *Hi! The Net is Calling*, Newsweek Enterprise, 31 January 2005.

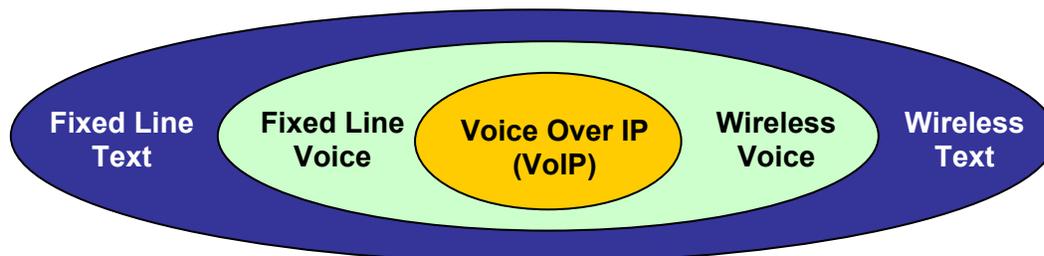
<sup>18</sup> *Mobile VOIP: Telco Trojan Horse or Savior?* FRESHNEWS.COM, 8 February 2005.

<sup>19</sup> *VoIP big bang? 1,100 providers and counting*, Canada Newswire, 27 April 2005.

<sup>20</sup> *Integrated Operators, IP: The Holy Grail for telcos?* Credit Suisse First Boston, 10 March 2005, page 1.

<sup>21</sup> *Status of Competition in Canadian Telecommunications Markets*, CRTC, November 2004, page 101.

**Figure 2**  
**Personal Communications Alternatives**



13. In order to consider competition as it relates to VoIP, Figure 2 positions VoIP at the centre of the figure. There is a wide variety of suppliers in Canada offering VoIP services of various types, and these players constitute the first layer of competition for VoIP. In the next layer of competition are other means to have a voice conversation. Currently, the two primary ways of doing this are through the conventional fixed line telephone and through a cellular (or wireless) telephone. Again there are competitive providers for each of these forms of communications. The final layer of competition relevant to VoIP is the option for people to communicate by sending a text message to one or more people. Such a message can be sent through a fixed line infrastructure (e.g., e-mail, instant messaging) or through a wireless infrastructure (e.g., e-mail over WiFi, a text message/short message service (SMS) using a cellular telephone). The competitive choices offered by each of these forms of personal communications will be addressed in detail in the following sections. Section 2.0 addresses the residential (consumer) market and section 3.0 addresses the business market.

## **2.0 RESIDENTIAL MARKET**

### **2.1 Introduction**

14. Competition for residential communications is extensive within and across communications platforms. It is dynamic and rapidly changing. As noted by the SeaBoard Group:

"The nature of competition in local and access services is changing. It is no longer simply a battle between CLECs and the telcos, offering roughly the same services for minor price differences. The more formidable competitors come from other segments, notably mobile and VoIP. Unfortunately, the Commission's

model of competition, based as it is only on competition within a technology-defined segment, misses this important dimension."<sup>22</sup>

## 2.2 Competitive Overview

### 2.2.1 VoIP Service Providers

15. It seems that new VoIP service providers are entering the Canadian market every day. As mentioned above, barriers to entry are very low and the size of the opportunity is significant - fixed line telephony generates roughly \$7.5B in revenue annually from the provision of local access, calling features and long distance services to consumers.<sup>23</sup> This combination of conditions led industry analyst NBI/Michael Sone Associates to observe that local services based on IP technology have emerged much earlier and much stronger than expected.<sup>24</sup> Three types of VoIP service are relevant to the residential market: peer-to-peer, access-independent, and access-dependent.

#### *Peer-to-Peer VoIP*

16. This type of VoIP permits individuals to simultaneously use software on their personal computers to have a voice conversation over the Internet. Services in this category do not require the use of a telephone number, and, in their simplest form, do not provide the ability to make or receive calls to or from the PSTN. Peer-to-Peer services are often offered by computer companies like Microsoft and Apple as a free adjunct to their core service, as well as by specialist companies like Skype.

17. Skype is an interesting example of a company that has achieved enormous success in a very short time. Launched in 2003, Skype is based in Estonia. It has no network of its own but offers service globally. Skype offers software which is downloaded directly from its website that allows PC users to have voice conversations over the Internet with any other Skype user in the world. Not only is the software free, but all such "telephone calls" are also free. As of 19 July 2005, 137 million people worldwide had downloaded the Skype software,<sup>25</sup> and the

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<sup>22</sup> *Old Bottles, New Wine*, SeaBoard Group, December 2004, page 17.

<sup>23</sup> *LYA Canadian Consumer Telecom & Cable TV Market Forecasts 2004*, Lemay-Yates Associates, August 2004, page 5.

<sup>24</sup> *Canadian Local Telecom Services Market Report: 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 43.

<sup>25</sup> Skype website, [www.skype.com](http://www.skype.com).

service had 40 million registered users.<sup>26</sup> Skype recently added a paid service, "SkypeOut", which allows users to complete calls on the PSTN. SkypeOut has garnered more than 1.4 million paying customers as of May 2005.<sup>27</sup> Skype is also testing another paid service (dubbed "SkypeIn") which allows customers to receive calls from any fixed line or wireless phone in the world. With SkypeIn users select a country and area code and are assigned a regular telephone number.<sup>28</sup>

#### *Access-independent VoIP*

18. Access-independent VoIP services piggy-back on a retail broadband Internet connection enabling the customer to make and receive calls to or from the PSTN and, typically, to and from other broadband connected users. The residential customer's existing broadband Internet connection - be it from a cable company, incumbent local exchange carrier (ILEC), or other ISP - is used to have voice conversations using a regular telephone equipped with a voice adapter. Access-independent VoIP services are provided by fixed line telephony providers such as Rogers Telecom (formerly known as Sprint Canada)<sup>29</sup>, Primus, Bell Canada and Navigata (a subsidiary of SaskTel), by cable companies such as Askivision Systems Inc, Coopérative de câblodistribution de l'arrière-pays and Wood Lake Cable and by a variety of VoIP specialists, such as Vonage, AOL and babyTel.

#### *Access-dependent VoIP*

19. Access-dependent VoIP services provide the ability to make and receive voice calls to and from the PSTN as well as to and from other connected users, and are supplied with an underlying connection, other than a retail Internet connection, to the service provider's network. The access-dependent suppliers in Canada to date are the four largest cable companies - Rogers, Shaw, Vidéotron and Cogeco. These companies are leveraging their existing monopoly cable networks to offer managed VoIP services. The cable companies use the same

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<sup>26</sup> Adam Pasick, *PluggedIn: Internet telephony grows with do-it-yourself help*, Reuters, 10 June 2005.

<sup>27</sup> *Skype to be cash-flow positive in 2005*, Reuters Summit, 25 May 2005.

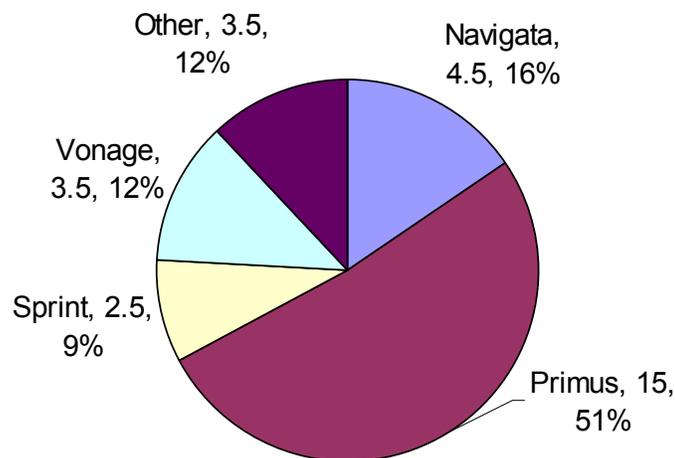
<sup>28</sup> Customers can obtain a telephone number from Denmark, Finland, France, Hong Kong, Poland, Sweden, the United Kingdom and the United States.

<sup>29</sup> On 1 July 2005 Rogers Communications completed its acquisition of Call-Net Enterprises and its operating subsidiary, Sprint Canada. Call-Net is now Rogers Telecom Holdings Inc., and Sprint Canada has been renamed Rogers Telecom Inc. The Sprint Canada Internet Phone Service website now carries the Rogers logo.

cable that delivers cable television and hi-speed Internet to provide VoIP service. Their offering permits a subscriber to use the phone, Internet and cable service at the same time.

20. Figure 3 provides an estimate of the shares held by VoIP service providers in Canada at the end of 2004.<sup>30</sup> With an estimated total of only 29,000 residential subscribers in Canada at the end of 2004,<sup>31</sup> the VoIP services market is still in its infancy.

**Figure 3 - Residential VoIP Subscribers (000s)  
and Share at Year End 2004**



*NBI/Michael Sone Assoc., Nov. 2004*

21. Worth noting is that at the end of 2004 the ILECs and cable companies had yet to make an impact in VoIP.<sup>32</sup> The picture today is quite different, with a number of additional VoIP service providers having entered the market in 2005, Bell Canada and the four largest cable companies, Rogers, Shaw, Vidéotron and Cogeco. As well, the cable companies have all made statements that their cable telephony services will be available to most customers in their service areas in 2006. Figure 4 provides an overview of the 57 VoIP service providers<sup>33</sup>, that

<sup>30</sup> Adapted from *Canadian Local Telecom Services Market Report: 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 18.

<sup>31</sup> *Canadian Local Telecom Services Market Report, 2004 Edition*, NBI/ Michael Sone Associates, November 2004, Exhibit 11.

<sup>32</sup> EastLink, a cable company in Eastern Canada, is a very successful provider of telephony services using circuit-switched technology rather than VoIP. Navigata is a subsidiary of SaskTel, the ILEC in Saskatchewan, but only offers VoIP service with area codes from British Columbia and Alberta.

<sup>33</sup> Rogers Cable and Rogers Telecom are counted as one provider.

have either launched service or have announced plans to launch service, and that are known to Bell Canada as of late July 2005.

**Figure 4**  
**Residential VoIP Service Providers in Canada – July 2005**

Company	Service Category*	Headquarters	Territory**	Service Launch Date***	Price (Monthly)****
ACANAC	2	Not available	Canada	Not available	\$16.95 to \$19.95
Access Communications	2	Saskatchewan	TBD	"will soon be able to provide Voice-over-Internet-Protocol (VoIP)" <sup>34</sup>	TBD
AOL	2	Toronto	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	Dec 2004	\$29.95 to \$39.95
Apple Computer	1	California	Global	June 2003	Free
Askivision Systems Inc	2	Saskatoon	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	Sept 2004	\$9.95 to \$30.95
Aurora Cable	2	Aurora	TBD	Expected July 2005	TBD
babyTel	2	Montréal	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	May 2004	\$10.95 to \$29.95
Bell Canada	2	Montréal	3 cities in Québec <sup>35</sup>	April 2005	\$38 to \$44
Cayoosh Communications Inc	2	Salmon Arm, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	July 2004	\$9.95 to \$24.95
Chase Cable & Internet	2	Salmon Arm, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	July 2004	\$9.95 to \$24.95
ClearConnect	2	Chandler, Arizona	16 major Canadian cities	Not available	\$ 29.99 to \$59.99
Cogeco	3	Montréal	Burlington, Oakville, Trois-Rivières and Pointe-du-Lac. Service will be extended to most cities served by Cogeco cable by December 2006. <sup>36</sup>	June 2005	\$44.99 to \$49.99 in Ontario and \$39.99 to \$44.99 in Québec
Comwave	2	Toronto	470 cities in British Columbia, Alberta, Ontario, Québec and Manitoba	June 2004	\$9.95 to \$29.95

<sup>34</sup> Access Communications starts rebuild project in Yorkton and Melville, 17 September 2004 Press release.

<sup>35</sup> Telephone numbers are available for 23 cities. Service is currently offered in Québec City, Sherbrooke and Trois-Rivières.

<sup>36</sup> Cogeco Cable launches digital telephone service, Canadian News Wire, 8 June 2005.

**Figure 4**  
**Residential VoIP Service Providers in Canada – July 2005**

<b>Company</b>	<b>Service Category*</b>	<b>Headquarters</b>	<b>Territory**</b>	<b>Service Launch Date***</b>	<b>Price (Monthly)****</b>
Coopérative de câblodistribution de l'arrière-pays	2	Charlesbourg region, north of Québec City	Charlesbourg region, north of Québec City	2004	\$11.75 to \$29.95
Digital Voice	2	Vancouver	Selected cities in Alberta, Ontario and Québec	Not available	\$18.95 to \$44.95
Dolphin Global Tel	2	Vancouver	Vancouver	Not available	\$10.95 to \$39.95
FCI Broadband	2	Markham	Canada	Expected June 2005	TBD
Filaj	2	Ottawa	Selected cities in British Columbia, Alberta, Ontario and Québec	June 2005	\$10.95 to \$52.75
Globe Connect	2	Vancouver	Selected cities in British Columbia, Alberta, Manitoba, Ontario and Québec	Not available	\$18.95 to \$42.95
InstaTelecom	2	Toronto	Over 500 cities in the U.S. and major Canadian cities in the following provinces : British Columbia, Alberta, Ontario, Manitoba and Québec	Jan 2005	\$14.95 to \$44.95
Inter.net Canada	2	Montréal	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	Nov 2004	\$10.95 to \$29.95
Lumby Cable & Internet	2	Salmon Arm, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	July 2004	\$9.95 to \$24.95
Microsoft/MSN	1	Seattle	Global	Dec 2004	Free
mobitus	2	Vancouver	Selected cities in Canada and the continental U.S.	Oct 2004	\$20 U.S. to \$30 U.S.
Modern Digital Communications	2	Winnipeg	Selected cities in British Columbia, Alberta, Manitoba, Ontario and Québec	Dec 2004	\$14.95 to \$34.95
Mountain Cable	2	Hamilton	Hamilton	By end of 2005	Not Available
Navigata	2	Vancouver	Selected cities in British Columbia and Alberta	April 2004	\$15.95 to \$39.95
Nicer Canada	2	Burnaby	Vancouver and Taiwan	Jan 2005	\$16.99 to \$29.99
NetFone	2	Vancouver	23 metropolitan areas in Canada	2005	\$12.95
Pender Island Cable & Internet	2	Salmon Arm, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	July 2004	\$9.95 to \$24.95
Phonemor.com	2	Calgary	Across Canada and the U.S.	June 2005	\$19.99
PoPstar	2	Vancouver	Vancouver	Aug 2004	\$9.95
Primus Canada	2	Toronto/Virginia	Canada	Jan 2004	\$11.95 to \$29.95

**Figure 4**  
**Residential VoIP Service Providers in Canada – July 2005**

Company	Service Category*	Headquarters	Territory**	Service Launch Date***	Price (Monthly)****
RainTel Communications	2	Sudbury	Selected cities in Ontario and Québec	Not available	\$23
Rogers Cable	3	Toronto	Greater Toronto area. Plan to roll out service to the rest of Ontario in the coming months and to New Brunswick and Newfoundland in 2006. <sup>37</sup>	July 2005	\$25.46 to \$41.95
Rogers Telecom (formerly Sprint Canada)	2	Toronto	18 Ontario cities	July 2004	\$19.95 to \$31.95
Shaw	3	Calgary	Calgary and Edmonton. Shaw expects that "all major markets" will be launched by the end of 2005, with telephony deployment across the rest of its footprint during 2006. <sup>38</sup>	Feb 2005	\$55 to \$65
Sicamous Cable & Internet	2	Salmon Arm, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	July 2004	\$9.95 to \$24.95
Skype	1,2	Estonia	Global	Sept 2003	Free for basic service
SpectraVoice Broadband	2	Saint-Laurent, Québec	Selected cities in Ontario and Québec	Sept 2004	\$14.99 to \$39.99
Sun Country Cablevision	2	British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	Sept 2004	\$9.95 to \$24.95
Sun Peaks Cable & Internet	2	Salmon Arm, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	Sept 2004	\$9.95 to \$24.95
Telehop	2	Toronto	Ontario and Québec	Aug 2004	\$18.99 to \$37.99
téliPhone	2	Montréal/Las Vegas	Selected cities in Ontario and Québec	June 2004	\$19.95 to \$29.90
TieUs Technology Corp.	2	Vancouver	Vancouver and Victoria	Feb 2005	\$16.95 to \$29.95
Toll Free Telecom	2	Richmond Hill	Toronto, Barrie and Hamilton	Not available	\$15.95
Unitz Online	2	Sudbury	Selected cities in Ontario and Québec	Jan 2004	\$22.95 to \$34.95

<sup>37</sup> Cable Telephony, Rogers Takes the High Road on VoIP Pricing, Merrill Lynch, 30 June 2005, page 1.

<sup>38</sup> Canadian Telco and Cable Quarterly Preview, Merrill Lynch, 13 April 2005, page 15.

