Canadian Radio-television and Telecommunications Commission

Conseil de la radiodiffusion et des télécommunications canadiennes

Report to the Governor in Council

Status of Competition in Canadian Telecommunications Markets

Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services

November 2003

Canada

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Conseil de la radiodiffusion et des télécommunications canadiennes

Canadian Radio-television and Telecommunications Commission

Les Terrasses de la Chaudière
1, Promenade du Portage
Hull (Québec)
K1A 0N2

Président / Chairman

27 November 2003

The Honourable Allan Rock, P.C., M.P.
Minister of Industry
235 Queen Street
11th Floor – East Tower
Ottawa, Ontario
K1A 0H5

Dear Minister Rock:

I have the honour to present to you, in accordance with Order in Council P.C. 2000-1053, the third report of the Canadian Radio-television and Telecommunications Commission addressing the Status of Competition in Canadian Telecommunications Markets and the Deployment and Accessibility of Advanced Telecommunications Infrastructure and Services.

Sincerely,

Charles M. Dalfen

Canada

Executive Summary

This is the third annual report to the Governor in Council with respect to the status of competition in Canadian telecommunications markets and on the deployment and accessibility of advanced telecommunications infrastructure and services.

Industry Overview

Telecommunications services continue to play an increasingly important role in the Canadian economy and in the daily lives of all Canadians, regardless of their socio-economic status. In 2002, total telecommunications service revenues of the Canadian industry were approximately $32.2 billion, slightly less than a 1% increase over the previous year. The industry's share of Canada's real gross domestic product continued to increase from 2.5% in 2001 to 2.7% in 2002.

Canadians are increasingly demanding more from their telecommunications service providers and shifting their consumption of these services accordingly. Although local revenues and number of lines declined in 2002, wireless and high-speed Internet revenues and number of subscribers continued to experience double digit growth. Canadians have choices in how they wish to communicate based on their individual requirements and preferences. Currently, there is greater choice available to individuals living in the more densely populated areas of the country, especially with respect to local service.

The year 2002 was difficult for many telecommunications companies, particularly competitors. It was the first year in which, following restructuring which saw the elimination of approximately $8.3 billion in long-term debt and $4.6 billion in write-downs and restructuring costs, companies implemented new or revised business plans. All telecommunications companies were more selective when deploying resources. To minimize risk, strategic alliances or partnerships are being developed that compliment the various strengths of the parties.

Capital expenditures, excluding the 2001 Industry Canada spectrum auction, declined approximately 25% in 2002. The telecommunications industry capital expenditures declined from 4.6% of the total economy-wide capital expenditure in 2001 to 3.5% in 2002.

Resolution of access issues related to rights-of-way support structures and multi-dwelling units (MDUs) is key to facilities-based competition. Recently, the courts upheld the Canadian Radio-television and Telecommunications Commission's (CRTC's) decision related to municipal rights-of-way. However, the courts overturned the CRTC's decision on access by cable companies to support structures of certain municipal and provincial utilities. As well, the CRTC's recent MDU decision[1], which established conditions and principles for the provision of telecommunications services to customers in MDUs, is before the courts.

[1] *Provision of telecommunications services to customers in multi-dwelling units*, Telecom Decision CRTC 2003-45, 30 June 2003 (Decision 2003-45).

Long Distance

In the long distance market, revenues continued to decline, decreasing from $6.6 billion to $6.5 billion in 2002, a 2.8% decline. The number of long distance minutes, however, grew in 2002 by 3.5% when compared to the previous year. The competitors' share of long distance retail revenues declined slightly from 27.3% in 2001 to 26.7% in 2002. However, competitors gained revenue market share in the residential retail market, from 19% in 2001 to 20% in 2002, due in large part to competitor growth in pre-paid calling card and 'dial around' services.

Local and Access

In the local wireline market, which continued to be the largest segment accounting for over 30% of the industry's telecommunications revenues, local revenues and the number of lines declined in 2002 by 9.3% and 2.4%, respectively, when compared to the previous year. Approximately 75% of the decline in local revenues is due to the reduction in contribution revenues. Overall, local wireline competitors made little progress, as the incumbents continued to hold over 95% of both local revenues (excluding contribution) and lines in 2002. Competition in this market was primarily confined to the urban centres. Competitors did make some small gains in market share, particularly in the business segment. In various larger urban areas, competitors generally had between 10% and 20% of local business lines and between 1% and 13% of local residential lines.

Local wireline competitors continued to rely heavily on the incumbents' facilities and services in order to serve their customers, spending on average approximately $0.78 in 2002 on these services for every local revenue dollar earned.

Internet and Broadband Deployment

The Internet access market continued to be the fastest growing market in the industry in terms of revenue percent growth (27%). The incumbent telephone companies had 41% of the retail Internet access revenues in 2002, while the cable companies had 35% and all others had 23%. The four largest Internet service providers accounted for 51% of the retail Internet revenues in 2002.

Broadband deployment continued to progress, with approximately 85% of Canadians living in communities that are served by high-speed Internet access. However, the majority (80%) of the rural communities remained unserved. By the end of 2002, more Canadian households had Internet subscriptions (51%) than those that did not. Also, for the first time, there were more high-speed Internet households (28%) than there were households with dial-up subscriptions (24%). Public funding to help seed private sector investment was also available at both the federal and provincial levels based on a variety of funding models, as discussed in the report.

Mobile

The mobile market continued to be very competitive. The mobile share of the telecommunications revenues continued to increase, growing from 21% of total industry revenues in 2001 to 23% in 2002. Total mobile revenues increased by 11% in 2002 compared to 16% in 2001. Four major mobile entities accounted for over 99% of the mobile market, with no entity dominating in terms of either revenues or subscribers. After several years of decline, the average monthly revenues per subscriber in 2002 stabilized at $48.

Data and Private Line

In the data and private line market, total revenues in 2002 increased by approximately 1.6% over the previous year. However, the competitors' market share in this segment declined slightly in 2002 to approximately 20%. The industry is introducing new data services to meet customer requirements for increased speed, functionality and cost efficiency. Companies appear to be targeting these newer data services such as Ethernet and Internet Protocol (IP) based Virtual Private Network (VPN).

Consumer Survey

From the results of the CRTC's commissioned consumer survey, Canadians generally (91%) feel that they are somewhat or well informed about competitive alternatives in local, long distance, wireless and Internet services. Overall, most Canadians (72%) believe that they have benefited from the availability of competition. The top three factors affecting choice of local service provider are price (58%), quality of service (45%) and reliability (e.g., being able to access 9-1-1, directory assistance, etc.) (31%). Most (79%) were aware of the ability to make voice calls over the Internet, but only a small number (18%) actually used the Internet to make such calls.