**Figure 4**  
**Residential VoIP Service Providers in Canada – July 2005**

Company	Service Category*	Headquarters	Territory**	Service Launch Date***	Price (Monthly)****
Vidéotron	3	Québec	Montréal – South Shore, Laval, a dozen West Island municipalities and boroughs, and Québec City. Complete coverage of home passed in Québec territory by end of 2005. <sup>39</sup>	Jan 2005	\$15.95 to \$21.95
VocTel	2	North Bay	Not available	Not available	\$12.95 to \$24.95
Voiceglo	2	Fort Lauderdale, Florida	219 area codes in the U.S., 14 in Canada in British Columbia, Alberta, Manitoba, Nova Scotia, Ontario and Québec	Dec 2004	\$4.95 U.S. and up
VoIP MDU.com	2	Vancouver	Selected cities in British Columbia, Alberta, Manitoba, Ontario and Québec	July 2004	\$14.95 to \$39.95
Vonage	2	New Jersey	150 North American markets, including 6 Canadian provinces and the U.K.	March 2004	\$19.99 to \$39.99
Wisezard	2	Vancouver	Major cities in the U.S. and Canada. Canadian cities include Vancouver, Toronto and Québec City.	Dec 2004	\$19.95 to \$59.95
Wood Lake Cable	2	Lake Country, British Columbia	Selected cities in British Columbia, Alberta, Ontario, Québec and Nova Scotia	June 2004	\$9.95 to \$34.95
Westport Telephone Company	2	Kingston	Kingston and Ottawa	Feb 2005	\$22.95 to \$34.95
YAK Communications	2	Toronto	Over 70 cities in Canada, the U.S. and England	Sept 2004	\$12.99 to \$35.99
Yahoo!	1	California	16 countries	May 2005	Free
YourLink	2	Saskatoon	Selected cities in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Québec	Believed to be 2005	\$9.95 to \$24.95

\* Service Categories: 1 = Peer-to-Peer; 2 = Access-independent; 3 = Access-dependent

\*\* Territory refers to areas where local telephone numbers are available as of July 2005. It also includes any expansion plans that have been announced. Category 1 and Category 2 VoIP services are portable and can operate anywhere in the world where high speed access is available.

\*\*\* Refers to date that VoIP service was launched.

\*\*\*\* Price refers to the range of advertised monthly rates and could include local service, features and long distance. Since different suppliers include different services in their advertised rates, the rates are not comparable between suppliers. Promotional offers and any additional usage rates are not reflected.

Source: company web sites and telemarketing representatives.

<sup>39</sup> Videotron press release, 24 January, 2005, at <http://www.quebecor.com/NewsCenter/PressReleasesDetails.aspx?PostingName=01242005>

22. It is expected that the number of suppliers offering VoIP service will continue to grow in the near term. For example, there is speculation that Google, the global leader in web searches, will enter the VoIP market:

"Google's potential move into the VoIP service market illustrates the relative ease with which a non-facilities based telephony competitor could provision voice service through the use of a distributed, IP-packet infrastructure. By leveraging a softswitch architecture, Google would not need the physical, local presence required of traditional circuit-switched equipment. Rather, broadband internet subscribers would be able to transmit their voice phone calls (in their packet-equivalent form) over broadband connections while Google manages the internet-based call control, setup, routing, etc., - a model similar to that of Vonage."<sup>40</sup>

23. In the longer term, however, some amount of consolidation among VoIP suppliers is likely. Not only is the Canadian market too small to support over 50 telephony suppliers, but as will be discussed in the next section, cable companies (cablecos) will rapidly capture the leading share of VoIP subscribers by bundling their voice services with TV and Internet offerings and in some cases wireless offerings.

#### **2.2.1.1 Telephony Offered by Cablecos**

24. The major Canadian cable companies are large, well financed communications experts with an established installed base of customers, strong brands and existing customer service capabilities. Today they successfully operate complex network-based businesses and are the incumbent and dominant providers of wireline television service in their territories. Figure 5 profiles the leading cable companies in Canada.

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<sup>40</sup> *Spring VON Wrap-Up, Key Takeaways*, Credit Suisse First Boston, 13 March 2005, page 3.

**Figure 5**  
**Major Canadian Cable Companies**

<b>Company</b>	<b>Basic Cable Subscribers (000s)</b>	<b>Fiscal Year 2004 Revenue (\$M)</b>
Rogers Communications*	2,255	\$5,608
Shaw Communications	2,122	\$2,080
Vidéotron**	1,450	\$872
Cogeco Cable	824	\$526
EastLink	230	Not Available
Persona	223	Not Available
Access Communications***	100	Not available

*Source: 2004 company Annual Reports, company websites and press releases.*

\* *On 11 May 2005 Rogers entered into an agreement to acquire Call-Net Enterprises, which had 2004 revenues of \$819M.*

\*\* *Vidéotron is a division of Quebecor Inc., an \$11B per annum Canadian printing and media company.*

\*\*\* *2005 Portable Telecom Directory, RBC, Exhibit 75, page 82.*

25. Cable companies are expected to be particularly successful in capturing a significant share of the voice telephony market through their VoIP offerings and, therefore, deserve special consideration in this review of voice competitive alternatives. Where North American cable companies have offered telephony services (using either circuit switched technology or VoIP), they have done phenomenally well. Figure 6 summarizes the achievements of cable companies in this area.

**Figure 6**  
**Case Studies – North American Cablecos Providing Telephony**

<b>Cable Company</b>	<b>Telephony Subscribers (000s)</b>	<b>Penetration (as % of Telephony-Ready Homes Passed)</b>	<b>Telephony Launch Date</b>
Cox (U.S.) <sup>41</sup>	1,290	30%	1997
EastLink (Canada)	68 <sup>42</sup>	23%	1999
Comcast <sup>43</sup> (U.S.)	1,223	12%	2001
Cablevision <sup>44</sup> (U.S.)	273	6%	2003
Time Warner (U.S.)	220 <sup>45</sup>	N/A	2003
Vidéotron <sup>46</sup> (Canada)	42	8%	2005
Shaw (Canada) <sup>47</sup>	22	4%	2005

26. This history of cable success prompted National Bank Financial to observe: "Generally, we have seen evidence that telecom penetration can reach 5-10% of any market after one year and 30% after five years (in the case of Cox)."<sup>48</sup> Recent Canadian examples are provided by Vidéotron and Shaw. Vidéotron achieved an 8% penetration rate only 5 months after the service was launched. Despite the relatively high price of its telephony offering, Shaw has experienced such strong results that it now expects that 20% of its cable TV customers to take its phone service within 3 years, rather than within five years as it previously predicted.<sup>49</sup> It is little wonder that cable companies are so confident as they launch their telephone services. Ted Rogers, CEO of Rogers Communications Inc., recently offered the following perspective:

<sup>41</sup> *Fall 2004 – Quarterly Industry Review, Why Cable Will Win the Bundle War*, National Bank Financial, 6 January 2005, page 7.

<sup>42</sup> *Canadian Local Telecom Services Market Report, 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 92.

<sup>43</sup> *Cable Television Update: Local Phone Service Makes Waves*, EDWARDS, 23 March 2005, page 30.

<sup>44</sup> *4Q04 Trend Tracker: Line Loss Underscores Industry Challenges*, Morgan Stanley, 5 April 2005, page 23.

<sup>45</sup> *4Q04 Trend Tracker: Line Loss Underscores Industry Challenges*, Morgan Stanley, 5 April 2005, page 23.

<sup>46</sup> *Vidéotron Beats Our 2Q05 Estimate with 27 K New Phone Subs*, Merrill Lynch, Cable Telephony Update, 7 July 2005, page 1.

<sup>47</sup> *Shaw Communications Inc. Announces Third Quarter Results and Initial Digital Phone Growth*, Business Wire, 7 July 2005. The report states that as of 31 May 2005, Shaw had 22,450 installed and pending Digital Phone lines, and that Shaw was able to offer telephone service to 25% of its customers/homes passed. Since Shaw had 2,200 K basic cable customers as of year end 2004, it is estimated that the number of homes passed in Calgary and Edmonton is roughly 550 K, for a penetration rate of roughly 4%.

<sup>48</sup> *Fall 2004 – Quarterly Industry Review, Why Cable Will Win the Bundle War*, National Bank Financial, 6 January 2005, page 7.

<sup>49</sup> *Shaw Communications Inc. Announces Third Quarter Results and Initial Digital Phone Growth*, Business Wire, 7 July 2005, and *Shaw makes splash in phone market: Web-based service competes with Telus*, Calgary Herald, 15 February 2005.

"The phone companies have been doing it [providing highly reliable telephone service] for 100 years. After our first hundred days I think we'll be in the same league."<sup>50</sup>

27. The reasons for such optimism likely stem from what many perceive to be the cablecos' considerable competitive strengths. Four cableco advantages are worth noting here: the significant capacity of their networks, their ability to bundle services, a large well established customer base, and their advantageous regulatory position relative to the ILECs. Each of these advantages will be discussed briefly below.

### *Cable Networks*

28. Cable company networks pass approximately 97% of the homes in Canada.<sup>51</sup> The major cablecos have all upgraded their networks to be capable of providing digital, two-way Internet access and telephony services. Equally important, the cablecos' fibre-coaxial networks have a very high capacity relative to the fibre-copper networks of the ILECs. As National Bank Financial noted:

"The 'last mile' of a cable network is connected with coax, and though it is shared among all the homes on a particular node, it has 1,000 times the bandwidth of the copper used in telecom networks."<sup>52</sup>

29. This bandwidth advantage means that cablecos have abundant capacity to provide high speed Internet access, telephone service, and all of the analogue, digital and high definition television signals required for the foreseeable future - over a wire that already reaches virtually every home in Canada.

### *Bundles*

30. Cable companies and telephone companies alike are marketing bundles of services to consumers as a way to capture more of the customer's communications spending and to increase customer loyalty. The typical communications bundle offers TV, telephony and high speed Internet access service. Customers are attracted by bundles because they offer an

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<sup>50</sup> Ted Rogers, as quoted in the Toronto Star on 24 January 2005.

<sup>51</sup> 2004/2005 Annual Report, Canadian Cable Telecommunications Association, page 17, and *Broadband Battle: Canadian Broadband Forecast & Analysis 2003-2008*, IDC, September 2004, Table 9, page 30. 11.9 million of the 12.24 million homes in Canada are passed by cable.

<sup>52</sup> *Fall 2004 - Quarterly Industry Review: Why Cable Will Win the Bundle War*, National Bank Financial, 6 January 2005, page 9.

attractive value proposition through financial incentives to subscribe to multiple services from the same company, as well as providing the convenience of "one-stop" shopping. The results to date show that cablecos have had great success signing up customers to bundled offerings. For example, at the end of 2004, Rogers had 1.1 million bundle customers,<sup>53</sup> while at the end of February 2005 Shaw had 960,000 bundle customers, representing 45% of its cable customer base.<sup>54</sup> In comparison, Bell Canada had 554,000 bundle customers at the end of Q1 2005.<sup>55</sup>

31. Recently the four largest cablecos (Rogers, Shaw, Vidéotron, and Cogeco) have used bundles to launch their telephony services by offering customers savings on their local phone service when purchased with other services. As well, they are offering time-limited promotions to induce customers to sign-up quickly.

32. The Rogers Home Phone service offers local phone service with calling features and is priced at \$25.46 a month with one calling feature, \$32.26 a month with three calling features and \$35.66 a month with six calling features, when purchased with one or more of Rogers' cable TV, Internet and wireless services with a 2-year commitment<sup>56</sup> - a 15% discount compared to the pricing of all services included in the bundle, not just the VoIP service. Additional charges apply for long distance. Lastly, Rogers is also promoting a special introductory offer giving a \$30 credit on its Home Phone Service.

33. The Shaw Digital Phone service offers local phone service with six calling features and unlimited long distance in Canada and Continental U.S. (excluding Alaska, Mexico and Hawaii)<sup>57</sup>. The Shaw Digital Phone service is priced at \$55 a month when bundled with either Shaw's cable or high speed Internet service, and at \$65 a month when purchased standalone. Shaw Digital Phone service does not require a contract. Shaw is also planning to add wireless to its telephony, cable, high speed Internet bundle although it has not set a time frame.<sup>58</sup>

34. The Vidéotron telephone service provides local calling and calling between Vidéotron telephony subscribers, and is priced at \$15.95 a month when bundled with cable TV and cable

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<sup>53</sup> 2004 Annual Report, Rogers Communications Inc., page 36.

<sup>54</sup> Shareholders' Report Second Quarter Ending February 28, 2005, Shaw Communications Inc.

<sup>55</sup> Bell Canada Enterprises reports first quarter results, BCE News Release, 4 May 2005.

<sup>56</sup> Subscription to Rogers Basic Cable or to Rogers Wireless prepaid services do not qualify for the discount.

<sup>57</sup> Response to interrogatory Shaw(CRTC)12 May-05, Item No. 3.

<sup>58</sup> Shaw rules out launch of cellphone service: Cable company to focus on digital phone lines, Calgary Herald, 16 April 2005.

Internet, \$18.95 a month when bundled with cable TV or cable Internet and \$21.95 a month when purchased standalone, based on a one year commitment. Telephony features and long distance calling are priced separately. As well, Vidéotron offers a promotion waiving the installation fee. According to a statement by Quebecor president and chief executive officer, Pierre Karl Péladeau at Quebecor's recent annual meeting,<sup>59</sup> Vidéotron plans to add wireless data and voice services to its existing bundle of wireline telephony, cable TV and/or Internet.

35. The Cogeco Digital Phone service offers local phone service with five calling features and unlimited North American long distance. In Québec, Cogeco Digital Phone service is priced at \$39.99 a month when bundled with Cogeco high speed Internet and cable TV and at \$44.99 a month when purchased with Cogeco high speed Internet service. In Ontario, subscribers pay \$5 a month more than Québec subscribers. Cogeco does not have a standalone offer. Cogeco Digital Phone service does not require a contract. Cogeco also offers a promotion providing one month of free service and free installation during the introductory period.

36. A consumer research study conducted by Decima Research suggests that when VoIP telephone service is sold as part of a discounted bundle of communications services, consumer appeal is doubled.<sup>60</sup> Of the 2,118 residential Internet users surveyed, 9% were definitely or probably going to subscribe to a VoIP service within the next year, but 20% would do so if it was offered in a discounted bundle. As discussed in more detail below, the cableco VoIP offerings are positioned at a discount over ILECs' wireline offerings. Given the cablecos focus on offering discounted service bundles across their entire range of services, this research is another indication of the ability of the cablecos to quickly erode the ILECs' market share as they roll out their local telephony offerings.

37. Cablecos begin from a position of strength in the provision of video services, whereas telcos' core competency lies in the provision of telephone service. The success of Cox, EastLink, Vidéotron, and Shaw shows that cable companies can effectively compete in the telephony business. The investment community has recognized the relatively strong competitive position of the cableco product offerings. According to National Bank Financial:

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<sup>59</sup> Globe and Mail article, 12 May 2005, page B7.

<sup>60</sup> *'Net Calling The Canadian Consumer market for Voice over IP Services, 2005 Canadian Consumer Research Survey & Market Overview Report*, Decima Research, page 2.

"In our view, cable will maintain its product competitive advantage as the bundle war progresses and this could have a significant impact on relative penetration rates. This is one of the major reasons we remain bullish on cable stocks."<sup>61</sup>

### *Large Customer Base*

38. Like the telcos, cablecos have a sizeable customer base. More than 7.3 million Canadian households subscribed to cable television at the end of 2004<sup>62</sup> and, as noted above, virtually all of these customers have access to a high capacity, two-way broadband network capable of supporting numerous communications services. Cablecos are the dominant providers of broadcast distribution service in their territories. As the CRTC concluded in the case of Rogers' operations in the Greater Toronto Area:

"The Commission considers that Rogers is the dominant incumbent provider of broadcasting distribution services in the GTA. This is particularly true in the MUD market where it appears that Rogers serves almost all customers."<sup>63</sup>

39. When it comes to offering broadband Internet service to Canadians, cablecos also serve the majority of customers. As shown in Figure 7, DSL service providers have been closing the gap, but cablecos continue to retain the majority of high speed Internet access subscribers with roughly 52% of broadband households (over 3 million customers) at the end of 2004.<sup>64</sup> As access-independent VoIP services rely on consumers' high speed Internet service, this suggests there is a slight advantage to cablecos in this regard.

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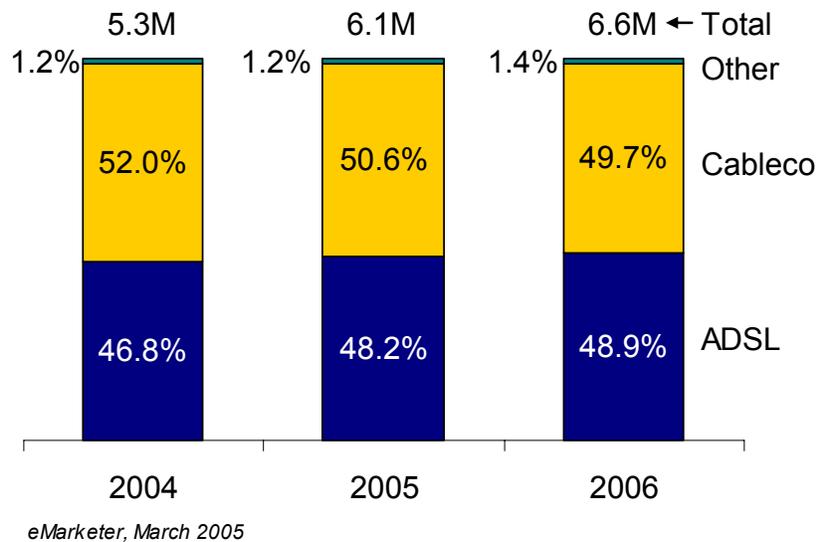
<sup>61</sup> *Fall 2004 – Quarterly Industry Review, Why Cable Will Win the Bundle War*, National Bank Financial, 6 January 2005, page 10.

<sup>62</sup> *2004/2005 Annual Report*, Canadian Cable Telecommunications Association, page 17.

<sup>63</sup> *Complaint by Bell ExpressVu Limited Partnership against Rogers Cable Inc. alleging certain anti-competitive practices*, Broadcasting Decision CRTC 2004-494, 12 November 2004, paragraph 69. The Commission also found Rogers to be dominant in Broadcasting Decision CRTC 2004-496, *Regional broadcasting distribution undertakings in Ontario and Québec*, 18 November 2004. At paragraph 38, the CRTC stated: "Rather, the Commission agrees with the applicant's [ExpressVu's] general assertion that cable remains the dominant supplier of broadcasting distribution services."

<sup>64</sup> *North America Broadband*, eMarketer, March 2005, page 13.

**Figure 7**  
**Broadband Households in Canada**



### *Cableco Regulatory Advantages*

40. The final cableco advantage relevant to a discussion about VoIP is the more favourable regulatory treatment cablecos receive when compared to the ILECs. For example, ILECs must apply for a tariff for any local voice service, including local voice features, while cablecos are under no such obligation for their broadcast service or telephony services. In addition, cablecos have no restrictions on their ability to bundle services or launch promotions while ILECs are severely restricted in the way they are permitted to promote their local telephone service and must file a tariff for approval by the CRTC for any bundle that contains a tariffed service. Furthermore, ILECs are prevented by regulation from attempting to winback residential local access (including VoIP) customers lost to competitors for a period of one year. While cablecos have a regulatory prohibition on winbacks of cable TV customers, it only applies to multiple-dwelling units, and only for 90 days.<sup>65</sup>

41. Cablecos are already reaping the benefits of their strong market position. In 2004, cableco financial performance was stronger than that of the telcos on a number of measures.

<sup>65</sup> Broadcasting Public Notice CRTC 2004-62 outlined two 90 day winback prohibition periods. The first one applies if a cableco competitor signs an access agreement with an MDU owner or agent. The second one applies if an individual customer leaves the incumbent cableco for a competitive offering. Under certain circumstances both prohibition periods may apply.

Merrill Lynch recently reported that 2004/2003 revenue growth was 7.3% for Canada's major cablecos (Rogers, Shaw, Vidéotron and Cogeco) compared to 2.1% for the major telcos (Aliant, Bell Canada's parent company BCE, Manitoba Telecom Services (MTS) and TELUS' parent company TELUS Corporation). EBITDA (earnings before interest, taxes, depreciation and amortization) margin, a measure of operating profitability, was 44.3% for the cablecos and 39.2% for the telcos.<sup>66</sup> These and other factors have prompted investors to value the stock of cable companies at a relatively high level compared to ILECs.<sup>67</sup>

### 2.2.1.2 VoIP Forecasts

42. Considering the attractive features of VoIP service, and the strength of current and expected VoIP providers, it is no wonder that industry observers are anticipating a significant uptake of VoIP service. Orion Securities estimated that Canadian ILECs could lose up to 30% of the residential market and 10% of the business market to VoIP by 2009.<sup>68</sup> Others also expect VoIP to make significant inroads. Figure 8 summarizes four forecasts for residential VoIP services in Canada over the next several years.<sup>69</sup> Note that the forecasts in Figure 8 exclude the potential take-up from ILEC VoIP services.<sup>70</sup> The consensus view is that 5% to 10% of Canadian households will subscribe to VoIP service within the next two years, and 15% to 20% will subscribe by 2009.

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<sup>66</sup> *North American Telco and Cable Scorecards*, Merrill Lynch, 11 March 2005, pages 3, 4 and 11.

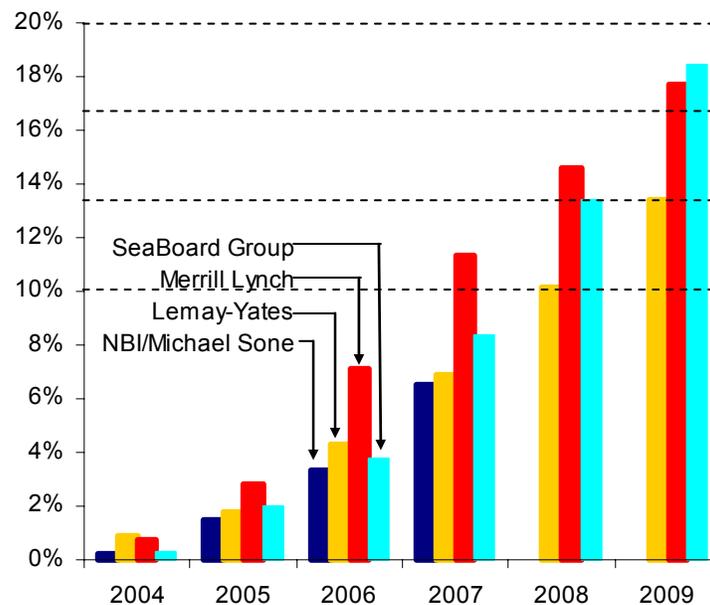
<sup>67</sup> *North American Telco and Cable Scorecards*, Merrill Lynch, 11 March 2005, page 19, states that Enterprise value/EBITDA was 8.8 for cablecos, but only 6.2 for the ILECs.

<sup>68</sup> *VOICE OVER IP: YOU AIN'T SEEN NOTHING YET*, Orion Securities, 28 June 2004, page 17.

<sup>69</sup> The data referenced in the chart are contained in the following reports: *An Exciting Year Ahead: SeaBoard's Views on the 2005 Communications Market*, SeaBoard Group, January 2005, page 4; *Canadian Telco and Cableco Quarterly Preview*, Merrill Lynch, 13 April 2005, page 8; *Canadian Local Telecom Services Market Report, 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 18; and, *LYA Canadian Consumer Telecom & Cable TV Market Forecasts 2004*, Lemay-Yates Associates Inc., August 2004, page 33.

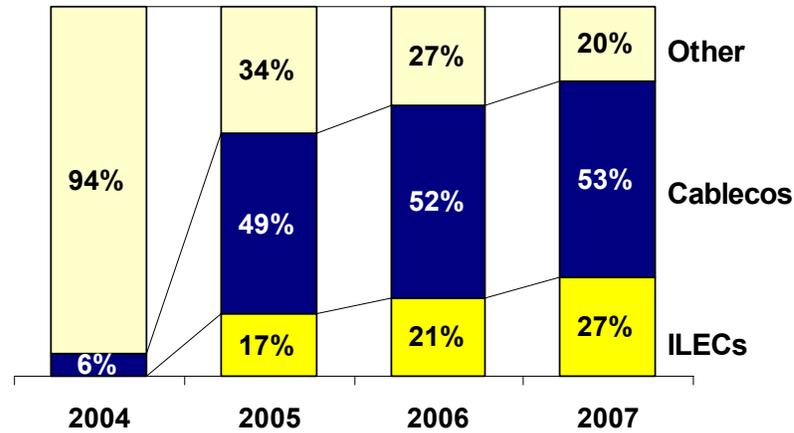
<sup>70</sup> The Merrill Lynch estimate excludes the Call-Net forecast, which appears to include both traditional landline and VoIP. The LYA estimate excludes the CLEC VoIP forecast since a breakdown between CLEC VoIP and switched forecast was not provided. As well, the LYA estimate includes some non-VoIP telephony subscribers by cablecos (presumably EastLink).

**Figure 8**  
**VoIP Forecast (% of Canadian Households)**



43. While Figure 8 highlights the expectation that VoIP, excluding the take-up from the ILEC VoIP services, will capture a significant market position relatively quickly, Figure 9 looks beneath the growth figures to examine which class of supplier will have the largest share of VoIP subscribers. As estimated by NBI/Michael Sone Associates, cablecos will have captured the leading share of VoIP subscribers by the end of 2005, rising to over 50% by 2007. ILECs are expected to secure about one-quarter of the VoIP subscribers by 2007. The access-independent VoIP providers, like Primus and Vonage, are expected to continue to increase their subscriber base, but lose some share as the cablecos and ILECs expand their efforts.

**Figure 9**  
**Share of VoIP Subscribers by Class of Provider**



NBI/Michael Sone Assoc. Nov. 2004

## 2.2.2 Wireless Voice

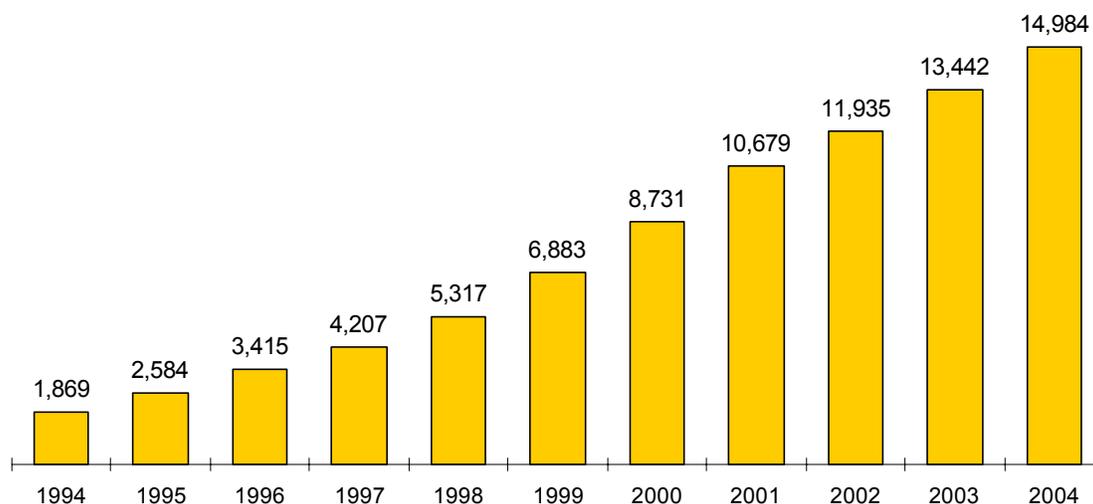
44. Moving to the next layer of competition identified in Figure 2, there are a number of factors to suggest that cellular service competes with both VoIP service and traditional fixed line service. Fundamentally, all three services provide the user with a method of having real time voice conversations. It is possible to make local or long distance calls using all three services by dialling a seven or 10 digit telephone number. All three services support enhanced calling features such as call forwarding, call answer and caller identification. Finally, all services interconnect with the fixed line PSTN in order to complete calls to, or to receive calls from, customers on the PSTN. These similarities, and the growing penetration of wireless phones led investment firm RHK, Inc. to suggest that viewing wireline and wireless as distinct sectors is no longer appropriate:

"The time has arrived for service providers and vendors - and regulators and legislators - to start erasing the distinctions between wireless and wireline networks: in another five or ten years these differences will seem as quaint and irrelevant as those between long-distance and local telephone service."<sup>71</sup>

<sup>71</sup> *Line Fade: Wireless & Wireline Merge*, RHK, Inc November 2004, page 1.

45. Wireless telephony is unquestionably a mass market service. There are more than 15 million wireless subscribers in Canada today, representing roughly 47% of the population<sup>72</sup> (see Figure 10).

**Figure 10**  
**Canadian Wireless Subscribers (000s)**



Source: Canadian Wireless Telecommunications Association

46. Market research commissioned by the CRTC found that 67% of Canadian households had at least one subscription to a wireless service.<sup>73</sup> Moreover, in the same survey 48% of Canadians stated that the quality of wireless service is better than, or as good as, the quality of wireline service; while 36% felt that wireless service is not as good as wireline service. The remainder of the survey respondents (15%) did not know or did not answer.<sup>74</sup>

47. In April 2005, the Canadian Wireless Telecommunications Association (CWTA) announced that the wireless industry would be implementing local number portability (LNP) capability and a plan to do so is expected by 1 September 2005.<sup>75</sup> Once implemented, customers will be able to keep the same phone number when transferring their landline phone service to wireless service and vice versa, or when transferring between wireless service

<sup>72</sup> *Canadian Telco and Cable Quarterly Preview*, Merrill Lynch, 13 April 2005, page 4.

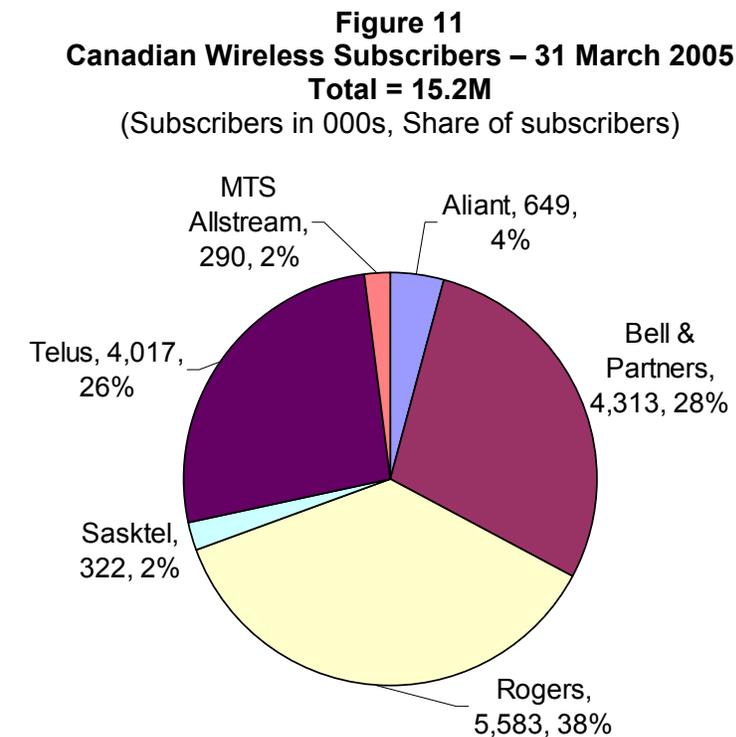
<sup>73</sup> *Status of Competition in Canadian Telecommunications Markets*, CRTC, November 2004, page 102.

<sup>74</sup> *Status of Competition in Canadian Telecommunications Markets*, CRTC, November 2004, page 105.

<sup>75</sup> [http://www.cwta.ca/CWTASite/english/whatsnew\\_download/apr21\\_05.html](http://www.cwta.ca/CWTASite/english/whatsnew_download/apr21_05.html)

providers. The availability of LNP will facilitate the use of wireless service as a substitute for wireline telephone service.

48. Figure 11 breaks down Canada's 15 million wireless subscribers by service provider. Rogers, which acquired Microcell in 2004, is now the largest provider in Canada by a significant margin, followed by Bell Canada and partners.<sup>76</sup>



*Canadian Wireless Telecommunications Assoc.*

49. Other trends also point to the fact that wireless is increasingly competing with VoIP. Just as the current generation of VoIP service rides on a broadband fixed line infrastructure, the next generation of VoIP service will likely ride on a broadband wireless infrastructure. Already Vonage, BroadVoice, teliPhone, mobitus and Net2Phone are offering Voice over WiFi handsets, which are IP based cordless phones that can be used in the home, office or near any WiFi hotspot.<sup>77</sup> The UK's BT Group has launched BT Fusion, a wireless phone that automatically

<sup>76</sup> The Bell Canada partners are NorthernTel Mobility, Télébec Mobility and the proportionate share of the Virgin Mobile Canada joint venture.

<sup>77</sup> *Mobile VOIP: Telco Trojan Horse or Savior?* FRESHNEWS.COM, 8 February 2005 and teliPhone website.

switches between the public cellphone network and a home wireless hub that transmits calls using VoIP over a BT broadband (DSL) connection.<sup>78</sup> Rogers has stated that a year from now it may introduce a service that would switch from cell phone to the VoIP landline when it enters the home by connecting to the Rogers cable network.<sup>79</sup> Cingular, the largest wireless company in the U.S., is testing a cellular phone that switches from the traditional cellular network to WiFi/VoIP when you are at home or near a WiFi base station.<sup>80</sup> Finally, the nomadic feature offered by many VoIP service providers<sup>81</sup> may further contribute to the substitution of VoIP for wireless. If the consumer can move his or her phone from place to place and maintain the same telephone number, then the mobility benefit that is at the core of cell phones is less of an advantage.

### 2.2.3 Fixed Line Voice

50. As noted in the above discussion, most analysts and service providers view VoIP services as competitive alternatives to fixed line voice services. The CRTC concurs - Decision 2005-28 concluded that VoIP and fixed line telephony are in the same market. NBI/Michael Sone Associates<sup>82</sup> estimated that the take-up of VoIP services will rapidly increase the share of residential fixed lines held by non-incumbents (refer to Figure 12). By 2007, Sone estimated that VoIP would represent more than half of the 16.3% of the fixed lines gained by competitors.

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<sup>78</sup> TELECOM UPDATE, Angus TeleManagement Group, 17 June 2005.

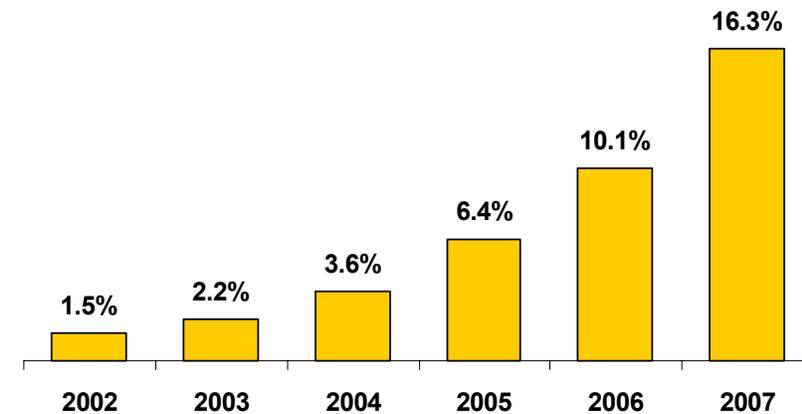
<sup>79</sup> Neil Sutton, *Rogers's VoIP vision combines cellular, cable networks*, 29 June 2005, IT Business.ca.

<sup>80</sup> *Wireline Telecommunications Industry Report: The Final Conflict Version 1.0*, Wachovia Capital Markets, LLC, 2 March 2005, page 14.

<sup>81</sup> Most VoIP services allow the user to plug his or her VoIP adapter into any high speed Internet access anywhere in the world and receive the same telephone service they receive at home.