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1.0 Introduction

1.1 Purpose of the Report

This is the third annual report of the CRTC on the status of competition in Canadian telecommunications markets and the deployment and accessibility of broadband services and facilities across the country.[2]

The report has been prepared in response to the Governor in Council's June 2000 Direction which:

> (a) requires the Commission to submit, once in each year for the next five years, a report to the Governor in Council on the status of competition in Canadian telecommunications markets and on the deployment and accessibility of advanced telecommunications infrastructure and services in urban and rural areas in all regions of Canada,
>
> (b) requires that the report include
>
> > (i) an examination of promising means for accelerating private sector investment in rural broadband infrastructure, such as initiatives to aggregate local demand for advanced telecommunications services, and
> >
> > (ii) relevant data and analyses.[3]

The information gathered as part of its monitoring activities enables the CRTC to determine more effectively (a) the state of competition, (b) the effect of competition on services to consumers and business customers, and (c) service providers' compliance with legal and regulatory requirements. This report, therefore, represents a key component of the CRTC's ongoing monitoring plan. It also becomes an authoritative source of information on the Canadian telecommunications industry for use by various stakeholders.

In addition to companies that are primarily involved in the provision of telecommunications services, the scope of this report includes broadcast distribution undertakings (e.g., cable companies) that provide telecommunications services such as Internet access or other telecommunications services, either directly or indirectly, through affiliated companies. For the purposes of this report, only telecommunications services and operations are taken into account in the case of cable companies[4] as well as other companies whose primary line of business lies outside of telecommunications (e.g., as in the case of utility companies involved in the provision of telecommunications services).

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2 The first and second reports on the *Status of Competition in Canadian Telecommunications Markets - Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services* were issued in September 2001 and December 2002, respectively.

3 Order in Council P.C. 2000-1053, June 26, 2000 issued pursuant to Section 14 of the *Telecommunications Act*.

4 The CRTC's annual *Broadcasting Policy Monitoring Report* provides more comprehensive data on broadcasting distribution undertakings as well as radio and television broadcasters, and Internet use in Canada.

1.2 Scope and Outline of the Report

This report is based in large part on the responses to the CRTC's telecommunications industry data collection forms for 2002 and 2003 (referenced as "CRTC Data Collection"), internal analyses, as well as on data collected from other sources, including Statistics Canada, Industry Canada, company-specific financial reports and information previously filed with the CRTC.

Most firms providing one or more telecommunications products and services were required to complete the 2003 telecommunications industry data collection forms. Separate forms were required for each legal entity providing any such services on 31 December 2002. Where a legal entity in existence on 31 December 2002 was formed through a merger of predecessor companies, survey responses were provided on a consolidated basis for all predecessor companies.

The 2003 CRTC Data Collection forms encompassed a range of company-specific information, including financial data (e.g., income statement, balance sheet and capital expenditures) along with detailed telecommunications information focusing on product and geographic market information. Geographic markets were defined on a national, provincial/territorial, regional, city or (for mapping purposes) postal code basis. Data was primarily collected for 2002.

Certain figures, published in prior years' monitoring reports, have been restated to a basis consistent with 2002 figures. These amounts have been identified by means of a number sign (#). Other figures have changed as a result of some companies resubmitting prior years' data. In addition, certain data have been reclassified to better reflect the market segments.

Some of the tables and figures included in the report are derived from the CRTC Data Collection while others are derived using Statistics Canada information. These two data sources are not always consistent, given that the universe surveyed, the definitions used and the level of precision requested are different between the CRTC and Statistics Canada. For each table and figure contained in the report, the data source is identified.

Each reporting entity was assigned a separate company type and sub-type classification, which reflect historical legacies (e.g., incumbent in a specific industry prior to competition) and whether the company owns facilities (e.g., facilities-based or reseller). Where operating entities are part of a larger corporate family (defined as direct or indirect ownership above 50%), the longer historical legacy supersedes other classifications.

The following classifications and sub-classifications have been adopted for the purpose of this report:

i) Incumbent telephone companies

   a) large incumbent carriers
   b) small incumbent carriers

ii) Competitive service providers

a) facilities-based competitive service providers
b) resellers/payphone service providers
c) cable service providers
d) utility telcos

The CRTC also commissioned Ipsos-Reid to conduct a survey to assess consumer behaviour towards, and perceptions and awareness of, telecommunications services. Objectives of the survey included the measurement of awareness of the level of telecommunications services including competitive alternatives in local, long distance, wireless and Internet services. The survey also examined whether there are differences in the awareness levels of consumers who live in urban versus rural communities, and explored the factors which motivate or impede a consumer's choice of service provider.

This report is divided into the following additional sections and appendices:

- Section 2 discusses the role of market information in monitoring progress and changes within the industry.

- Section 3 provides an overview of the telecommunications industry and regulation, as well as an overall review of service providers in the market.

- Section 4 provides a review of financial information, including revenue, capital expenditures and other operational data for various sectors of the industry. It also examines the status of competition in each of the major market segments, including long distance, local, Internet and broadband, mobile, and data and private line.

- Section 5 reviews the promising means for accelerating broadband deployment to rural and remote areas of the country.

- Section 6 provides information on residential consumers and business customers, including the results of the consumer survey commissioned by the CRTC.

- Appendix 1 contains a summary of Canadian telecommunications milestones to competition.

- Appendix 2 contains a summary of Canadian telecommunications markets subject to forbearance rulings.

- Appendix 3 provides a summary of certain recent CRTC rulings relevant to telecommunications competition.

- Appendix 4 provides a brief description of the major market participants.

- Appendix 5 contains a glossary of terms and acronyms used in this report.

Starting with the 2004 Monitoring Report, the Commission intends to introduce a new system for data collection. It is expected to be a web-centric module designed to support the Government On-Line (GOL) initiative, help improve the quality of the data collected and reduce the overall effort required to generate the monitoring report. It is also expected that this system will provide users with an on-line means to validate their data and make any required revisions.

2.0 The Role of Market Information

2.1 Overview

The CRTC is largely responsible for the implementation of the *Telecommunications Act* (the Act). Certain of the objectives of the Act, set out in Section 7 of the Act, are directly or indirectly tied to the notion of competition. For example, Subsection 7(f) of the Act explicitly states that an objective is "to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective."

This report provides an overview on the status of competition in the various telecommunications market segments in Canada. This report, as well as its ongoing monitoring of the telecommunications industry, will assist the CRTC in its regulation of the industry.

The CRTC is not alone in preparing regular monitoring reports. The use of monitoring reports has gained favour elsewhere in the world as a means of tracking ongoing industry developments to determine whether regulatory and legislative objectives are being met. This is particularly true of countries that have moved to a more competitive regulatory framework in order to achieve market results that are most beneficial to customers.

2.2 Competition and Monitoring

There are a variety of means for measuring competition; however, good quality data is critical if the monitoring process is to be accurate and useful. For the most part, the CRTC uses its own data collection mechanisms in order to gather detailed and timely information.

There is no single or simple way of assessing the state of competition in a market. The CRTC uses key indicators in monitoring competition. These include (i) various measurements of market size and market share according to criteria, such as revenues, number of subscribers, lines and minutes, (ii) number and description of suppliers in the market, (iii) lists of available services, pricing levels and trends, and (iv) corporate financial conditions.

Specific elements of the monitoring exercise may need to change over time to take into account significant market developments, such as new technologies, changes in domestic or international regulations or agreements, or the introduction of new services. Adaptability ensures that monitoring reports continue to be useful tools for regulators, customers and industry players.