<sup>82</sup> Chart developed using data from *Canadian Local Telecom Services Market Report: 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 17.

**Figure 12**  
**Share of Residential Fixed Lines Held by Non-ILECs**



NBI/Michael Sone, Nov. 2004

51. Figure 13 provides some examples of VoIP service offerings available today.

**Figure 13**  
**Typical VoIP Service Offerings**

Supplier	VoIP Offering	Price/Month
Primus Canada	Unlimited local calling, unlimited calling to any other TalkBroadband customer, unlimited long distance calling within Canada and the continental U.S. (excluding Alaska, Hawaii, Yukon and North West Territories), a fully featured phone line	\$25.95
Vonage	Unlimited calling to other Vonage customers, unlimited calling to anywhere in Canada and the U.S., 13 calling features	\$39.99
Vidéotron	Unlimited local calling, unlimited calling to other Vidéotron telephony customers, 100 minutes of long distance calling to Canada or U.S., and 5 calling features	\$27.90 (\$15.95 for local calling + \$2.95 for LD + \$9.00 for features)

Source: company web sites

#### 2.2.4 Fixed and Wireless Text

52. To complete the discussion of the competitive alternatives to VoIP, we now turn to the third layer of competitive alternatives identified in Figure 2. Increasingly, Canadians are choosing to communicate by sending text in the form of an e-mail, an instant message or a short message service (SMS). Messages are typed into a communications device of some sort - a personal computer, a cell phone, a Blackberry or some other wireless device - and sent to one or more people. These messages travel over the Internet, cellular networks, WiFi networks or some combination of the three to reach the intended recipients.

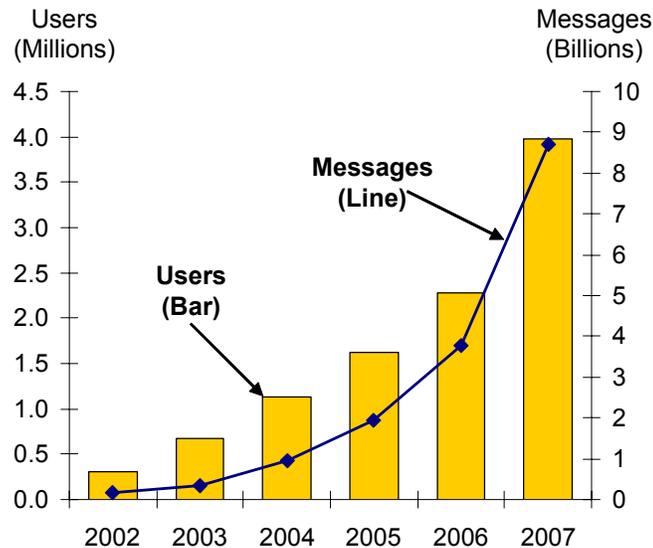
53. The use of these services is a direct outgrowth of the enablers discussed in the previous sections of this document, particularly the increase in Canadian households that are online and broadband-enabled, and growth in wireless subscribers. As with any networked business model, more users translate into more value for each individual user. This self-reinforcing cycle is one of the reasons why e-mail is now used by 69% of Canadian adults.<sup>83</sup> As noted in Figure 14, the growth of text messaging in Canada has been nothing short of phenomenal. In 2004, more than one million Canadians sent more than one billion text messages. By 2007, four million Canadians are expected to send nine billion text messages annually. As of February 2005 Canadians were sending 3.4 million text messages every day.<sup>84</sup>

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<sup>83</sup> *CyberTRENDS, TRACKING THE PULSE OF THE CANADIAN INTERNET*, ComQUEST Research Inc., Spring 2005, page 55.

<sup>84</sup> *Canadians Now Sending 3.4 Million Text Messages Per Day*, Canadian Wireless Telecommunications Association press release, 21 March 2005.

**Figure 14**  
**Canadian Wireless Text Messaging Volume**



Source: NBI Michael Sone; Dec. 2004

54. Use of all forms of text communications is higher among younger Canadians<sup>85</sup>, meaning that as time progresses, the proportion of the population using these services on a regular basis will grow, and, thus, text communications can be expected to increasingly compete with voice communications.

### 2.3 Competitive Intensity

55. Evidence of the intense competition in the residential segment of the market abounds. In particular, six market conditions suggest a very high level of competition for VoIP services:

- No dominant supplier
- Very low barriers to entry
- A high level of innovation
- Significant price competition
- Availability of substitutes

<sup>85</sup> *Canadians' Usage and Views Regarding Telecommunications*, Decima Research Inc./Bell Canada, October 2003.

- Aggressive and innovative marketing programs.

56. *No dominant supplier* - As demonstrated by Figures 3 and 4, there is no dominant supplier of VoIP services in Canada. NBI/Michael Sone estimated that, at the end of 2004, Primus had a 51% share of VoIP subscribers, with multiple suppliers providing service to the other 49%. Since the end of 2004 at least thirteen more suppliers, including Bell Canada, have entered the VoIP market in Canada, and at the present time there are more than 50 VoIP providers in Canada. In addition, FCI Broadband, which operates as a CLEC throughout the GTA, and three of the smaller cable companies, Aurora Cable, Mountain Cable and Access Communications have announced their intentions to launch VoIP services shortly.

57. *Access-independent VoIP services* can be used by any broadband high-speed Internet user, and irrespective of who supplies the Internet connection – cable company, telephone company or other ISP. The customer need not subscribe to any traditional fixed wireline service to be a VoIP customer. In the case of broadband Internet access itself cablecos have a slight advantage over the ILECs as cablecos hold roughly 52% of the installed base of high speed access subscribers in Canada.

58. *Low barriers to entry* - As evidenced by the large and growing number of providers, it can be concluded that the barriers to entrants offering VoIP services in Canada are very low. The range of companies that offer VoIP services in Canada is broadly comprised of telcos, cablecos, software companies and niche providers of various sizes and countries of origin. The fact that access-independent VoIP providers do not need to build their own facilities, but instead can leverage existing networks and customer access points, means that entry is quick, simple and inexpensive relative to fixed line telephony. It also means that VoIP services can be, and are being, constantly improved to broaden their appeal and enhance their functionality. In a recent report,<sup>86</sup> the SeaBoard Group demonstrated that it is possible to set up a phone system using VoIP technology for about \$30,000 in capital and labour. Such a system would be scalable up to about 100,000 users and would enable a VoIP service provider to offer all standard home phone features such as operator services, 9-1-1 and 4-1-1. SeaBoard estimates that fixed operational costs would run about \$6,000 per month, with variable

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<sup>86</sup> IGB Grant, Brian Sharwood and Jonathan Richards, *The Anarchist Cookbook (Addendum) - Start Your Own Telco!*, SeaBoard Group, May 2005.

operational costs of several hundred to several thousand dollars, depending on the size of the provider's customer base.

59. The cost of entry is higher for access-dependent VoIP service providers, but even these costs are relatively inexpensive compared to circuit-switched telephony. For example, Merrill Lynch estimated that Shaw requires a capital investment of only \$450 per subscriber for their VoIP service.<sup>87</sup> At Shaw's \$55 monthly price Merrill Lynch estimates their investment has an 18 month payback period. As well, Rogers has estimated that the capital cost of adding a VoIP subscriber to be roughly \$300 to \$340. This covers such items as switching and gateway capacity, incremental network capacity and customer premises equipment with uninterruptible backup power. Lastly, Gartner Dataquest has estimated that Vidéotron's four-year averaged success-based capital cost per subscriber is only \$250 and that Vidéotron's earnings on VoIP before interest, taxes, depreciation and amortization are expected to be 25% to 30% of revenues after the first year.<sup>88</sup>

60. Access-independent VoIP service providers, such as Vonage and Primus, need to obtain telephone numbers and PSTN connection. Interconnection to the PSTN is easy to obtain from ILECs or CLECs, including now the cable companies. New entrants are not experiencing any difficulty in this regard. There are already dozens of such VoIP service providers offering service unimpeded in the market. Moreover, if the Commission had a concern with respect to the availability of telephone numbers, it could have made numbers available directly to VoIP resellers from the Canadian Numbering Administrator, which it did not do in Decision 2005-28.<sup>89</sup>

61. *High level of innovation and change* - Providing voice telephony on an IP platform has allowed for a host of new service features and capabilities to be introduced to consumers. For example, the following VoIP service features are typically not available with traditional fixed line or wireless voice service offerings:

- Choice of area codes - e.g., a subscriber in Toronto can have a Vancouver telephone number (or New York or Arizona area code for that matter). The subscriber's friends and

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<sup>87</sup> *Canadian Telco and Cable Quarterly Preview*, Merrill Lynch, 13 April 2005, page 15.

<sup>88</sup> *Research Brief Canadian Cable Operator Raises the VoIP Bar*, Gartner Dataquest, 15 February 2005, page 3.

<sup>89</sup> Telecom Decision 2005-28, *Regulatory framework for voice communication services using Internet Protocol*, 12 May 2005, paragraphs 161 and 214.

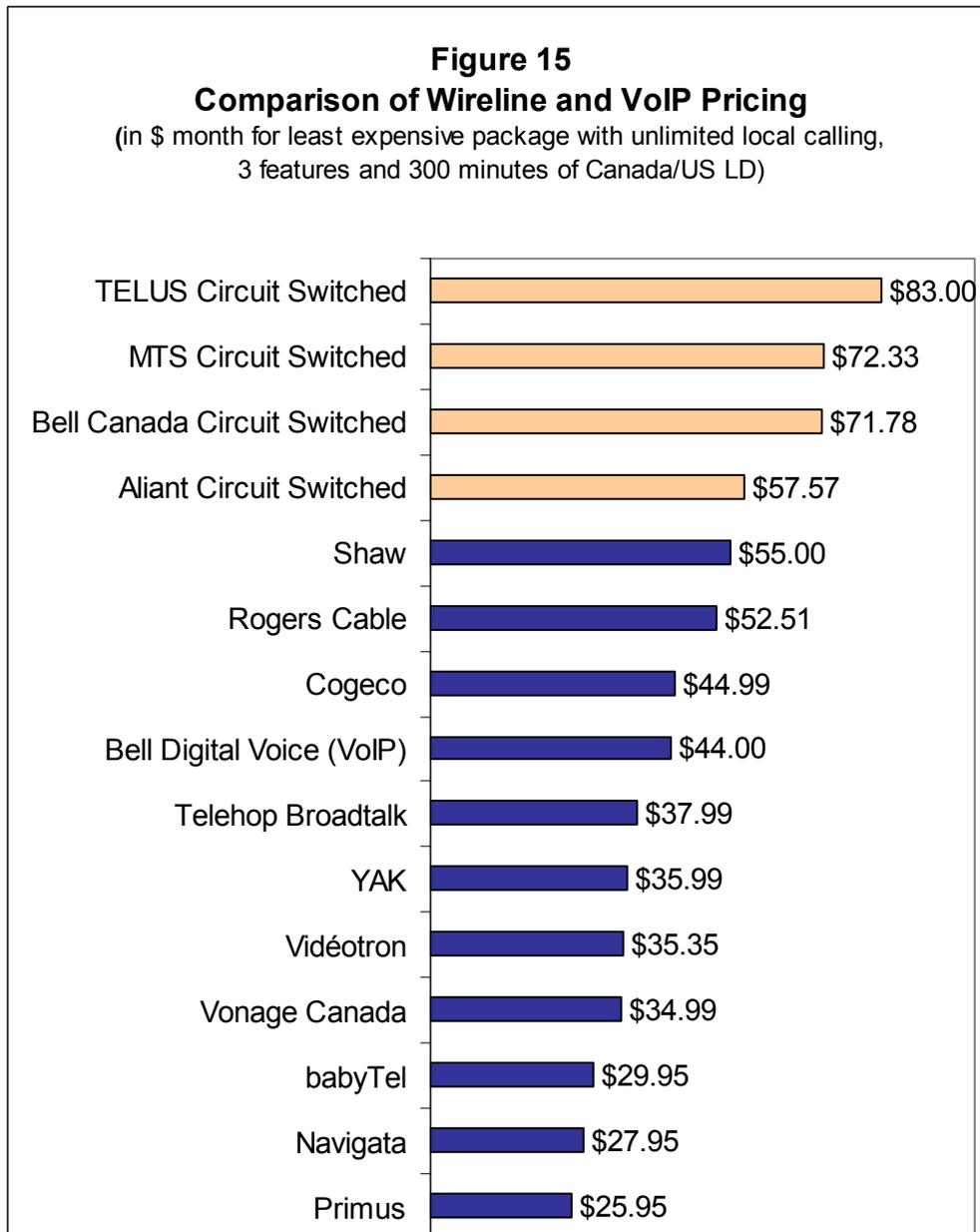
- family in Vancouver would call the Vancouver number as a local call, and the subscriber would receive the calls in Toronto.
- Multiple phone numbers for the same telephone - allows multiple phone numbers to ring a single phone, including phone numbers with different area codes. It is a way for people outside a customer's local calling area, to call the customer for the price of a local call.
  - Internationally portable telephone service - plug the VoIP terminal adapter into any high speed Internet access in the world and the phone will ring as normal - the location is completely transparent to the caller.
  - Reverse Calling – allows a caller who is not a subscriber to the VoIP service to place a call to a VoIP subscriber and not incur a long distance charge. The non-subscriber calls one of the VoIP provider's local access numbers and then enters the telephone number of the VoIP subscriber. The system then processes the call by calling the subscriber and connecting the two parties.
  - Follow Me - allows users to control how their calls are routed, e.g., service will first try the user at home, and, if the call is not answered or busy, will try the user at the office, and if the call is again not answered or busy, will try the user on his or her cell phone.
  - Do Not Disturb - This feature is generally enabled by time-of-day and day-of week. When enabled, callers are informed that a phone subscriber is not taking calls at this time. In most cases, incoming calls are redirected to the user's voice mailbox.
  - Softphone (also known as PC Phone) - a screen-based interface that works like a telephone keypad, turning a PC or laptop into a telephone. Users require a headset or speakers and a microphone.
  - Voice mail/e-mail integration - routes voice mail messages to the subscriber's e-mail account.
  - Web application for management of features and call routing - subscribers can personalize their VoIP service through a simple web interface, program features to turn on or off, generally by time-of-day and day-of week, and have different call routing sequences for incoming calls generally by time of day. As well, subscribers can apply specific rules to specific callers.
  - Online call records - call detail available to the subscriber through his or her personalized web account.

- Video Calling - This feature requires the use of a Web cam and allows video streaming between two callers during an active call.

62. VoIP is at the leading edge of the market in terms of eliminating the distinction between local and long distance calling, integrating voice and text messaging, and providing all-inclusive, flat rate pricing. Future VoIP service enhancements are expected to include closer integration between VoIP, cellular and WiFi, and integrated VoIP hardware that combines the analogue terminal adapter with the modem, telephone or personal computer.

63. *Price competition* - Competitors are attempting to attract a variety of segments of the market through the use of creative pricing plans. Most suppliers have multiple service tiers that range from a low-priced basic voice access service with a few features and limited number of minutes of calling in a limited geographical area, to a higher-priced premium offering that includes more than ten calling features and unlimited calling in a larger geographical area.

64. Figure 15 compares the price points of a number of VoIP providers with the circuit switched offerings of TELUS, MTS, Bell Canada and Aliant for the least expensive package with unlimited local calling, three local features and 300 minutes of Canada/U.S. long distance. As can be seen, VoIP pricing is lower than circuit switched pricing with access-independent (Category 2) VoIP services generally providing deeper discounts. It is also interesting to note the deep discounts offered by the four largest cablecos relative to the ILECs' circuit switched services. For example, Vidéotron's VoIP service is discounted by more than 50% from Bell Canada's circuit switched service, and Shaw's VoIP service is discounted by more than 30% from TELUS' circuit switched service.



Sources:

*Cable Telephony Update, Vidéotron Beats Our 2Q05 Estimate with 27K New Phone Subs*, Merrill Lynch, 7 July 2005, Table 1, for MTS, Bell Canada circuit switched, Aliant, Shaw, Rogers Cable, Cogeco and Vidéotron.

*A Tale of Two Cities: Cable Voice Launches in Montreal and Calgary*, Yankee Group, 1 April 2005 for TELUS.

Company websites for Bell Digital Voice (VoIP), Telehop Broadtalk, YAK, Vonage Canada, babyTel, Navigata and Primus.

65. The rivalrous and vigorous nature of VoIP price competition is demonstrated by the many examples where prices for a VoIP service have fallen in response to competition. Primus

Canada, for example, launched its VoIP service in January 2004 and dropped its prices in April 2004 and then again in February 2005, resulting in a decrease of up to 43% on some price plans. Similarly, Vonage Canada began offering its "Premium Unlimited" VoIP service in March 2004 at \$45.99 per month and dropped the price to \$39.99 per month in January 2005. Six months after launching its VoIP service, Comwave added two new service tiers and offered a 33% discount to customers willing to sign a two year contract. Since the launch of its service in September 2004, YAK has twice introduced new pricing tiers, and has lowered its prices by increasing the number of no-charge long distance minutes included in the service. As well, YAK has introduced a new pricing plan that provides unlimited Canada/U.S. calling at a discounted introductory rate to new customers. In March 2005, less than a year after it was launched babyTel and Inter.net dropped the price of "Canadian Village Unlimited" service by 20%, and in April 2005, introduced a new plan providing unlimited Canada/U.S. long distance. Similarly, less than a year after its VoIP service was launched, Telehop lowered the price of its basic plan offering 500 minutes of Canada/U.S. long distance, and introduced a new pricing plan that provides unlimited Canada/U.S. calling. AOL Canada reduced the price for both of its VoIP packages by \$5.00 per month when it launched its national VoIP service in June 2005. Since acquiring PhoneNet in May 2005, Unitz Online has lowered the price of its iLine North America Regular by \$5 a month while increasing the number of North American minutes from 1,800 to unlimited. Finally, Navigata recently upgraded its product suite and lowered the price of its WebCall 1000 by 25%.