3.0 Overview of the Telecommunications Industry and Regulation

3.1 Regulatory Oversight of Canadian Telecommunications Markets

The Act, enacted in 1993, gives the CRTC a broad range of powers to implement the policy objectives set out in Section 7 of the Act, including the powers to ensure that rates are just and reasonable and that Canadian carriers do not discriminate unjustly or accord any undue preference with respect to the provision of telecommunications services.[5] In addition to regulating the rates, terms and conditions under which telecommunications services are provided, the CRTC has the power to forbear from the regulation of telecommunications services or classes of service where it finds, among other things, that there is sufficient competition to protect the interests of users.[6]

Industry Canada exercises powers relating to the allocation of radio spectrum under the *Radiocommunication Act*. Among other things, Industry Canada is responsible for developing spectrum allocation, spectrum utilization and service policies covering fixed and mobile terrestrial and non-terrestrial (i.e., satellite) wireless service applications. In this regard, it has the power to issue spectrum licences, either through an application process or a spectrum auction process.[7] As well, Industry Canada has pursued spectrum licensing strategies that have increased potential entry into the various segments of the wireless market. It may also set the terms and conditions for any such licences as it deems appropriate.

While the CRTC is responsible for the regulation and for establishing the terms and conditions of competition in the telecommunications industry as a whole, Industry Canada effectively determines the terms and conditions of entry in the wireless segment of the industry. Consequently, there is a shared responsibility for the regulation of the wireless portion of the telecommunications industry in Canada between the CRTC and Industry Canada.

3.2 The CRTC and Competition

In exercising its statutory powers both under predecessor legislation and the Act, the CRTC has gradually and in an orderly manner opened up monopoly-based markets to competition over the years. The CRTC's approach to opening up various market segments to competition is to weigh the potential advantages and disadvantages, and to strike a fair and reasonable balance between the often conflicting interests of all concerned, including incumbents, competitors and customers. The CRTC has strived to render reliable and affordable services of high quality, accessible to both urban and rural area customers, to foster facilities-based competition, to provide incumbents with incentives to increase efficiencies and be more innovative, and to adopt regulatory approaches that impose the minimum regulatory burden possible. The CRTC continues to remove obstacles to fair and sustainable competition, including eliminating barriers to access,

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5 Subsections 27(1) and 27(2) of the *Telecommunications Act.*

6 Section 34 of the *Telecommunications Act*.

7 Section 5 of the *Radiocommunication Act*.

and ensuring regulatory compliance. In addition, the CRTC maintains regulatory clarity through clear rules, clear determinations and the establishment of clear lines of communications. However, regulation is only a piece of the puzzle. Economic conditions are also an important part of the mix, as are technology development and the quality of business decision-making.

The CRTC has put in place a range of other measures to encourage the development of competition in the remaining regulated sectors of the industry. For instance, the CRTC Interconnection Steering Committee (CISC) process provides a forum for interested parties, with the assistance of CRTC staff, to resolve local competition implementation issues of a technological, operational or administrative nature.

CRTC staff also assists in resolving carrier disputes through mediation, which avoids the need for formal proceedings. In cases where a CRTC determination is required, this type of informal process enables the issues in dispute to be more narrowly defined and provides a means to obtain better information for an ultimate determination.

A summary of the most significant milestones in opening telecommunications markets to competition is contained in Appendix 1.

Appendix 2 provides a summary of the most significant forbearance rulings since the CRTC was granted this power in 1993. While the CRTC has forborne from the regulation of a growing number of services over time, a significant proportion of the incumbent telephone companies' telecommunications services remain subject to regulation. In the case of large incumbents [including Aliant Telecom Inc. (Aliant Telecom), Bell Canada, MTS Communications Inc. (MTS), Saskatchewan Telecommunications (SaskTel) and TELUS Communications Inc. (TELUS)], these services include residential basic local services, business single and multi-line local services, local options and features, payphone, digital network access, local channels and competitor services, among others. Starting in 1998, the regulation of these services (for all of these companies except SaskTel) changed fundamentally, shifting away from an earnings based to a price-level based form of regulation.[8] The first price regulation regime covered the period 1998 to 2002. It was recently reviewed and modified.[9] The new regime (which now also applies to SaskTel) became effective in June 2002 and extends through to 2006.

Non-forborne telecommunications services provided by Société en commandite Télébec (Télébec) and TELUS Communications (Québec) Inc. (TELUS Québec) were made subject to price cap regulation as of August 2002.[10] In addition, non-forborne services provided by small incumbent telephone companies were made subject to a simplified form of price regulation effective in January 2002.[11]

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8 *Price cap regulation and related issues*, Telecom Decision CRTC 97-9, 1 May 1997.

9 *Regulatory framework for second price cap period*, Telecom Decision CRTC 2002-34, 30 May 2002 (Decision 2002-34).

10 *Implementation of price regulation for Télébec and TELUS Québec*, Telecom Decision CRTC 2002-43, 31 July 2002 (Decision 2002-43).

11 *Regulatory framework for the small incumbent telephone companies*, Decision CRTC 2001-756, 14 December 2001 (Decision 2001-756).

The CRTC has also issued a number of recent rulings that further support the development of competition in the Canadian telecommunications industry. The most important recent rulings are summarized in Appendix 3.

3.3 Overview of the Telecommunications Services Industry

The Canadian telecommunications services industry plays a significant and an increasingly important role in the Canadian economy as a whole. The industry's share of Canada's real gross domestic product value added (GDP) was 2.7% in 2002.[12] The industry's share of GDP has grown steadily over the course of the last five years, increasing by roughly 42% since 1998 when telecommunications services accounted for 1.9% of the GDP. In comparison, the GDP for the overall economy has increased by only 15% since 1998.[13] Table 3.1 below illustrates this trend over the last five years.

Table 3.1
Telecommunications Services Industry Share of Canadian Economy-wide GDP[14]

Year	Share of Canadian Real GDP (Value Added) (Constant 1997$)
1998	1.9%
1999	2.0%
2000	2.3%
2001	2.5%
2002	2.7%

Source: Statistics Canada

Capital expenditures for telecommunications service providers also account for a significant portion of overall capital expenditures in the Canadian economy as a whole. Telecommunications industry capital expenditures reached 3.5% of total economy-wide capital expenditures in 2002[15], down from the 2001 level of 4.6%. Capital expenditures for the industry have declined in 2002 by 25%[16] due to factors such as the general state of the economy, internal company cost cutting measures, and the increased difficulty of obtaining financing at affordable rates.

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12 Industry Canada – Telecommunications Service in Canada: An Industry Overview.

13 Ibid.

14 The telecommunications services industry's share of Canadian economy-wide GDP (value added) in constant 1997 dollars provides a measure of its contribution to the economy. GDP by industry is a measure of the value added by an industry to the production of other industries through the use of its human and capital resources. This value can be expressed in current or constant dollars. The constant dollars estimate eliminates the effect of price change.

15 Industry Canada – Telecommunications Service in Canada: An Industry Overview.

16 CRTC Data Collection (Figure for 2001 excludes the spectrum auction to acquire new licences).

In 2002, the number of employees in the Canadian telecommunications services industry was approximately 118,700, representing 0.9% of total employees in the Canadian economy as a whole.[17] Employment in the industry increased by roughly 4.7% since 1998, when the total number employed in the industry was 113,400. However, while growing in recent years, the total number of employees in the industry in 2002 remained well below the 1991 level, which was just over 133,000. The trend in telecommunications services employee levels over the last five years is provided in Table 3.2.

Table 3.2
Telecommunications Services Employment
(Thousands)

Year	Employees
1998	113.4
1999	113.6
2000	116.0
2001	118.6
2002	118.7

Source: Statistics Canada

Telecommunications services revenues for all reporting entities completing the 2003 CRTC Data Collection forms were $32.2 billion in 2002.[18] This represents an increase of approximately 30% over the 1998 level of $24.9 billion. Table 3.3 provides a summary of total telecommunications services revenues for each of the five years.

Table 3.3
Total Telecommunications Services Revenues
($ billions)

Year	Total Telecommunications Services Revenues
1998	24.9
1999	26.0
2000	29.2
2001	32.0
2002	32.2

Source: CRTC Data Collection

3.4 Penetration Rates

Penetration rates provide a useful general indicator of the deployment of telecommunications networks and their usage within a country.

[17] Industry Canada – Telecommunications Service in Canada: An Industry Overview.

[18] Undercoverage estimates were used for the Internet market.

For the purposes of this report, penetration rates are measured using access per 100 households. Penetration rate data for Canada, including wireline, wireless and wireline and/or wireless covering the five-year period 1997 to 2001, are summarized below in Table 3.4.[19]
The rate of penetration of wireline and/or wireless has remained relatively constant over the years 1997 to 2001. Wireline penetration has declined over the five-year period, and was at 97.4 access lines per 100 households in 2001. This is down from 98.2 in 1997. In contrast, wireless penetration has more than doubled over the five-year period, reaching 47.6 subscribers per 100 households as of 2001. The penetration rates in Table 3.4 indicate that 1.2% of Canadian households only have a wireless service in 2001, up from 0.2% in 1997.

Table 3.4
Canadian Penetration Rates
Wireline Access Lines and Wireless Subscribers
(per 100 households)

Year	Wireline	Wireless	Wireline and/or Wireless
1997	98.2	21.9	98.4
1998	98.1	26.2	98.5
1999	98.2	31.9	98.7
2000	97.7	41.8	98.8
2001	97.4	47.6	98.6

Source: Statistics Canada

3.5 Market Participants

For the purposes of this report, the telecommunications services providers are divided into the following categories:

i) *Incumbents* are the telephone companies that provided telecommunications services on a monopoly basis prior to the introduction of competition.

   a) *Large Incumbents* are those incumbents serving relatively large serving areas, usually including both rural and urban populations, and providing local, long distance, wireless, Internet, data, private line and other services. The large incumbent companies include Aliant Telecom, Bell Canada, MTS, SaskTel and TELUS, as well as Northwestel Inc. (Northwestel), Télébec, and TELUS Québec.

   b) *Small Incumbents* are those incumbents serving relatively small serving areas (mostly municipal areas generally located in less densely populated areas) in Ontario, Quebec and, in one instance, British Columbia. Due to the limited size of their serving areas, they typically do not provide facilities-based long distance services. However, they do provide a range of local voice, data, Internet and wireless services.

[19] 2002 Monitoring Report pursuant to Order CRTC 2000-393, 10 May 2000. Original data source: Statistics Canada.

The small incumbents include companies such as NorthernTel Limited Partnership and Thunder Bay Telephone.

ii) *Competitors* are providers of telecommunications services that are not incumbent telephone companies.

a) *Facilities-based competitive service providers* are those competitive service providers that own physical transmission facilities (e.g., inter-city, intra-city, or local). These service providers include such companies as Allstream Inc. (Allstream), Call-Net Enterprises Inc. (Call-Net), Microcell Telecommunications Inc. (Microcell), FCI Broadband (a division of Futureway Communications Inc.) and 360networks services ltd. and GT Group Telecom Services Corp. (Group Telecom) (collectively 360networks).

b) *Resellers* are non-facilities-based competitive service providers. These service providers include Primus Telecommunications Canada Inc., Distributel Communications Limited, YAK Communications (Canada) Inc., and hundreds of others, including independent Internet service providers (ISPs).

c) *Payphone service providers* are competitive service providers that provide public telecommunications services by way of pay telephones.

d) *Cable service providers* are the historical cable monopolies that also provide telecommunications services (e.g., Internet, wireless, voice). These cable service providers include such companies as Rogers Communications Inc. (Rogers), Shaw Communications Inc. (Shaw), Le Groupe Vidéotron ltée, Cogeco Inc. and EastLink.

e) *Utility telcos* are service providers whose market entry into telecommunications services, or whose corporate group's market entry into telecommunications services, was preceded by a group-member company's activity in the electricity, gas or other utility business. These service providers include such companies as Hydro One Telecom Inc., Toronto Hydro Telecom Inc. and FibreWired Network.

An overview of these categories is provided in Appendix 4.

Each of the reporting entities that completed the 2003 CRTC Data Collection forms was assigned to one of the above-noted categories. Certain categories of competitive service providers were combined, as separate reporting would have resulted in residual disclosure of confidential information. Also, certain figures and percentage growth calculations may not reconcile due to rounding.

Incumbent carriers' out-of-territory activities are captured within the various sections of the report. In the local and access section, the out-of-territory activities for the year 2002, for the most part, are identified separately from the incumbent and competitor data. Where data did not permit separate identification, the out-of–territory was included as part of the incumbent data. In

all other sections, where applicable, the out-of-territory activities are included as part of the incumbent data, due, in large part, to a lack of available data and to the determination that other markets, such as long distance, are considered to be national in scope.

A summary of total telecommunications services revenues in aggregate and by type of market participant for the five-year period 1998 to 2002 is provided in Table 3.5 below. As Table 3.5 demonstrates, the incumbents' share of the industry's total telecommunications services revenues decreased from 83.4% in 1998 to 75.3% in 2002.

Table 3.5
Total Telecommunications Services Revenues
by Type of Market Participant
($ millions)

	1998	1999	2000	2001	2002
Incumbent Carriers					
Large	20,502.1	20,825.7	22,760.2	24,829.7	23,960.8
Small	249.7	254.6	278.4	281.9	319.5
Sub-total	20,751.8	21,080.3	23,038.6	25,111.6	24,280.3
Competitors					
Facilities-based	2,652.1	2,995.4	3,562.7	3,739.8	3,660.0
Resellers	93.6	348.5	558.0	647.2	1,191.6
Cable Providers	1,385.2	1,617.2	2,037.7	2,448.4	3,009.2
Utility Telcos	0.0	0.1	5.6	31.2	104.5
Sub-total	4,130.9	4,961.2	6,164.0	6,866.6	7,965.3
Total	24,882.7	26,041.5	29,202.6	31,978.2	32,245.6

Source: CRTC Data Collection

4.0 Status of Competition

4.1 Financial Review of Markets

Highlights

- Telecommunications industry service revenues showed a marginal (0.9%) increase in 2002, a decline in wireline revenue (-2.1%), and slowing growth in wireless revenues (10.8%).
- Wireline incumbents continued to have the lion's share of wireline telecommunications service revenues (80%).
- Wireline competitors' earnings before interest, taxes depreciation and amortization (EBITDA) position continued to improve. Their share of wireline EBITDA was 7%, up from 3% in the previous year.
- Telecommunications industry capital expenditures decreased significantly (-25%) and major restructuring and write-downs continued.