66. *Availability of substitutes* - As noted in Section 2, consumers have a variety of options available to them for their voice communications, including: fixed line voice, wireless voice, fixed line text, wireless text, and VoIP. There are more than 50 companies currently offering VoIP service to Canadians, some with targeted geographic coverage, and others who can provide service across Canada, North America or around the world. It is easy and costless for traditional fixed line telephony subscribers to discontinue their current service. Customers can choose to subscribe to VoIP or wireless service, and if desired, switch back to fixed line at a later date. Switching costs are minimal as most service providers do not require customers to sign long term contracts for VoIP service, allowing them to subscribe on a month-to-month basis.

67. Canadians have already begun to substitute one form of personal communications for another: they e-mail instead of making a telephone call; they use their cellular phone instead of their fixed line home phone (or a payphone); and, increasingly, they use instant messaging or text messaging rather than have a voice conversation. Evidence of substitution is found in the subscription and usage figures provided throughout this report, but also in the decline of the traditional wireline business. For example:

- The proportion of local voice network traffic carried on Bell's wireline network in Ontario and Québec was 78% in June 2004, down from 81% in January 2004.<sup>90</sup> The remainder of the local voice traffic is carried on wireless networks and competitors' wireline networks.
- Since 1999, housing has grown more than twice as fast as fixed line accesses (also called network access service or NAS) - 1.4% for housing versus 0.6% for NAS.<sup>91</sup> This suggests that new homes are increasingly using alternatives to traditional fixed line telephone service.
- Between 500,000 and 700,000 Canadians have abandoned their fixed line telephone altogether in favour of using only cellular phones.<sup>92</sup>
- 57% of Canadians, who use the Internet for personal e-mail, chat, instant messaging and searching for information, say that their use of the Internet has reduced their use of fixed line telephony service.<sup>93</sup>
- Payphone revenues in Canada are declining by 18.5% annually reflecting the growing number of Canadians with cellular telephones.<sup>94</sup>

68. Aggressive and innovative marketing programs - VoIP providers are in the advantageous position of selling a service that has received a very large amount of publicity in the past 24 months. For example, typing "VoIP" into the Google web search engine yields 24 million references. Searching the "Factiva" database of newswire services (including Dow Jones, Reuters, Wall Street Journal) using the term "VoIP" results in almost 49,000 articles,

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<sup>90</sup> Lawson Hunter, Executive Vice-President of BCE Inc., Remarks to the Insight Canadian Telecommunications Forum, 27 October 2004.

<sup>91</sup> Lawson Hunter, Executive Vice-President of BCE Inc., Remarks to the Insight Canadian Telecommunications Forum, 27 October 2004.

<sup>92</sup> *Canadian Local Telecom Services Market Report: 2004 Edition*, NBI/Michael Sone Associates, November 2004, page 52.

<sup>93</sup> *Canadians' Usage and Views Regarding Telecommunications*, Decima Research Inc./Bell Canada, October 2004.

<sup>94</sup> *Status of Competition in Canadian Telecommunications Markets*, CRTC, November 2004, page 85.

20,000 with VoIP in the title. Many of these articles tout the benefits of VoIP service compared to regular telephone service and warn of the threat to incumbent fixed line voice service providers. The result of this publicity is that there is a fairly high level of general awareness and curiosity about the service. Market research conducted by Decima Research suggests that 59%<sup>95</sup> of those with Internet access were aware of the concept of VoIP, although 71% of all survey respondents did not know or could not name any VoIP provider, or did not know that VoIP service was available. Research conducted by Pollara came to the same conclusion. While 72% of the 1405 residential Internet users surveyed had heard of VoIP, many were not fully aware of the benefits of VoIP.<sup>96</sup>

69. VoIP service is available in retail outlets like Staples, Business Depot, Best Buy, Future Shop, and Radio Shack. Special promotions are offered to attract new customers (e.g., by Telehop, Primus and Vidéotron). VoIP service is sold as a stand-alone service or in bundles with high speed Internet access or video entertainment services. Peer-to-Peer VoIP suppliers provide telephony for free – to build a customer base that will pay for future add-on services or to provide incremental value to users of their core product, as in the case of Microsoft, Apple and Yahoo!. The intensity and innovation associated with VoIP marketing programs will only increase as more cable companies and ILECs begin to offer VoIP service.

### **3.0 BUSINESS MARKET**

#### **3.1 Introduction**

70. That VoIP is a disruptive technology is nowhere more evident than in the realm of IP business services, where VoIP is making it possible for companies to combine their voice, data and video requirements over common network access facilities. VoIP services are also blurring the distinction that historically existed in telecommunications between local and long distance calling. Customers can choose to have a "virtual" presence in areas where they are not physically located and many of the VoIP packages that have been introduced provide customers with a large, if not unlimited, amount of both local and Canada/U.S. long distance calling for a fixed monthly price.

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<sup>95</sup> *'Net Calling The Canadian Consumer market for Voice over IP Services, 2005 Canadian Consumer Research Survey & Market Overview Report*, Decima Research, page 1.

<sup>96</sup> *Voice Over IP Consumer Research*, POLLARA, March 2005, page 3.

71. Many of the access-independent (Category 2) VoIP service providers that offer services to residential customers also have packages available for business customers, especially for small office/home office (SOHO) and small business users. Peer-to-peer (P2P or Category 1) VoIP services are, in large measure, designed for residential customers, although at least one P2P provider has indicated its intention to offer services targeted at business customers later this year.<sup>97</sup> Once the cable companies have deployed their residential VoIP services, they may also begin to target business customers with their access-dependent (Category 3) services. However, at the current time, the main focus in the business market is on Category 4 services. These are hosted or managed IP telephony services offered over customer provided facilities. Unlike Category 2 services, which operate over the public Internet, Category 4 services operate over a customer's Local Area Network (LAN) or Wide Area Network (WAN) facilities. Such network access facilities may be provided by the IP telephony service provider or by a third party and are widely available from a variety of suppliers.

72. The development of Multi-Protocol Label Switching (MPLS)<sup>98</sup>-based IP Virtual Private Networks (IP VPNs)<sup>99</sup> has facilitated the deployment of Category 4 managed IP telephony services and network-based IP-PBX solutions, by enabling class of service distinctions for prioritization of voice packets. According to a recent report by Ovum, IP VPNs "...have become the *de facto* choice for enterprise customers looking to upgrade their existing WAN<sup>[100]</sup> infrastructure."<sup>101</sup>

"MPLS allows a more deterministic routing through IP networks and hence is an enabler for quality of service. Most MPLS-based VPN services provide differentiated class of service, which means that different types of traffic can be supported simultaneously with appropriate quality of service. This provides more

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<sup>97</sup> For example, eMarketer reported in its June 2005 report *VoIP: Spending and Trends* that Skype was planning on releasing a business service later this year.

<sup>98</sup> A protocol that switches IP packets through a data network using a label which identifies the connection that the packet has to follow. It gives network operators flexibility to divert and route traffic around link failures, congestion and bottlenecks. Source: RBC Capital Markets, *2005 Portable Telecom Directory*, pages 62 and 204.

<sup>99</sup> A network in which some of the nodes are connected using the public internet, but the data sent across the Internet is encrypted, so the entire network is virtually private. VPNs are commonly used by businesses that have offices in several sites, and would like to ensure that information passed from office to office over the public Internet links cannot be intercepted and viewed by third parties. Hence it is as if the company is operating a secure intranet. Source: <http://www.xlistings.net/xlist/tech/security/vpn?id=1>

<sup>100</sup> Wide Area Network. A WAN spans a large geographic area and often connects multiple smaller networks, such as local area networks (LANs) or metro area networks (MANs). Many WANs are corporate networks that utilize private lines.

<sup>101</sup> H. Dransfield & S. Young, *The market for IP VPNs: eroding margins for wholesale and retail*, Ovum, January 2005, page 2.

efficient use of bandwidth when a network has to support multiple applications - for example, web access, e-mail and mission-critical business applications.

MPLS-based VPN services also provide class-of-service (CoS) support for voice and multimedia in addition to data, hence they support voice-data convergence. CoS is rapidly becoming a major selling point for all service providers as well as network resource engineering, where service providers deploy performance-monitoring devices at each site."<sup>102</sup>

73. As in the residential market, VoIP services compete with numerous other services that provide business customers with internal voice communications and with voice access to and from the PSTN. Customers can choose from the following types of services to meet these requirements: business voice access lines (e.g., business primary exchange services); IP private branch exchanges (PBXs) combined with analogue or digital business access trunks; traditional Centrex services; conventional PBXs or key telephone systems combined with business voice access lines or trunks; wireless services; and certain Internet data services, such as Instant Messaging.

### **3.2 Competitive Overview**

74. In 2004, total VoIP service revenue in North America was estimated at slightly more than \$1.3 billion and is expected to grow to \$19.9 billion by 2009, according to a recent report from Infonetics Research.<sup>103</sup> The study, which covers residential/SOHO, business and wholesale (carrier) markets, predicts that 29% of large, 16% of medium and 4% of small organizations in North America will have adopted IP voice by the end of 2005. Managed IP-PBX made up slightly more than half the market in 2004, but Infonetics expects business hosted VoIP service revenue to exceed that of managed IP-PBX by 2006 primarily because of the increase in the number of small and mid-sized organizations adopting hosted offerings.

75. Among the primary reasons that businesses are making the switch to VoIP is that IP networks use bandwidth more efficiently than traditional circuit-switched networks, thereby permitting them to get more use out of their networks' capacity over the longer term, as their bandwidth needs grow over time. Another benefit of switching to IP-based networks is the

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<sup>102</sup> H. Dransfield & S. Young, *The market for IP VPNs: eroding margins for wholesale and retail*, Ovum, January 2005, page 4.

<sup>103</sup> Infonetics Research press release, 5 May 2005, <http://www.infonetics.com/resources/purple.shtml?ms05.vip.nr.shtml>

reduction of network maintenance and operating costs, as companies are able to consolidate their separate voice and data networks onto a single system. It is also less costly from an administrative standpoint for businesses to add or change user phone lines, as IP phones can be more easily connected to or moved within an IP network than traditional phones. Furthermore, VoIP helps businesses to significantly reduce long distance transport costs for international calls.<sup>104</sup>

76. Business customers have a choice of several different approaches to deploying VoIP within their organizations. Customers can opt to use services provided over their high-speed Internet connections by access-independent (Category 2) VoIP service providers. However, because these services are provided over the public Internet, they may not provide the security or service quality required by any but the smallest businesses. A second option is an IP-PBX solution, which the customer can manage internally or have managed by the equipment supplier or by a third party, for example by a systems integrator. A third option, which offers similar capabilities to the IP-PBX solution, is for the customer to choose a hosted or managed IP telephony service. There are multiple service providers for each of these options. There seems to be consensus among industry analysts that for the most part large corporations will go the IP-PBX route, while managed IP telephony solutions will appeal more to smaller companies that do not have in-house or outsourced technological expertise to manage a converged network, although they will likely be used as well by larger organizations for small or remote branch offices.

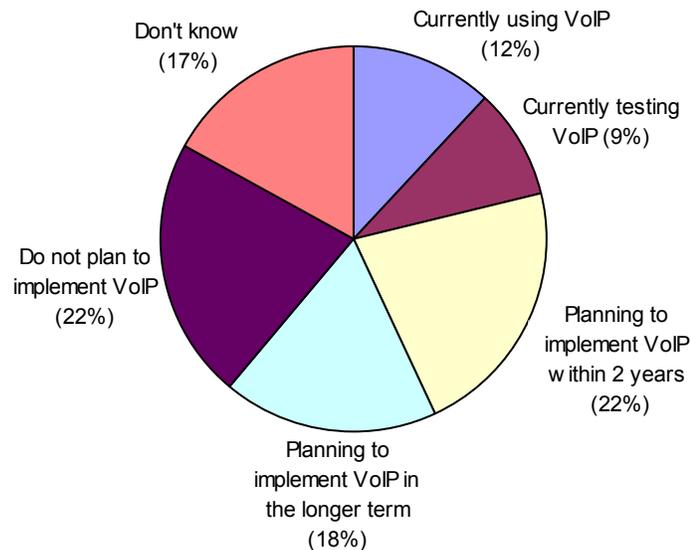
77. A global survey conducted by AT&T in co-operation with the Economist Intelligence Unit (EIU) in March and April 2004 asked 254 senior executives about their intentions regarding implementation of VoIP alternatives. While the number of Canadian respondents that reported they were currently using, testing or planning to implement VoIP within two years was slightly lower, at 39%, than the overall result of 43%, the study also showed that Canadian companies exceeded the global average in understanding the efficiency-enhancing capabilities that VoIP technology brings to employees.<sup>105</sup> Respondents' intentions regarding the implementation of VoIP are summarized in Figure 15, which shows that 60% of respondents currently have plans to implement a VoIP solution at some point.

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<sup>104</sup> eMarketer, *VoIP: Spending and Trends*, June 2005, page 14.

<sup>105</sup> AT&T Global Services Canada news release, 22 September 2004, <http://www.att.com/canada/docs/200409-VoIP.pdf>

**Figure 15**  
**Global Business VoIP Implementation Status**



Source: AT&T/EU Networking and Business Strategy Survey, March-April 2004

78. In Canada, almost 15% of the small and medium-sized business (SMB or SME) customers surveyed for a recent IDC Canada report indicated that they were currently using VoIP. Adoption rates varied by company size, with the highest rates among companies with 10 to 19 employees and those with 50 to 99 employees. In both cases, more than 23% of these companies reported VoIP service usage. Overall, 19% of those firms with fewer than 100 employees indicated they were using VoIP, while 12% of those with 100 to 499 employees reported doing so. The lowest level of VoIP adoption, at 8.1%, was among those companies with between 250 and 499 employees. However, 13% of these same firms indicated that they were currently using IP-PBXs, which IDC concludes represents a positive sign for future VoIP adoption.<sup>106</sup> Among enterprise customers (defined as those with 500 employees or more), IP-PBXs have also made strong inroads. According to a report by the SeaBoard Group, more than 200,000 IP-PBX lines had been installed by the beginning of 2005.<sup>107</sup>

<sup>106</sup> M. Hyjek & J. Sharp, *Opportunities and challenges selling VoIP to the Canadian mid-market*, IDC, December 2004, page 2.

<sup>107</sup> IGB Grant & Brian Sharwood, SeaBoard, *An Exciting Year Ahead: SeaBoard's Views on the 2005 Communications Market*, January 2005, page 11.

79. There are many suppliers offering VoIP services to business customers across Canada. As is the case in the consumer market, adoption of access-independent (Category 2) VoIP services is enabled by the growing number of small and medium businesses that have broadband access. Between 2003 and 2008 broadband adoption is expected to have the highest growth rate in the small business market segment. Small business dial-up usage fell sharply to 35% in 2004 from 45% in 2003.<sup>108</sup> Many of those service providers that offer Category 2 VoIP services to residential customers also have packages targeted to business customers. Figure 16 provides an overview of various business packages that are available in different markets across Canada. This list is far from exhaustive, since new competitors are continually entering the market and existing competitors keep adding to or changing their service offerings. All of these services have been introduced since January 2004, when Primus Canada introduced its TalkBroadband for Business VoIP service.

80. Most of the packages offered by Category 2 VoIP service providers include unlimited local calling, unlimited on-net calling between users and an array of features. In addition to voicemail and traditional calling features such as Caller ID, Call Waiting and Call Forwarding, many VoIP service providers offer additional features, such as alternative numbers from different area codes, 'Find Me, Follow Me' functionality, reverse calling, unified messaging, etc. Many packages also include some amount of North American long distance calling each month. Local number portability (LNP) is generally provided in on-net locations and most service providers provide some form of 9-1-1 capability.

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<sup>108</sup> L. Surtees and A. Shah, *Broadband Battle: Canadian Broadband Forecast and Analysis, 2003-2008*, IDC, September 2004, pages 34 and 35.

**Figure 16**  
**Category 2 VoIP Service Providers – Business Packages**

<b>Service Provider</b>	<b>Service Package(s)</b>	<b>Monthly Price</b>	<b>Local Number Availability / On-net Locations</b>
babyTEL / Inter.net Canada	<ul style="list-style-type: none"> <li>• Pay as you Go – calls charged on a per minute basis (\$0.02/minute on-net, \$0.04/minute off-net)</li> <li>• Canadian Unlimited Small Business – unlimited on-net calling + 12 hours Canada/U.S. off-net calling</li> </ul>	<p>\$ 10.95</p> <p>\$46.95</p>	Vancouver, Victoria, Calgary, Edmonton, Toronto, Hamilton, Kitchener, London, Ottawa, Montréal, Québec City, Sherbrooke & Halifax
Bell Canada <sup>109</sup>	<ul style="list-style-type: none"> <li>• Business IP Voice – Unlimited Canada/U.S. calling<sup>110</sup> + voicemail &amp; calling features + one secondary number</li> <li>• Secondary number, additional</li> <li>• Meet Me Conferencing</li> <li>• Music on Hold</li> <li>• Distinctive Ringing</li> </ul>	Not available	Toronto, Brampton, London, Ottawa-Hull, Québec City, Montréal
Comwave	<ul style="list-style-type: none"> <li>• Basic iPhone – unlimited Canada/U.S. calling + reverse calling feature</li> <li>• additional line</li> <li>• feature bundle</li> <li>• individual features</li> </ul>	<p>\$ 19.95</p> <p>\$14.95</p> <p>\$5.00</p> <p>various</p>	Vancouver, Calgary, Edmonton, Toronto, Montréal
InstaTelecom	<ul style="list-style-type: none"> <li>• InstaTalk Business 750 – 750 minutes North America calling + voicemail &amp; calling features</li> <li>• InstaTalk Business 1500 – 1500 minutes calling in Canada, the U.S. and selected international destinations<sup>111</sup></li> </ul>	<p>\$ 34.95</p> <p>\$49.95</p>	Over 500 cities in the U.S., and following cities in Canada: Vancouver, Victoria, Calgary, Edmonton, Winnipeg, Hamilton, Kitchener/Waterloo, London, Ottawa, Toronto, Montréal
Navigata	<ul style="list-style-type: none"> <li>• WebCall Basic – unlimited local calling + voicemail &amp; calling features</li> <li>• WebCall 1000 – as</li> </ul>	<p>\$15.95</p> <p>\$29.95</p>	Victoria, Vancouver, Abbotsford, Prince George, Kamloops, Kelowna, Calgary, Edmonton

<sup>109</sup> Approved in Order 2005-276. Rates to be filed on or before 8 August 2005.