Part A Telecommunications Revenues

Overview – Market Segment Revenues

Telecommunications revenues include revenues from both wireline and wireless service offerings. Wireline service revenues include local and access, long distance, data and private line and Internet service revenues, but exclude revenues from terminal sales and rentals. Wireless service revenues include mobile and paging service revenues as well as the terminal equipment revenues generated within this market segment.

Total telecommunications revenues, as displayed in Table 4.1, increased from $24.9 billion in 1998 to $32.2 billion in 2002, growing on average 6.8% annually. Wireline revenues, representing 76.7% of industry revenues in 2002, grew on average by 5.1% annually over the period 1998 to 2002, while wireless revenues increased from $4.6 billion to $7.5 billion, growing on average 13.2% annually over this period. Wireless revenues increased, as a proportion of total telecommunications revenues, from 18.5% in 1998 to 23.3% in 2002.

Table 4.1
Total Telecommunications Service Revenues[20]
($ billions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Wireline	20.3	21.0	23.4	25.2	24.7	*-2.1%*	*5.1%*
Wireless	4.6	5.0	5.8	6.8	7.5	*10.8%*	*13.2%*
Total	24.9	26.0	29.2	32.0	32.2	*0.9%*	*6.8%*

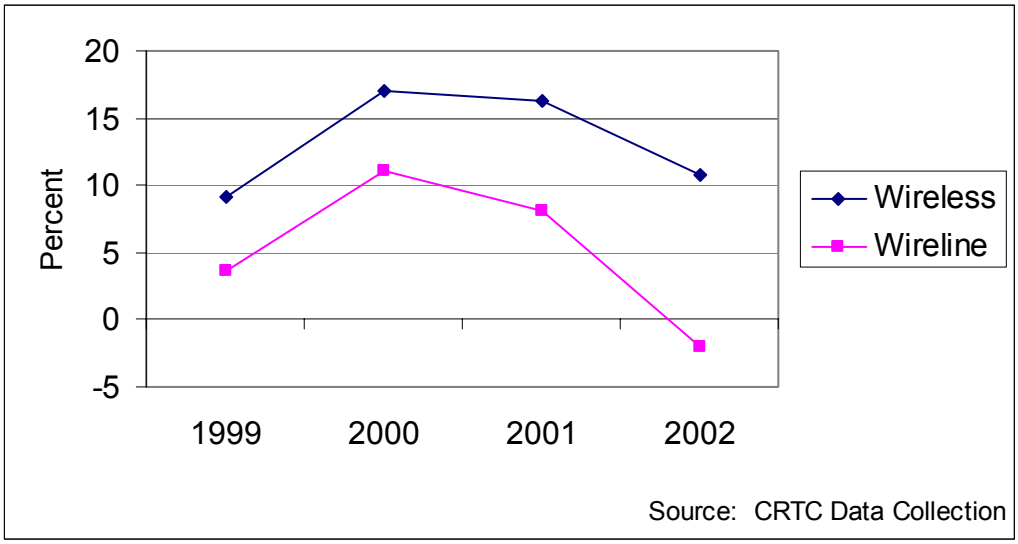
Source: CRTC Data Collection
Note: CAGR refers to Cummulative Annual Growth Rate

[20] Total Telecommunications Service Revenues consist of the telecommunications service revenues of all companies surveyed. Terminal equipment and other non-telecommunications revenues were excluded. As well, undercoverage estimates were used for the Internet market.

Since 2000, as illustrated below in Figure 4.1, telecommunications revenues in both the wireline and wireless market segments experienced declining growth rates. Wireline revenues dropped from a positive growth rate of 11.1% in 2000 to a negative growth rate of 2.1% in 2002. This decline was mainly the result of the decrease in contribution revenues, related to the universal subsidy fund, from $1 billion in 2001 to $0.25 billion in 2002[21], and the continued decline in long distance revenues of $0.18 billion over the same period. Wireline revenues, excluding contribution, increased 0.9% in 2002 down from 8.3% in the previous year.

Wireless revenue continued to experience strong, but slowing growth, declining from 17.0% in 2000 to 10.8% in 2002. This slowing revenue growth can be partially attributed to a slowing growth in subscribership.

Figure 4.1
Wireline and Wireless Annual Revenue Growth Rates (%)



In 2002, as displayed below in Table 4.2, total industry revenues increased marginally from $32.0 billion in 2001 to $32.2 billion in 2002. Within the wireline segment, both long distance and local and access revenues declined in 2002. Although long distance revenues continue to decline, the rate of negative growth slowed from roughly 6.0% in 2001 to 2.8% in 2002. After experiencing years of positive growth, local and access revenues had a negative growth of 9.3% in 2002. As stated above, approximately 75% or $750 million of the decline in local and access revenues was due to the reduction in contribution revenues. The further decrease in local and access revenues were also attributed in part to the use of wireless access as a substitute, the increased usage of high-speed Internet access, which obviates the need for a second line, and the

[21] Historically, the subsidy requirement was determined on the basis of an embedded costing approach. As of 2002, the subsidy requirement calculation was modified by using a forward-looking costing approach wherein the difference between the revenues and costs of providing primary exchange residential services in high-cost serving areas was used as the basis for determining the subsidy.

downturn in the economy, which impacted on the number of business lines required. These revenue declines were mostly offset by the continued strong growth in Internet revenues, 23.5% in 2002, and by the 1.6% increase in data and private line revenues.

In 2002, mobile and paging revenue continued its strong growth but at a lower rate of 10.8% compared to 16.3% in the previous year.

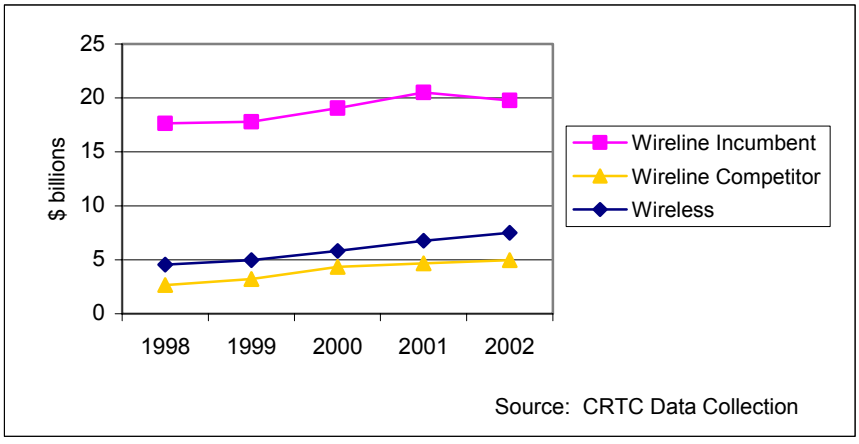
Table 4.2
Segmented Telecommunications Service Revenues[22]
($ billions)

	2001	2002	*Growth 2001-2002*
Wireline			
Long Distance	6.6 #	6.5	*-2.8%*
Local and access	11.0 #	10.0	*-9.3%*
Data and private line	4.9 #	5.0	*1.6%*
Internet	2.7 #	3.3	*23.5%*
Total Wireline	25.2	24.7	*-2.0%*
Mobile and Paging	6.8	7.5	*10.8%*
Total Industry	32.0	32.2	*0.9%*

Source: CRTC Data Collection

Telecommunications service providers may participate in any or all of the wireline market segments as well as in the wireless market. Figure 4.2 below displays Canadian telecommunications service revenues between 1998 and 2002 by service provider type. Incumbent affiliated wireless service providers are categorized as wireless.