<sup>110</sup> Includes calling to Alaska and Hawaii and excludes calling to Mexico and the Caribbean Islands including U.S. Territories (Puerto Rico and U.S. Virgin Islands).

<sup>111</sup> Includes calls to land lines in Buenos Aires, Argentina; Australia; Chile; Denmark; France; Germany; Hong Kong; Ireland; Israel; Italy; Monterey and Mexico City, Mexico; Netherlands; Norway; Moscow and St. Petersburg, Russia; Singapore; South Korea; Spain; Sweden; Taiwan; United Kingdom; and Vatican City State.

Service Provider	Service Package(s)	Monthly Price	Local Number Availability / On-net Locations
	above but with 1000 minutes North American long distance calling • WebCall 1000 Plus – as above with additional features (Video calling between subscribers, instant text messaging, etc.)	\$39.95	
NetFone	• Business Freedom Canada <sup>112</sup> – unlimited local and on-net calling + calling features • additional numbers, each	\$ 24.95  \$4.95	Vancouver, Victoria, Whistler, Kelowna, Calgary, Edmonton, Winnipeg, Barrie, Belleville, Guelph, Hamilton, Kingston, Kitchener, London, Newmarket, North Bay, Oshawa, Ottawa, St. Catharines, Sudbury, Toronto, Windsor, Montréal, Québec City, Sherbrooke, Halifax
Primus Canada	• TalkBroadband for Business Pro – unlimited local calling • TalkBroadband for Business Enterprise – unlimited local calling + calling features • Voicemail • Web Portal	\$ 27.95  \$29.95  \$5.95 \$5.95	Victoria, Vancouver, Calgary, Edmonton, Winnipeg, London, St. Catharines, Hamilton, Kitchener, Waterloo, Mississauga, Toronto, Ottawa, Montréal, Québec City, Halifax
SpectraVoice Broadband	• SpectraVoice SOHO Basic – 500 minutes Canada/U.S. calling + voicemail & calling features • SpectraVoice SOHO Plus – unlimited <sup>113</sup> local calling, 500 minutes Canada/U.S. long distance calling + voicemail & calling features • SpectraVoice SOHO Premium – as above with 1000 minutes Canada/U.S. long distance calling • SpectraVoice SOHO Premium – as above with unlimited Canada/U.S. calling • Virtual numbers, each	\$ 29.99  \$39.99  \$49.99  \$59.99  \$7.99	Toronto, Mississauga, Thornhill, Unionville, Ottawa, Montréal, Laval

<sup>112</sup> Website states that this package is "coming soon".

<sup>113</sup> Within reasonable residential and small business call volume as determined by SpectraVoice.

Service Provider	Service Package(s)	Monthly Price	Local Number Availability / On-net Locations
Telehop	<ul style="list-style-type: none"> <li>BroadTalk @ Biz – line + voicemail &amp; calling features</li> <li>reverse calling</li> <li>additional numbers, each number</li> </ul>	\$ 53.99  \$4.00 \$7.00	416 phone numbers; most areas in Ontario, Greater Montréal and West Québec are treated as local
Unitz Online	<ul style="list-style-type: none"> <li>i-Line Basic – unlimited local and in-network calling + calling features</li> <li>virtual numbers, each (1 provided free)</li> <li>telephone gateway rental</li> </ul>	\$ 32.95  \$10.00 \$10.00	Barrie, Chatham, Guelph, Hamilton, Kingston, Kitchener/Waterloo, London, Montréal, Newmarket, North Bay, Oshawa, Ottawa, Peterborough, St. Catharines, Sudbury, Toronto, Windsor
Vonage Canada	<ul style="list-style-type: none"> <li>Small Business Basic Plan – 1500 local and Canada/U.S. long distance minutes + voicemail &amp; calling features</li> <li>Small Business Unlimited Plan – as above but with unlimited Canada/U.S. calling</li> </ul>	\$55.99  \$69.99	Victoria, Calgary, Edmonton, Winnipeg, Barrie, Burlington, Hamilton, Kitchener-Waterloo, London, Ottawa, Toronto, Montréal, Québec City, Sherbrooke, Halifax
YAK Communications	<ul style="list-style-type: none"> <li>yak WorldCity Premium yak – 10 hours Canada/U.S. calling + unified messaging, calling features &amp; videophone calling</li> <li>yak WorldCity Unlimited yak – as above, but with unlimited Canada/U.S. calling</li> </ul>	\$ 18.99  \$35.99	Vancouver, Victoria, Calgary, Edmonton, Hamilton, Winnipeg, Kitchener-Waterloo, London, Ottawa, Toronto, Montréal, Québec City, Halifax

81. For organizations interested in an IP-PBX solution, there are many suppliers offering such products. These include the following vendors:

- Cisco Systems Canada;
- Avaya Canada;
- Lucent Technologies;
- Mitel Networks Corporation;
- Siemens Canada Limited;
- Centrepont Technologies;
- NEC Canada;
- Panasonic;

- Toshiba Canada;
- Nortel Networks;
- 3Com Canada; and
- Alcatel Canada.

82. Managed IP-PBX solutions, as well as equipment sales, are available from many of these vendors. As well, there are numerous systems integrators willing to provide outsourced management services to customers wishing to go the IP-PBX route without creating an extensive in-house management team. These include outsourcing companies, such as CGI and IBM Canada, as well as smaller ones such as Computer Sciences Corporation (CSC) or NUVO Networks.

83. There are also numerous suppliers offering managed IP telephony (Category 4) services to Canadian businesses or likely to do so in the near future, in direct competition with managed IP-PBX solutions and services offered by the Companies in their traditional operating territories. These include the Companies' own operations outside their traditional operating territories; MTS Allstream; Rogers Telecom; foreign telecommunications service providers that have established Canadian operations, such as BT, AT&T and Equant; IP equipment vendors listed above on their own or in conjunction with a systems integrator or telecommunications service provider; and a number of smaller start-ups.

84. The primary customers for Category 4 services are medium and large businesses that are already using IP data networks. As such, these are sophisticated customers that are well aware of the current and potential capabilities that IP technologies can deliver and of the companies that supply IP services. These customers typically have established commercial arrangements with computer and data equipment providers, systems integrators and telecommunications carriers, all of whom are expected to be active participants in delivering managed IP telephony services. As already noted, in a survey conducted by AT&T/EIU Canadian companies exceeded the global average in understanding the efficiency-enhancing capabilities of VoIP technology.

### **3.3 Competitor Profiles**

85. A variety of service providers and equipment vendors are currently offering VoIP technology-based alternatives to meet the communications needs of both small and large businesses in Canada, and others are building the capability to do so in the future. Many of these competitors are large, multinational organizations that have demonstrated expertise in the information technology (IT) or telecommunications industries or both. Category 2 VoIP service providers are discussed in detail in the context of their residential service packages in section 2.2.1 of this Attachment, while Figure 16 above provides an overview of their business offerings. The following sections profile some of the other competitors that are currently offering VoIP services, or that are expected to do so shortly, in competition with both traditional telecommunications services offered by the Companies and VoIP services that they currently offer or plan to offer.

#### **3.3.1 Bell West**

86. Bell West is a division of Bell Canada, the largest telecommunications service provider in Canada, which had revenue of \$16.8 billion in 2004.<sup>114</sup> Bell Canada's 2004 acquisition of 360networks' Canadian operations gave Bell West an extensive fibre network across major cities in Western Canada. Bell West focuses on serving businesses in Alberta and British Columbia with a suite of advanced fibre-based data and IP Services, as well as offering a full spectrum of local and long distance voice services. It is the prime contractor for the Alberta SuperNet build, which is a Government of Alberta initiative to create a broadband network linking schools, hospitals, libraries and provincial government offices throughout the province.

87. Bell West offers IP VPN, Ethernet Internetworking (LAN extension) and wireless LAN (WLAN) services, as well as VoIP and managed IP telephony solutions.

#### **3.3.2 MTS Allstream**

88. Allstream now operates as a division of MTS, which acquired the company effective 4 June 2004, following Allstream's successful emergence from a debt restructuring exercise, undertaken by the organization in its previous incarnation as AT&T Canada. Allstream

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<sup>114</sup> 2004 Annual Report, Bell Canada Enterprises, page 51.

continues to partner with AT&T Corp., which previously had a significant stake in its predecessor company AT&T Canada Inc., and in December 2004 announced that it had extended its Master Services Agreement and AT&T North American Voice Services Agreement until 30 June 2011. The latter agreement allows MTS Allstream to offer customers a single point of contact for voice services in both Canada and the U.S.<sup>115</sup> In December 2004, Allstream also announced a strategic relationship with British Telecommunications plc (BT) to deliver global IP solutions to Canadian and multinational companies with cross-border and international requirements.<sup>116</sup> In July 2005, MTS Allstream announced that it was acquiring Delphi Solutions Corp., stating: "the acquisition is an important step in positioning the company to take advantage of the migration of customer networks to converged Internet Protocol ("IP") technologies."<sup>117</sup>

89. MTS Allstream had combined revenues of \$1.5 billion in 2004 for its national and MTS (Manitoba) operating divisions. Allstream, the national division, accounted for \$666.8 million of this from 1 June 2004, the effective date of its acquisition.<sup>118</sup> Allstream has a cross-Canada OC-192 SONET-based backbone network with Frame and ATM switching equipment, as well as a MPLS-based IP backbone that is the core of the company's Business IP service. Its national broadband fibre optic network spans more than 24,300 kilometres and, according to NBI/Michael Sone Associates, it can serve over 90% of Canadian businesses.<sup>119</sup>

90. Allstream offers an Enterprise IP telephony (VoIP) service in partnership with Mitel Networks, calling it a "feature-rich, advanced communication service [that] combines enhanced business communications capability with superior scalability and reliability."<sup>120</sup> Allstream also offers a MPLS-based WAN solution, Business IP, which it announced in December 2004, and which is also offered globally through its partnership with BT.<sup>121</sup>

91. Allstream's IP telephony customers include the following:

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<sup>115</sup> Allstream news release, 16 December 2004,  
<http://www.newswire.ca/en/releases/archive/December2004/16/c5740.html>

<sup>116</sup> Allstream news release, 9 December 2004,  
<http://micro.newswire.ca/release.cgi?rkey=1212093198&view=82461-0&Start=0>

<sup>117</sup> MTS Allstream news release, 5 July 2005,  
<http://micro.newswire.ca/release.cgi?rkey=1307058348&view=82461-0&Start=0>

<sup>118</sup> MTS Allstream 2004 Annual Report, page 70.

<sup>119</sup> *Canadian Data Communications Services Market Report*, NBI/Michael Sone Associates, May 2005, page 31.

<sup>120</sup> Allstream news release, 9 June 2004,  
<http://micro.newswire.ca/release.cgi?rkey=1206092731&view=82461-0&Start=10>

<sup>121</sup> Allstream news release, 9 December 2004.

- Great-West Life Assurance Company (GWL), with whom it signed a three year agreement in December 2004. The fully managed MPLS network connects GWL's offices and data centres in Canada, the United Kingdom and the Republic of Ireland, and carries both data and voice traffic. It is replacing the existing network used by GWL and its subsidiaries, London-Life and Canada Life.<sup>122</sup>
- Scotiabank, with whom it also signed an agreement in December 2004. Under the agreement, all of the bank's 1050 branch locations are being migrated to Allstream's MPLS-based Business IP service.<sup>123</sup>
- Praxair, with whom it signed a three year agreement in June 2005. Allstream will migrate Praxair's Canadian sites and two U.S. sites to its MPLS IP network. Expected completion is in September 2005.<sup>124</sup>

### 3.3.3 Rogers Communications Inc.

92. Rogers Communications Inc. (Rogers) is a multi-billion dollar communications and media company that owns both Canada's largest wireless service provider and its largest cable TV operator. In 2004, Rogers had revenues of \$5.6 billion – 49% from wireless operations, 35% from cable and the remaining 16% from the media division<sup>125</sup> – although this does not fully reflect its November 2004 acquisition of Microcell Telecommunications Inc. Effective 1 July 2005, Rogers acquired 100% of Call-Net Enterprises Inc. (now Rogers Telecom Holdings Inc.) and its operating company, Sprint Canada Inc. (now Rogers Telecom Inc.). Call-Net had 2004 revenues of \$818.6 million and was previously the largest competitive local exchange carrier (CLEC) in Eastern Canada, following its own acquisition of the Eastern Canada customer base and assets of 360 networks from Bell Canada. Rogers's acquisition of Call-Net positions Rogers Telecom, which also includes the Rogers Wireless division, as the third largest telecommunications provider in Canada, behind Bell Canada and TELUS.

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<sup>122</sup> Allstream news release, 8 December 2004,  
<http://micro.newswire.ca/release.cgi?rkey=1212082583&view=82461-0&Start=0>

<sup>123</sup> Allstream news release, 10 December 2005,  
<http://micro.newswire.ca/release.cgi?rkey=1212103742&view=82461-0&Start=0>

<sup>124</sup> Allstream news release, 29 June 2005,  
<http://micro.newswire.ca/release.cgi?rkey=1306296740&view=82461-0&Start=0>

<sup>125</sup> RCI 2004 Annual Report, page 14.

93. Rogers introduced a residential VoIP service through its Rogers Cable division on 1 July 2005.<sup>126</sup> Although this service is not currently being targeted to business customers, it can be anticipated that this will likely occur sometime in the not too distant future. Rogers's acquisition of Call-Net seems to signal a renewed interest in the business market, since this gives Rogers a national presence and a sales force that is experienced at selling communications services in both the small-medium business and enterprise segments, as alluded to in Rogers's 11 May 2005 announcement of its proposed acquisition.

"This acquisition will significantly jumpstart and expand our ability to provide customers with a full suite of service solutions that deliver the simplicity, quality and value they want in one package, on one bill, from one provider," said Ted Rogers, President and CEO of Rogers Communications Inc. "This positions us immediately to offer primary line telephone service across our residential and business bases of wireless and cable customers. It also provides a substantial additional base of customers to cross-sell our portfolio of communications and entertainment products and a skilled and knowledgeable employee group with strengths in telephony sales and marketing. As Rogers' cable telephony service is deployed on a market by market basis, we will be able to migrate Call-Net customers in our Rogers Cable territory to our advanced digital cable telephony platform when advantageous."<sup>127</sup>

94. Through Rogers Telecom, Rogers has enhanced its ability to offer IP enabled solutions, including IP VPN services, to business customers. Rogers Telecom now offers a suite of network-based IP VPN services in major urban areas across Canada that are connected to its extensive national fibre network, which was acquired as part of Rogers's acquisition of Call-Net.

### **3.3.4 TELUS**

95. TELUS Corporation is the second largest telecommunications service provider in Canada, after Bell Canada, with 2004 revenues of \$7.6 billion. TELUS Corporation offers services through its TELUS Communications Inc (TELUS) division and its wireless arm, TELUS Mobility. Since 2001, TELUS has been operating as a CLEC in numerous exchanges in both Ontario and Québec. TELUS is focusing its expansion into Central Canada on the business market and is doing so using a combination of IP technology based and wireless service offerings.

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<sup>126</sup> RCI news release, 29 June 2005, <http://www.rogers.com/english/investorrelations/newsreleases/index.html>

<sup>127</sup> RCI news release, 11 May 2005, <http://www.newswire.ca/en/releases/archive/May2005/11/c7409.htm>

96. TELUS was the first service provider in Canada to introduce a hosted IP telephony service, when it launched its IP-One service in Ontario and Québec in November 2003. TELUS described its service as follows:

"TELUS IP-One is a hosted and managed telephony service, offered on a simple 'per seat' cost basis, which eliminates the need for capital investment in on-premise telephony equipment. It provides all of the telephony features, voice quality and reliability of traditional voice telephony services, while enabling innovative features and enhanced applications such as unified communications, extension mobility and integration with corporate directory services."<sup>128</sup>

97. Since then, TELUS has expanded its IP-One suite of services to include IP-One Enterprise, its flagship offering; IP-One Enterprise Lite, which is targeted at customers that do not need all of the features associated with the Enterprise service; and, IP-One Virtual, which provides all the features and functions of Enterprise but excludes the network access. In October 2004, TELUS announced that its IP-One Evolution service was in the final stages of testing, with a planned national launch in the first quarter of 2005.<sup>129</sup> IP-One Evolution is a Centrex service deployed over IP technology. TELUS IP-One services are available in 24 cities, covering the majority of Ontario and Québec business centres.

98. TELUS' IP telephony customers in Central Canada include the following:

- Borland Canada Inc., a Toronto-based software company, which uses TELUS IP-One service with its Find Me Follow Me feature.<sup>130</sup>
- Mount Sinai Hospital in Toronto for whom TELUS implemented a VoIP network.<sup>131</sup>
- Sheridan Centre for Emerging Technologies at Sheridan College also in Toronto, for whom TELUS is providing a campus-wide VoIP network capable of carrying voice, video, conferencing and data.<sup>132</sup>

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<sup>128</sup> TELUS news release, 17 November 2003,

<http://www.newswire.ca/en/releases/archive/November2003/17/c2629.html>

<sup>129</sup> TELUS news release, 6 October 2004, <http://www.newswire.ca/en/releases/archive/October2004/06/c6948.html>

<sup>130</sup> TELUS website,

<http://businesscontent.telus.com/webcontent/content/smMedBusiness/successStories/successStories.jsp>

<sup>131</sup> TELUS website,

<http://businesscontent.telus.com/webcontent/content/smMedBusiness/successStories/successStories.jsp>

<sup>132</sup> TELUS website,

<http://businesscontent.telus.com/webcontent/content/smMedBusiness/successStories/successStories.jsp>

- The Co-operators, with whom TELUS has a six year contract to provide WAN and LAN data services to over 600 locations, as well as an extensive portfolio of voice services.<sup>133</sup>

### 3.3.5 Foreign Telecommunications Service Providers

99. A number of foreign telecommunications service providers have operations in Canada through which they are offering managed VoIP and/or IP VPN services to multinational businesses with Canadian locations.

#### *AT&T Global Services*

100. AT&T Global Services Canada Co. is a wholly owned subsidiary of AT&T Corp., which had 2004 revenues of U.S. \$30.5 billion. In its 2004 Annual Report, AT&T Corp. described its enterprise networking services capabilities as follows:

"With a presence in 60 countries and 850 different cities, our enterprise networking services provide comprehensive support from network design, implementation and installation to ongoing network operations and lifecycle management of solutions for networks of varying scales, including local area networks, wide area networks, and virtual private networks. These managed enterprise networking services include applications such as e-mail, VoIP, order entry systems, employee directories, human resource transactions and other database applications."<sup>134</sup>

101. AT&T's MPLS-based Global Network, spanning 130 cities in 48 countries, has a total of 10 nodes in Canada in the following cities: Vancouver, Edmonton, Calgary, Winnipeg, London, Toronto, Ottawa, Montréal and Halifax. Its service offerings include a number of VPN options, including a fully managed Enhanced VPN service that supports VoIP and other applications. In the U.S., AT&T recently announced the introduction of its AT&T Voice Dynamic Network Applications (DNA) VoIP solution. AT&T Voice DNA is the first in a portfolio of IP business services that AT&T is planning to rollout over the next year.<sup>135</sup> It is likely that the service will soon be available to business customers in Canada. AT&T Voice DNA supports a variety of IP phones and IP-PBXs, including select models from Cisco and Avaya, and provides a broad array of features, which AT&T describes as follows:

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<sup>133</sup> TELUS news release, 6 May 2004, <http://www.newswire.ca/en/releases/archive/May2004/06/c9878.html>

<sup>134</sup> AT&T Corp. 2004 Annual Report, page 4, [http://www.att.com/ar/docs/annualreport\\_2004.pdf](http://www.att.com/ar/docs/annualreport_2004.pdf)

<sup>135</sup> AT&T news release, 2 May 2005, <http://www.att.com/news/2005/05/02-1>

"AT&T Voice DNA will provide all of the standard features of today's business telephones in addition to advanced features, such as mid-call move, which gives customers the ability to move a call from one phone to another without disruption; personalized call handling; simultaneous ring; click-to-call, to dial calls with a single mouse click; locate-me; the ability to have multiple phones ring at once or sequentially for ultimate reachability; on-demand audio conferencing; and integration with Microsoft Outlook."<sup>136</sup>

102. AT&T Global Services' Canadian IP VPN customers include Nexfor Inc., a forestry products company, with whom it announced a contract in June 2004 to migrate Nexfor's three legacy frame relay networks to AT&T's integrated, fully managed MPLS-based IP VPN, connecting 20 Nexfor sites in Canada, the U.S. and Europe.<sup>137</sup>

#### *British Telecom and BT Infonet*

103. British Telecom plc (BT) describes itself as one of the world's leading providers of communications solutions serving customers in Europe, the Americas and Asia Pacific. For the 2005 fiscal year ended 31 March 2005, BT had worldwide revenues of £18.6 billion. BT currently operates as two distinct entities in Canada. In February 2005, it acquired Infonet Services Corporation, a provider of global managed voice and data network services for corporate customers, which now operates in Canada as BT Infonet Services Canada (BTI), a division of BT Global Services. In its 2005 Annual Report BT stated the rationale for its acquisition of Infonet as follows:

"The acquisition of Infonet, re-branded BT Infonet, is a significant step forward in our strategy of addressing the networked IT services needs of multi-site organisations. It will significantly extend our global reach and will deepen our presence in North America and the Asia Pacific region. BT Infonet has local operations and/or distributors in 70 countries, remote network access in approximately 180 countries and strong sales and support partnerships around the world."<sup>138</sup>

104. In Canada, BT focuses on large enterprise and government customers and currently partners with MTS Allstream, with whom it jointly launched a global MPLS service in

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<sup>136</sup> AT&T news release, 2 May 2005, <http://www.att.com/news/2005/05/02-1>

<sup>137</sup> AT&T Global Services Canada news release, 14 June 2004, <http://www.newswire.ca/en/releases/archive/June2004/14/c4231.html>

<sup>138</sup> BT Group plc Annual Report and Form 20-F 2005, page 8.

December 2004.<sup>139</sup> BT has one Canadian POP, located in Toronto and "competitively serves many Canadian cities beyond Toronto – including Montréal, Ottawa, Québec, Vancouver, Calgary and Winnipeg – reaching more than 80% of Canadian corporate locations nationwide with affordable access pricing."<sup>140</sup> BT offers a MPLS-based IP VPN service as well as a suite of financial trading services that require a converged voice and data platform.<sup>141</sup> BT offers a number of business VoIP and managed IP telephony services in Europe, Asia Pacific and the U.S., but none are currently available in Canada.<sup>142</sup>

105. BTI's predecessor company, Infonet, had revenues of U.S. \$622.4 million in 2004.<sup>143</sup> It has full service core nodes in Vancouver, Calgary, Toronto and Montréal, with virtual POPs in an additional 36 cities.<sup>144</sup> According to NBI/Michael Sone Associates, BTI has about 50 customers in Canada and services more than 450 sites. BTI's service offerings in Canada include its IP Voice VPN service, as well as a private network IP VPN service, an Internet-based IP VPN service and an IP Video VPN service.<sup>145</sup>

### *Equant*

106. Equant is now a wholly owned subsidiary of France Telecom. It claims to have "the industry's most extensive portfolio of communications services and network solutions, including the market-leading IP VPN used by more than 1,300 multinationals today."<sup>146</sup> Equant's worldwide revenues in 2004 were €2.3 billion. Equant has offices in Toronto and Montréal and points of presence (POPs) in major cities across the country, including Vancouver, Calgary, Edmonton, Winnipeg, Toronto and several cities in southwestern Ontario, Ottawa, Montréal and Halifax.

107. Equant's Canadian customers include Hummingbird Ltd., a global enterprise software provider which is headquartered in Toronto. Under the three year contract announced in

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<sup>139</sup> BT / Allstream news release, 9 December 2004, <http://www.newswire.ca/en/releases/archive/December2004/09/c3198.html>

<sup>140</sup> BT news release, 20 January 2004, <http://www.newswire.ca/en/releases/archive/January2004/20/c1420.html>

<sup>141</sup> *Canadian Data Communications Services Market Report*, NBI/Michael Sone Associates, 2005 Edition, May 2005, page 65.

<sup>142</sup> BT website, <http://btglobalservices.com/>

<sup>143</sup> BT Infonet company profile, Yahoo, <http://biz.yahoo.com/ic/56/56601.html>

<sup>144</sup> *Canadian Data Communications Services Market Report*, NBI/Michael Sone Associates, 2005 Edition, May 2005, page 67.

<sup>145</sup> BTI website, [http://www.bt.infonet.com/services/services/all\\_services.asp](http://www.bt.infonet.com/services/services/all_services.asp)

<sup>146</sup> Equant website, [http://www.equant.com/content/xml/who\\_we\\_are.xml](http://www.equant.com/content/xml/who_we_are.xml)

February 2005, Equant is installing an IP VPN network that will interconnect 20 Hummingbird offices based in Canada, the U.S., Europe, Japan, South Korea, Singapore and Australia.<sup>147</sup>

### *Global Crossing*

108. Global Crossing is a global telecommunications carrier that claims to have "the world's first integrated global IP-based network."<sup>148</sup> Its network connects 300 cities in over 50 countries with 400 POPs. In Canada, both Toronto and Montréal are on-net locations and it also advertises network reach to Vancouver, Calgary, Hamilton, North Bay, Ottawa and Québec City.<sup>149</sup> Global Crossing's majority shareholder is Singapore Technologies Telemedia. In 2004 Global Crossing had worldwide revenues of U.S. \$2.4 billion.

109. Global Crossing offers managed IP VPN services and a number of VoIP options, including a managed enterprise VoIP service.<sup>150</sup>

### *MCI Canada*

110. MCI Canada Inc. describes itself as a leader in providing converged communication solutions to the Canadian business community. It is a wholly owned subsidiary of MCI Inc., the successor company to WorldCom Inc. In 2004, MCI had revenues of U.S. \$20.4 billion.<sup>151</sup> In February 2005, MCI announced a merger with Verizon Communications Inc., which is currently being reviewed by the U.S. Federal Communications Commission (FCC).<sup>152</sup> MCI states that "MCI's Canadian IP backbone network services the country with 22 high-speed, redundant OC-48 and OC-12 systems running ATM and MPLS, with a total capacity of 32 gigabits per second."<sup>153</sup>

111. MCI Canada has offices in Vancouver, Calgary, Toronto and Montréal. Its service offerings include high speed Internet access, MPLS-based IP VPN service and VoIP. Canadian

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<sup>147</sup> Equant news release, 3 February 2005, [http://www.equant.com/content/xml/pr\\_hummingbird\\_03\\_02\\_05.xml](http://www.equant.com/content/xml/pr_hummingbird_03_02_05.xml)

<sup>148</sup> Global Crossing news release, 11 July 2005, <http://www.globalcrossing.com/xml/news/2005/july/11.xml>

<sup>149</sup> Global Crossing website, Interactive Network Map, [http://www.globalcrossing.com/html/map05\\_11\\_05.html](http://www.globalcrossing.com/html/map05_11_05.html)

<sup>150</sup> Global Crossing website, [http://www.globalcrossing.com/xml/services/serv\\_voice\\_voip\\_over.xml](http://www.globalcrossing.com/xml/services/serv_voice_voip_over.xml)

<sup>151</sup> MCI 2004 Annual Report, page 7.

<sup>152</sup> MCI press release, 24 May 2005, <http://global.mci.com/about/news/news2.xml?newsid=14851&mode=long&lang=en&width=530&root=/about/>

<sup>153</sup> MCI Canada website, <http://global.mci.com/ca/about/company/canada/?SetLang=en>

VoIP customers include XTL Transport,<sup>154</sup> a Canadian trucking firm servicing Ontario, Québec and the continental U.S., and Vintacom Media Group Inc,<sup>155</sup> an online dating service located in Edmonton.

### 3.3.6 Equipment Vendors/Systems Integrators

112. Managed IP-PBX and IP telephony solutions are being provided to end customers by IP equipment vendors either on a stand-alone basis, or in partnership with a systems integrator or telecommunications service provider.

#### *Avaya*

113. Avaya Inc. "designs, builds and manages communications networks for more than 1 million businesses worldwide, including over 90 percent of the Fortune 500."<sup>156</sup> Avaya is a spin-off of Lucent Technologies Inc. that began trading as a separate company in October 2000. In 2004, Avaya had revenues of U.S. \$4.1 billion and claimed to be number one in worldwide IP telephony and Enterprise telephony markets.<sup>157</sup>

114. Avaya's Canadian IP telephony customers include the following:

- Sleeman Breweries Ltd., which is using the Avaya IP Office solution to upgrade its communications infrastructure as it integrates its operations with those of the recently acquired Brasserie Unibroue.<sup>158</sup>
- Edmonton Airport Authority, which deployed Avaya MultiVantage Communications Applications suite, including Avaya Communications Manager IP telephony software and messaging applications, "to converge over 600 voice and data lines for greater agility".<sup>159</sup>

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<sup>154</sup> MCI Canada website case study, [http://global.mci.com/ca/resources/case\\_studies/XTL.pdf](http://global.mci.com/ca/resources/case_studies/XTL.pdf)

<sup>155</sup> MCI Canada website case study, [http://global.mci.com/ca/resources/case\\_studies/vintacom.pdf](http://global.mci.com/ca/resources/case_studies/vintacom.pdf)

<sup>156</sup> Avaya investors fact sheet, [http://investors.avaya.com/corporate/fact\\_sheet.shtml](http://investors.avaya.com/corporate/fact_sheet.shtml)

<sup>157</sup> Avaya 2004 Annual Report, [http://64.26.27.40/interactive/av2004/md/page\\_001.php](http://64.26.27.40/interactive/av2004/md/page_001.php)

<sup>158</sup> Avaya/Sleeman/Unibroue news release, 6 June 2005, <http://www.newswire.ca/en/releases/archive/June2005/06/c8017.html>

<sup>159</sup> Avaya press release, 19 April 2005, <http://www.avaya.com/gcm/master-usa/en-us/corporate/pressroom/pressreleases/2005/pr-050419a.htm&Wrapper=Print>

### *Cisco*

115. Cisco Systems Canada Co. is a wholly owned subsidiary of Cisco Systems, Inc., which had revenues of U.S. \$22 billion in 2004.<sup>160</sup> Cisco describes itself as the worldwide leader in networking for the Internet.

116. Cisco began deployment of its AVVID (Architecture for Voice, Video and Integrated Data) IP products many years ago. Its commercial debut in Canada was in 2000, when Cisco and KPMG announced the installation of 350 IP phones in KPMG's Toronto-based Consulting Practice.<sup>161</sup> More recently, Cisco announced that 17 municipalities across the country have deployed Cisco IP Communications.<sup>162</sup>

### *IBM Canada*

117. IBM Canada Ltd. describes itself as "one of Canada's leading providers of advanced information technology products and services."<sup>163</sup> It is a wholly owned subsidiary of IBM Corp., which had worldwide revenues of U.S. \$96.3 billion in 2004. IBM Canada is a major systems integrator and, among other things, offers IP network development and converged network management solutions to a broad range of industry sectors.<sup>164</sup>

118. IBM Canada recently announced a five year deal with Memorial University in Newfoundland "to update and streamline the university's technology systems and to install a campus-wide voice-over-IP (VoIP) system."<sup>165</sup> The latter uses Cisco-based VoIP technology.

### *Microsoft*

119. Microsoft Corp. is the world's largest software company. In fiscal 2004, the period ending 30 June 2004, its revenues were U.S. \$36.8 billion.<sup>166</sup> A recent tmcnet.com article reports the conclusion by Info-Tech Research Group (Info-Tech) that Microsoft's VoIP strategy

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<sup>160</sup> Cisco Systems 2004 Annual Report, page 17.

<sup>161</sup> *Cisco Canada Debuts Next-Generation IP Phones*, internetnews.com, 13 April 2000, <http://www.internetnews.com/bus-news/article.php/340261>

<sup>162</sup> Cisco Canada news release, 14 April 2005, [http://newsroom.cisco.com/dlls/2005/prod\\_041405.html](http://newsroom.cisco.com/dlls/2005/prod_041405.html)

<sup>163</sup> IBM Canada website, <http://www.ibm.com/ibm/ca/en/>

<sup>164</sup> IBM Canada website, <http://www.ibm.com/solutions/ca/en/>

<sup>165</sup> IBM Canada press release, 28 April 2005, <http://www.newswire.ca/en/releases/archive/April2005/28/c1918.html>

<sup>166</sup> Microsoft 2004 Annual Report, page 5.

is positioning it to compete in the telecommunications market. It notes that Microsoft has released a string of new and upgraded products in recent months, the latest of which is Microsoft Speech Server, that are bolstering its presence in both the carrier and enterprise markets.<sup>167</sup> Microsoft is also reported to be focusing on the development of voice and video capabilities for its enterprise instant messaging product, codenamed "Istanbul".<sup>168</sup> In order to achieve its future goal of delivering fully integrated VoIP solutions, Microsoft is partnering with hundreds of vendors, including IP-PBX vendors like Alcatel and Siemens. Research Analyst, Carma Levy, commented that Microsoft a formidable competitor for the traditional telcos:

"Microsoft is tying together all of its multimedia-capable messaging assets into a cohesive strategy to penetrate and dominate the burgeoning VoIP market. Microsoft clearly understands the need to establish itself at strategic points in the VoIP market in order to succeed on a worthwhile scale.

.....

Microsoft sees VoIP as part of an all-encompassing messaging strategy. Building on its dominance of text-based messaging with its Exchange platform, it now aims to leverage that dominance into VoIP.

It may seem odd at first glance to have a software vendor pushing to become a top provider of digital telephony service. But it's difficult to imagine any other company with the resources and connections to actually pull it off. It looks like the traditional telcos have a new and formidable competitor."<sup>169</sup>

### 3.3.7 Municipal Electric Utilities

120. Municipal electric utilities (MEUs) and their competitive telecom subsidiaries (Utelcos) are emerging as a force in the business telecommunications market. In May 2004, UTC Canada was formed as a trade association to focus on addressing the critical telecommunications issues for utilities and energy companies in Canada and the providers of telecommunications infrastructure or information technology services.