Figure 4.2
Total Service Revenues by Provider Type



[22] Prior year amounts denoted by "#" have been restated to reflect new and/or updated information provided by survey respondents. Additionally, some prior year revenues have been reclassified within market segments to provide a consistent basis for comparison with the current year's data.

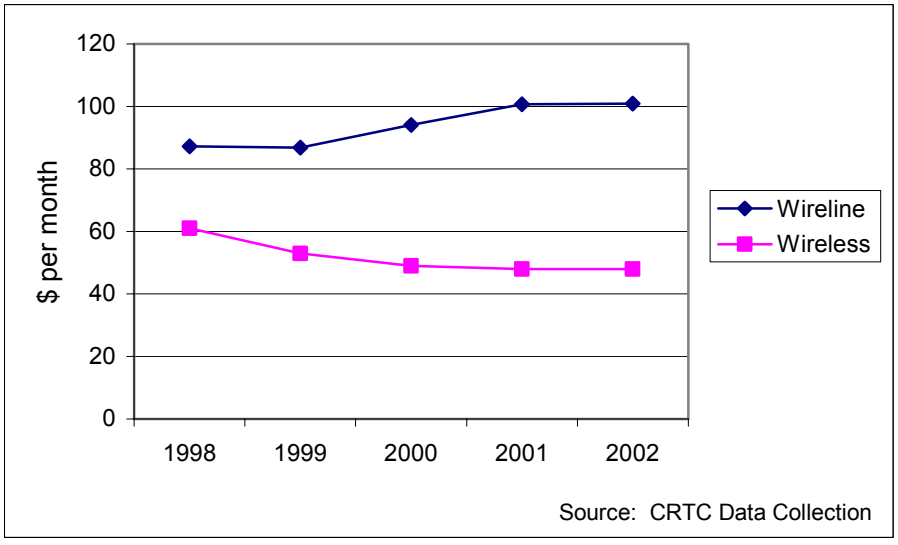
Incumbents' wireline service revenues increased from $17.6 billion in 1998 to $20.5 billion in 2001 before dipping to $19.8 billion in 2002, representing an average annual growth of 3.0%. The growth in the incumbents' wireline service revenues was dampened by the declining revenues in local and access, including contribution, and long distance services in 2002. Competitor wireline revenues increased from $2.6 billion in 1998 to $5.0 billion in 2002, growing, on average, 17.2% annually and by 5.9% in 2002. Wireless service providers experienced annual revenue growth over this period of 13.2%, increasing from $4.6 billion in 1998 to $7.5 billion in 2002.

The average revenue per line per month for wireline services, including contribution revenues, from 1998 to 2002 increased, on average, 3.7% per year from $87 per line per month in 1998 to $101 in 2001 and remained flat in 2002. The increase in revenue generated per customer reflects the increased number of value-added service offerings (e.g. optional features, Internet access) and bundles that customers purchase in addition to their traditional expenditures on local and long distance services.

During the same period, average revenue per subscriber per month for wireless services declined at an average annual rate of 5.8%, from $61 per subscriber per month in 1998 to $48 per subscriber per month in 2002. This $48 revenue per subscriber represents no change from one year ago and suggests that revenue per subscriber is stabilizing in the wireless industry as wireless providers are realizing additional revenues from new services provided over existing facilities.

A comparison of the average revenue per line/subscriber per month for both the wireline and wireless industry for the period 1998 to 2002 is displayed below, in Figure 4.3.

Figure 4.3
Average Monthly Revenue per Line/Subscriber



The local and access portion of the monthly revenue per line in 2002 for wireline service providers was roughly 40% of the total monthly revenue per line. The average retail local revenue per line per month in 2002 from residential and business customers who subscribed to competitors was $40.55 per month whereas those subscribing to incumbents was $41.28 per month. This difference in revenue may be attributed to competitors competing on price and to the perception that incumbents offer more services or more stability to customers.

Part B Key Financial Indicators[23]

The section below provides a broader indication of the state of the Canadian telecommunications industry than can be achieved through the study of service revenues alone. In addition to revenue, key indicators such as EBITDA and capital expenditures can be used to determine the financial state of the Canadian telecommunications industry.

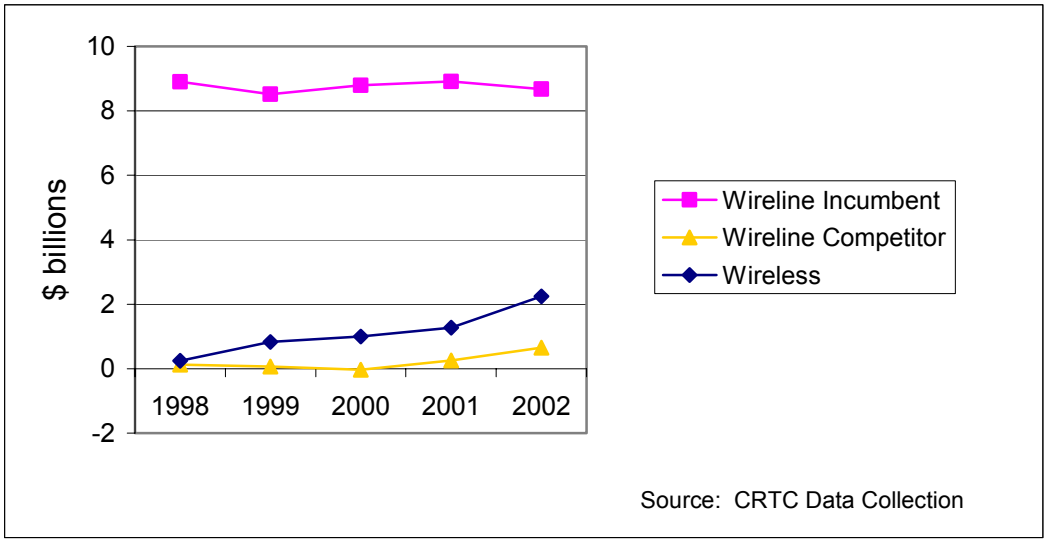
a) Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)

The EBITDA, prior to any unusual or extraordinary items, for the industry increased from $9.3 billion in 1998 to $11.6 billion in 2002, a 5.8% average annual growth rate. As shown below, in Figure 4.4, the wireline incumbents' EBITDA showed almost no change between 2001 and 2002, decreasing marginally from $8.9 billion in 2001 to $8.7 billion in 2002. The wireline competitors' EBITDA continued to display growth increasing from $0.3 billion in 2001 to $0.7 billion in 2002. The wireless service providers' EBITDA displayed strong growth increasing from $1.3 billion in 2001 to $2.2 billion in 2002.

Although wireline competitors and wireless service providers showed strong positive revenue growth rates between 2001 and 2002 of over 130% and 75% respectively, in 2002 their EBITDAs represented 6% and 19% respectively of the industry EBITDA.