121. Although Telecom Ottawa is the only Utelco so far to offer a VoIP service (see the discussion of OneConnect in section 3.3.8), the Utelcos do offer fibre facilities (both dark and lit) that business customers can use for their own WAN-based VoIP applications, for connectivity for an IP-PBX system, or to provide access to their premises for third-party managed IP

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<sup>167</sup> *Info-Tech Research Group: VoIP Strategy Positions Microsoft to Compete in Telecom Market, Says IT Analyst Firm*, tmcnet.com, 26 May 2005, <http://www.tmcnet.com/usubmit/2005/May/1148755.htm>

<sup>168</sup> *VoIP: Spending and Trends*, eMarketer, June 2005, page 8.

<sup>169</sup> Info-Tech Senior Research Analyst, Carmi Levy, as quoted in tmcnet.com 26 May 2005 article on Microsoft VoIP strategy.

telephony services. Several Utelcos, including Telecom Ottawa, Hydro One Telecom Inc., Toronto Hydro Telecom Inc. and Enersource Telecom, offer LAN extension and managed WAN services.

122. In 2003, seven Ontario Utelcos formed a consortium and developed a services exchange agreement to provide customers with a single point of contact and common product set across the companies. The consortium has since expanded to 10 companies and now covers the majority of the province. The remaining Utelcos are expected to join by the end of 2005, allowing alliance members to offer province-wide coverage.<sup>170</sup> With the ability to offer services beyond their municipal boundaries, Utelcos are emerging as a force in the business telecommunication services markets.

### 3.3.8 Other

#### *BCS Global Networks*

123. BCS Global Networks Inc. "is in the business of providing IP videoconferencing and VOIP services to corporate customers throughout North America and Europe through channel partners including telecommunication, ISP's and other communication providers."<sup>171</sup> The chairman of BCS Global Networks' board of directors is Michael Kedar, who formed Call-Net Telecommunications Ltd. in 1986. BCS Global Networks offers several managed IP telephony packages under its IPCTone brand, which it advertises as a direct replacement for existing PBX, key system or Centrex phone service that eliminates the need to run two different networks for voice and data.<sup>172</sup> BCS Global Networks offers its services directly to business customers and also provides them on a wholesale basis to other service providers.

#### *Navigata*

124. Navigata Communications Ltd., which began operations as the telecommunications arm of BC Rail, is now a subsidiary of SaskTel. It was formed in 2002 following SaskTel's acquisition of RSL COM Canada. Navigata owns a network in British Columbia covering

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<sup>170</sup> *Network Letter*, Decima Reports Inc., 31 March 2005, Volume 25, Issue 6.

<sup>171</sup> BCS Global Networks 2004 MD&A, page 1, <http://www.sedar.com/csfsprod/data53/filings/00749015/00000001/k%3A%5CSedar%5Cfilings%5Clivework%5Cwkout%5C11248%5Cmnda.pdf>

<sup>172</sup> BCS Global Networks website, <http://www.bcsglobal.com/ipctone.html>

2,500 kilometres and operates a national network for its voice, data and Internet services with major hubs in Vancouver, Calgary and Toronto.<sup>173</sup> Navigata offers Ethernet WAN and IP VPN services, as well as its WebCall Category 2 VoIP service, launched in April 2004, which is available to residential and SOHO customers, as described above in Figure 16.

### *OneConnect*

125. OneConnect, a subsidiary of Toronto-based Globalive Communications Corp., which also includes Canada Payphone Corp. and Canopco among its affiliates, bills itself as "the first Independent Service Provider to offer hosted VoIP solutions to the Canadian Business Market"<sup>174</sup>. Its Virtual PBX service includes traditional voice calling features, but also includes features such as 'Click-to-Dial' and instant messaging that are unique to an IP platform. OneConnect began by serving business customers in the Toronto and Montréal regions,<sup>175</sup> but now offers its hosted VoIP services directly to business customers in Halifax, Vancouver and a number of Southern Ontario cities, as well as through partnerships with other firms.<sup>176</sup> One such partnership is with RAMTelecom, which began offering OneConnect's VoIP and IP multimedia solution over its satellite network in March to all regions in Canada.<sup>177</sup>

126. OneConnect describes itself as follows:

"OneConnect is the leading independent service provider delivering hosted VoIP to the Canadian business market. Built on the world-leading technology of Nortel Networks, OneConnect offers customers carrier-class communications solutions via a hosted and managed service that provides all the power of IP voice, video, data, collaboration and conferencing services in a single, converged platform."<sup>178</sup>

127. In March 2005, OneConnect announced that it was joining forces with Telecom Ottawa to deliver IP multimedia communications services, making Telecom Ottawa the first Utelco in Canada to offer VoIP services to its customers.<sup>179</sup> Telecom Ottawa claims to operate the largest 10 Gigabit metropolitan-wide network in North America, with more than 600 kilometres of

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<sup>173</sup> Navigata website, <http://www.navigata.ca/en/about-us/our-network/>

<sup>174</sup> OneConnect website, <http://www.oneconnect.ca/>

<sup>175</sup> OneConnect fact sheet, <http://www.oneconnect.ca/en/collateral/factsheet.pdf>

<sup>176</sup> *More VoIP options for Eastern Ontario*, itWorldCanada.com article, 31 March 2005.

<sup>177</sup> OneConnect / RAMTelecom news release, 29 March 2005, <http://www.newswire.ca/en/releases/archive/March2005/29/c9069.html>

<sup>178</sup> OneConnect / Telecom Ottawa news release, 23 March 2005, <http://www.oneconnect.ca/en/newsevents/pressreleases/pressrelease.2005-03-23.pdf>

<sup>179</sup> OneConnect / Telecom Ottawa news release, 23 March 2005, <http://www.oneconnect.ca/en/newsevents/pressreleases/pressrelease.2005-03-23.pdf>

fibre optic cable. Telecom Ottawa provides its services, which include Internet access and LAN/WAN access as well as its VoIP packages, to businesses and public sector organizations across Eastern Ontario. Telecom Ottawa's VoIP packages are also available to customers in Cornwall and Peterborough through its Trytel Cornwall and Trytel Peterborough divisions.

### *Shift Networks*

128. Shift Networks is based in Calgary and describes itself as "one of Canada's leading providers of hosted Voice over IP phone services for business".<sup>180</sup> It currently provides its hosted multi-line telephone services to small and medium business users in Calgary and Edmonton. Shift Networks recently announced that its customer base had surpassed 1,000 subscribers "due to continued accelerating quarterly growth."<sup>181</sup> It defines its target market as businesses with fewer than 100 employees. Based on Statistics Canada data, IDC estimates that nationally companies in this category made up 97.7% of all Canadian businesses in 2004.<sup>182</sup> In Alberta, there are over 135,000 customers in Shift Networks' chosen target market.<sup>183</sup>

### *Vianet*

129. Vianet Internet Solutions is an Ontario-based company that has been operating since 1995 with 25 POPs in North, Eastern and Central Ontario. Vianet offers a VoIP-based hosted PBX solution for SMB customers in the communities of Sudbury, North Bay and Huntsville, the areas where its ExaTEL division currently has local network interconnections with Bell Canada. Prices start at \$100 per month for four phone lines/extensions.<sup>184</sup> Vianet also advertises that it offers VPN solutions. ExaTEL, which focuses on providing next generation voice services in smaller communities, is currently negotiating interconnection agreements in Parry Sound, Marathon and other communities.

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<sup>180</sup> Shift Network news release, 16 May 2005.

<sup>181</sup> Shift Network news release, 6 July 2005.

<sup>182</sup> L. Surtees et al, *Canadian SME Telecom 2004: Usage & Preferences Survey and Forecast*, IDC, November 2004, page 1.

<sup>183</sup> L. Surtees et al, *Canadian SME Telecom 2004: Usage & Preferences Survey and Forecast*, IDC, November 2004, page 3.

<sup>184</sup> Vianet website, [http://www.vianet.ca/bus\\_voice\\_services.php](http://www.vianet.ca/bus_voice_services.php)

### 3.4 Competitive Intensity

130. As already demonstrated in section 2.3, there is evidence of intense competition in the residential market segment. The factors leading to this conclusion are identical for Category 2 VoIP services being offered to business customers. Market conditions also suggest a very high level of competition for Category 4 VoIP services.

131. In its submission in the CRTC's 2004 proceeding on pricing safeguards, the Coalition for Competitive Telecommunications (the Coalition), representing eight industry associations which collectively represent the interests of approximately 12,500 business entities across Canada, spoke of the vigorously competitive nature of the market for business services including for local access services:

"Business telecommunications users rely on innovative and cost-effective telecommunications services as an increasingly critical input to the conduct and management of their businesses. They have benefited from a decade or more of vigorous competition in the business telecommunications market in Canada and, as such, they have a direct interest in the outcome of this proceeding."<sup>185</sup>

"Competition is intense in the business telecommunications market across virtually every category of business telecommunications services. Spending by Canadian business customers is well distributed among competing suppliers. The competitors are sustaining market share and/or rates of growth in all sub-markets of the business telecommunications market, including that for business local access services. From the perspective of customers, there is, in fact, no evidence that competition is dwindling in the business telecommunications market."<sup>186</sup>

132. The experience of Coalition members is that, usually, three to five service providers will bid on any given large national contract:

"...the market for the provision of telecommunications services required by business customers, and in particular, large account customers, is highly competitive. Due to the relatively large dollar value of contracts to provide services to such customers, competition for these contracts among telecommunications service providers is intense. They are also commonly subject to a bid tender process, in which the customer's requirements, the terms of the competitive bidding process and the criteria by which the winning bidder will be selected are established. As indicated by the experience of the members

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<sup>185</sup> The Coalition's 30 January 2004 submission in Public Notice 2003-10, Executive Summary, paragraph 2.

<sup>186</sup> The Coalition's 30 January 2004 submission in Public Notice 2003-10, Executive Summary, paragraph 5.

of the Coalition, usually, three to five service providers will bid on any given large national contract."<sup>187</sup>

133. In its submission in the CRTC's VoIP proceeding (Public Notice 2004-2), the Coalition noted the vigorous state of competition for VoIP services in the Canadian business market and the beneficial effect this has for customers.

"It is clear to Canadian business consumers of telecommunications services that VoIP, in a variety of forms, is rolling out across Canada and is currently being offered to business and residence customers prior to any regulatory framework having been established by the Commission. That this rollout is now well underway demonstrates that, among other things, there is no barrier to entry into this particular market. Vonage and Primus Canada have launched their services across Canada. Neither of these companies owns its own underlying telecommunications transmission network. Nevertheless, they have been able to proceed with their service rollout. There are also other VoIP service providers, such as Skype, which offer services to Canada from locations outside of Canada.

VoIP service innovation is progressing at an impressive pace. On June 14 [2004], within hours of each other, three major providers, Primus, Telus and Bell Canada, announced new VoIP service enhancements for business customers. Business users of telecommunications services welcome the choice, innovation and responsiveness that the VoIP services market is clearly delivering even in its nascent stages of commercial development."<sup>188</sup>

134. Since the Coalition prepared these submissions, competition has intensified even further as additional VoIP alternatives have become available in the business market. As has been the case in the residential market, many more service providers are now offering VoIP alternatives to business customers and customer acceptance of VoIP alternatives has increased, especially among larger organizations where IP-PBX solutions are starting to displace traditional PBXs. Analysts anticipate that the appeal of managed IP telephony services will increase as medium-sized organizations switch to VoIP alternatives in larger numbers.

135. *No dominant supplier* – No service provider is dominant in the supply of managed IP telephony services. The enabling technology is so new that, as was the case when wireless services first emerged on a commercial basis in the Canadian marketplace, all service providers are still in start-up mode. Access-independent managed IP telephony services (Category 4 VoIP services) can be provided over a customer's own LAN/WAN network access facilities,

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<sup>187</sup> The Coalition's 30 January 2004 submission in Public Notice 2003-10, paragraph 23.

<sup>188</sup> The Coalition's 18 June 2004 submission in Public Notice 2004-2, paragraphs 20 and 21.

including IP VPNs and wireless LAN (WLAN) facilities. They do not require that the customer subscribe to any traditional telecommunications service.

136. *Availability of substitutes* – As demonstrated in sections 3.2 and 3.3, there are many service providers offering managed IP telephony services or managed IP-PBX solutions, which are direct substitutes for one another. Category 2 VoIP services may also be viable substitutes for some business customers and when the cable companies, as expected, begin to target business customers with their cable telephony service offerings, they too will be direct substitutes for managed IP telephony services. There are also numerous other alternatives available for the basic communications functionality provided by Category 2 VoIP business services and managed IP telephony services, including local business exchange access lines and Centrex locals. Wireless services can also substitute for many aspects of Category 2 VoIP or managed IP telephony services. Self supply is also a viable alternative for many business customers, as the Coalition noted in its reply comments in the PN 2004-2 proceeding.

"However, business customers, likely more than residential customers, have an additional option which ensures that their interests will continue to be met and that they will not be dominated by any service provider. More specifically, many business customers have already provisioned inter-office private networks and high-speed access. Thus, they are able to (and in many cases already do) self-provide VoIP services interconnected to the PSTN. During the public consultation, the Commission heard directly from one of the Coalition's representatives how post-secondary institutions in Quebec have implemented VoIP over their high-speed network. The underlying network elements required for such self-provision of VoIP are readily available from multiple carriers and, in most cases, have also been forborne by the Commission (e.g. WAN services; intercity, high-speed digital trunks; retail Internet access). Thus, lest any party or the Commission express a concern that any carrier may be dominant in the VoIP services market and able to exploit users, it should be noted that business customers already have a large and growing number of supply options for VoIP services and also have the option of self-provision of such interconnected VoIP services."<sup>189</sup> (footnote omitted)

137. *Low barriers to entry* – For the same reasons as discussed in section 2.3 for residential services, barriers to entry are much lower for entrants offering VoIP service alternatives than is the case for traditional wireline telecommunications services. For access-independent services, including managed IP telephony services, the barriers to entry are particularly low, since service

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<sup>189</sup> The Coalition's 13 October 2004 reply comments in Public Notice 2004-2, paragraph 12.

providers can leverage existing networks and customer access points, including customers' own private network facilities as noted by the Coalition.

138. *Innovation and technical change* – As is the case for VoIP packages targeted to residential customers, business VoIP service alternatives are able to offer service features and capabilities that are typically not available with traditional fixed line or wireless voice service offerings. A sample of these capabilities is provided below:

- Choice of area codes and multiple phone numbers for the same telephone –business customers could have a "virtual" presence in several different cities across the country, or even around the world, by subscribing to phone numbers in different locations, making it appear to their clients as though they were situated locally.
- Free in-network calling – customers can minimize or even eliminate long distance charges between sites on their corporate networks.
- Portability – customers can access their corporate networks from any high-speed Internet access anywhere in the world.
- Integrated messaging – allows customers to route their voice messages to their e-mail account.
- Web Portal access – allows customers to view call logs (inbound, outbound, missed calls), manage their calling features and control personal and corporate directories online.
- Converged voice, data and video – because managed IP telephony services utilize a company's LAN/WAN facilities, customers do not need to run separate networks for their voice and data applications.

139. *Rivalrous behaviour* – vigorous and aggressive marketing activities are a key indicator of rivalrous behaviour. The target customers for the Companies' Category 4 services – medium and large businesses – are receiving aggressive marketing proposals by many companies to switch to IP voice solutions. These include the major IP-PBX vendors listed in section 3.2. Cisco is the largest of these and one of the largest communications equipment manufacturers in the world. It already supplies communications gear, such as routers, to many of the medium and large businesses in Canada and is strongly promoting the benefits of IP voice to this customer base. Avaya, which ranks second to Cisco in North America, is also actively marketing IP-based telephony solutions to Canadian business customers. Other large

equipment manufacturers have also developed IP voice equipment to compete with these two giants and are actively marketing these to business users. Competitive managed IP telephony services are also being provided out of territory by both Bell Canada and TELUS, as well as by MTS Allstream. Independent service providers, such as OneConnect and BCS Global Networks, are also providing managed IP telephony solutions.

140. Another indicator of rivalrous behaviour is declining prices. It has become apparent that price in the broadest sense, which includes both capital and operating costs, has become a key driver for medium and large customers in assessing whether to convert to an IP voice solution. If customers can reduce their overall cost of ownership of a communications solution, which is one of the main promises of IP voice, they have a strong incentive to make the switch. Cisco has advertised that 17 Canadian municipalities have deployed its IP Communications system, resulting in significant savings. For example, it noted that the City of Mississauga, Ontario which converted from Bell Canada's Centrex service, estimated annual savings of \$700,000, while the City of Penticton, B.C. reported annual savings of \$48,000 in building-to-building telecommunications costs.<sup>190</sup> Avaya has also announced significant savings for its customers, for example, it noted that the Edmonton Airport Authority was saving \$200,000 per year on service charges for phone line moves, adds and changes, alone.<sup>191</sup>

141. Rivalrous behaviour also includes "...an expanding scope of activities by competitors in terms of products, services and geographic boundaries".<sup>192</sup> Given the recent emergence of VoIP technology, the mere presence of competitors offering VoIP service alternatives confirms that this is a characteristic of the market. Equipment vendors, telephone companies, systems integrators and others, have all embraced the technology and are extending their newly developed service alternatives to Canadians.

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<sup>190</sup> Cisco news release, 14 April 2005, [http://newsroom.cisco.com/dlls/2005/prod\\_041405.html](http://newsroom.cisco.com/dlls/2005/prod_041405.html)

<sup>191</sup> Avaya news release, 19 April 2005, <http://www.avaya.com/gcm/master-usa/en-us/corporate/pressroom/pressreleases/2005/pr050419a.htm>

<sup>192</sup> Decision 97-19, paragraph 54.