[23] It is important to note that the universe surveyed for the calculation of these metrics differs slightly from the universe surveyed in the calculation of the Telecommunications Service Revenues calculated in Tables 4.1 and 4.2. Notably, companies whose primary source of revenue is not telecommunications service have been excluded entirely, as have providers who were unable to segment the key financial data related to the telecommunications portion of their operations.

Figure 4.4
EBITDA by Provider Type



Wireline competitors accounted for 16% of the total industry operating revenues and 6% of its EBITDA in 2002. This is a significant change from 2001 when these competitors held a 12% market share of revenues, but only 2.5% of the industry's EBITDA.

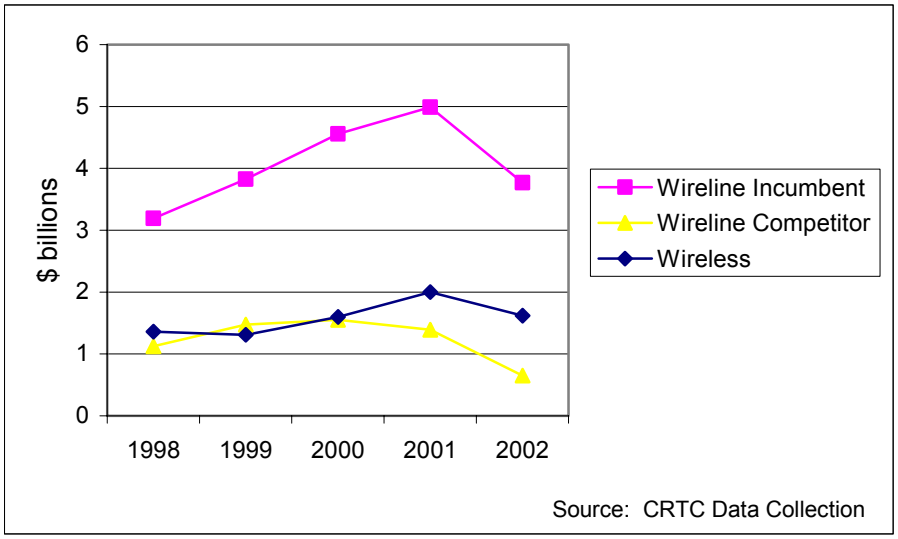
b) Telecommunications Expenditures

When provisioning service, entities may either build their own physical facilities (i.e., capital expenditures) and/or acquire access to the facilities of other carriers (i.e., inter-carrier expenses). The net telecommunications plant in service in 2002 was $35.0 billion; $29.3 billion or 83.7% by incumbents, including their wireless affiliates, and $5.7 billion or 16.3% by competitors.

Capital expenditures in the Canadian telecommunications industry from 1998 to 2002 are displayed below, in Figure 4.5, by type of service provider. Wireline incumbents steadily increased capital expenditures from $3.2 billion in 1998 to $5.0 billion in 2001. In 2002, the wireline incumbents sharply reduced capital expenditures to $4.0 billion, approximately equal to their 1999 capital expenditures. Wireline competitors started to reduce their expenditures in 2001 after peaking at $1.6 billion in 2000. Their capital expenditures of $1.4 billion in 2001 were further halved to $0.7 billion in 2002, approximately $0.5 billion less than expenditures in 1998. Wireless service providers also reduced their expenditures in 2002 to $1.6 billion from a peak of $2 billion in 2001.[24] Current indications are that the Canadian telecommunications industry spending on capital expenditures is continuing its downward trending in 2003.

[24] Excludes the 2001 spectrum auction to acquire new licences. The wireless industry spent approximately $1.5 billion acquiring 52 new spectrum licences from Industry Canada.

Figure 4.5
Capital Expenditure by Provider Type[25]

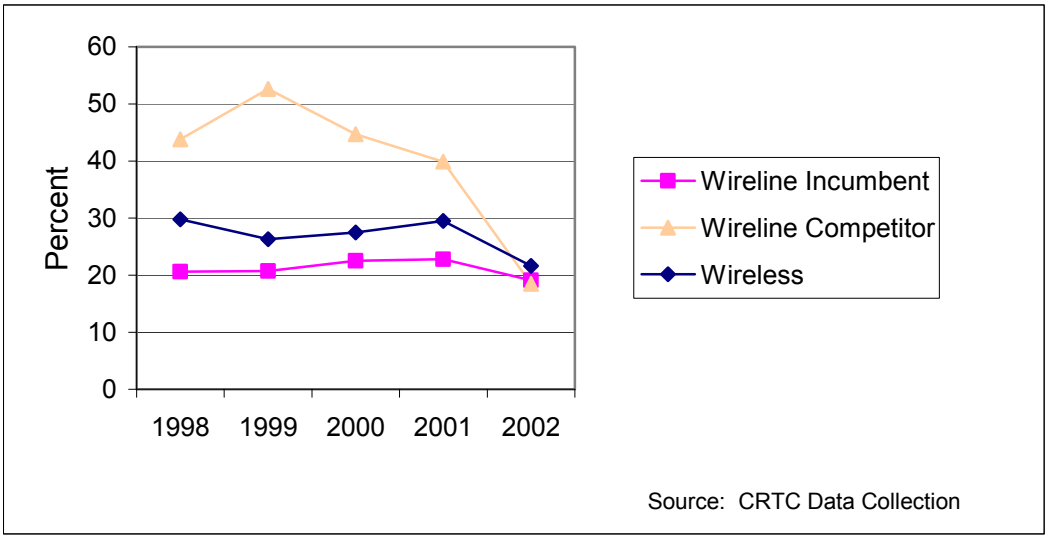


The extent of the reduction in Canadian telecommunications capital expenditure is displayed below in Figure 4.6 in which capital expenditure is calculated as a percentage of operating revenue. In 1999, capital expenditure as a percent of operating revenue ranged from 52.6% of operating revenue for wireline competitors to 20.7% for wireline incumbents. In 2002, the corresponding ratios shifted much lower, ranging from 18.5% for wireline competitors to 19.1% for wireline incumbents.

Of the three provider types, wireless providers invested the highest proportion, 21.6%, of their operating revenues in capital expenditures in 2002. From 1998 to 2001, wireline competitors maintained a high level of capital expenditures relative to their operating revenues. In 2002, they maintained the lowest level, dropping to 18.5% from 39.9% in the previous year. This reduction in capital expenditures stemmed in part, from the difficult environment competitors encountered in the capital markets and resulted, in part, in increased competitor reliance on other service providers in the provisioning of their services.

[25] Ibid.

Figure 4.6
Capital Expenditure per Revenue Dollar



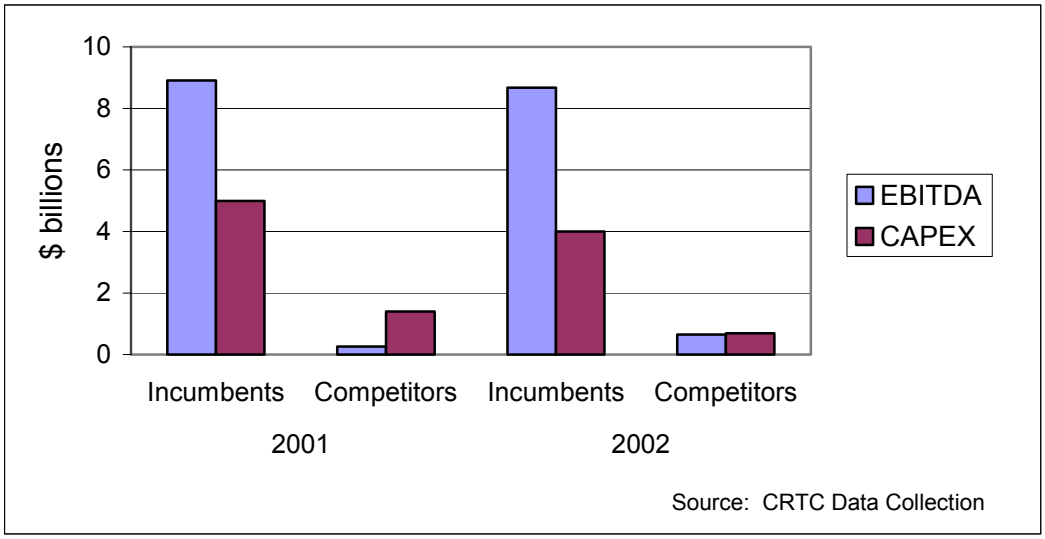
Capital expenditure per revenue dollar for the telecommunications industry does not differ significantly from the most recent information available for the Organisation for Economic Co-operation and Development (OECD) nations.[26] Ranking sixteenth out of the thirty members of the OECD, Canada like the United States, was among the majority of nations, spending between 20% and 30% of total operating revenues on capital expenditures during 2001. In 2002, the percentage decrease in capital expenditures by Canadian telecommunications companies was less severe in 2002 than the percentage decrease in capital expenditures by their American counterparts.[27]

Figure 4.7 below compares wireline incumbents' and wireline competitors' capital expenditures to their EBITDAs for the years 2001 and 2002. Wireline incumbents were generally able to rely more on internally generated funds to finance their capital expenditures. However, wireline competitors were less able to do so and had to rely on external financing to a greater extent.

[26] OECD Communications Outlook 2003, Table 4.15.

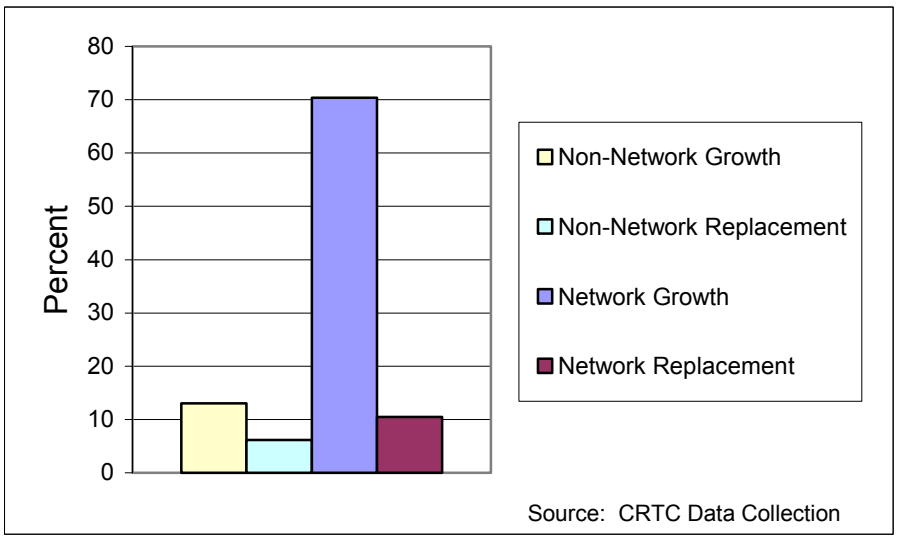
[27] Source: Merrill Lynch Telecom Services Research Global Telecom Weekly, 15 September 2003, Table 14.

Figure 4.7
Wireline EBITDA v. Wireline Capital Expenditures (CAPEX)



Capital expenditures can be categorized as network versus non-network and growth versus replacement related. In 2002, of the Canadian telecommunications industry's $5.4 billion network-related capital expenditures, $4.7 billion, or 87%, was devoted to network growth and $0.7 billion, or 13%, was devoted to network replacement. Categorized capital expenditures as a percentage of total capital expenditures are displayed below in Figure 4.8.

Figure 4.8
2002 Capital Expenditures by Category



c) Inter-carrier Payments

Inter-carrier payments are expenses incurred by service providers when acquiring services from other carriers for the provision of telecommunications services, either for use of facilities or for settlement charges between incumbent carriers. Examples of inter-carrier expenses include unbundled loops, direct connect, long distance settlement charges, Competitor Digital Network Access (CDNA), co-location, Interexchange Private Line (IXPL), Digital Network Access (DNA) and Centrex service. Total wireline inter-carrier expense in 2002 was approximately $4.1 billion. Excluding settlement charges, wireline inter-carrier expense in 2002 totalled $3.0 billion.

Table 4.3 displays inter-carrier expenses, excluding settlement, on a per revenue basis for incumbents and competitors in the wireline industry by market sector. A comparison of the incumbents inter-carrier expenses to the competitors reveals that competitors are much more dependent on inter-carrier services than incumbents across all of the market sectors except Internet. Competitors, including out-of-territory incumbents, are most dependent on these services in the provision of local service where they spend $0.78 for every local revenue dollar earned. On a total company basis, competitors are roughly four times more dependent on these services than are incumbents.

Table 4.3
2002 Inter-carrier Payments per Revenue Dollar
by Wireline Market Sector[28]

	Local	Long Distance	Data and Private Line	Internet	Total
Incumbents	n/a	8%	29%	21%	9%
Competitors	78%	30%	44%	12%	34%
Total	3%	14%	32%	18%	13%

Source: CRTC Data Collection

n/a Due to residual disclosure issues, these expenses have been combined with competitors' expenses. The incumbents' out-of-territory inter-carrier expense per revenue dollar does not differ significantly from that of competitors.

d) Write-downs/Restructuring[29]

The telecommunications industry in Canada continues to write-down property and equipment assets and to incur restructuring charges. In 2002, these were $3.3 billion and $1.3 billion, respectively. During 2002, competitors reported asset write-downs of $3.2 billion and restructuring costs of $150 million. Incumbents' reported asset write-downs in 2002 totalled $0.06 billion and restructuring costs, generally related to workforce reduction, totalled $1.2 billion.

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[28] Inter-carrier expenses do not include contribution payments.

[29] BCE's $7.5 billion write-off of Teleglobe has not been included in this section as it represents an investment write-off rather than a write-off of assets.

Large wireline competitors such as Allstream, Call-Net, Microcell, 360networks and Group Telecom sought protection under the *Companies' Creditors Arrangement Act* (CCAA) in 2002. The companies that recapitalized under CCAA and emerged from protection in 2002 or early 2003 were able to eliminate over $8.3 billion in long-term debt from their collective balance sheets.[30]

Summary

Revenues in the Canadian telecommunications industry increased marginally in 2002. Within the service segments, there was strong growth in retail Internet access (24%) and mobile (11%) service revenues that were mostly offset by declines in long distance (-3%) and local and access (-9%) revenues. Approximately 75% of the decline in local and access revenues was due to the reduction in contribution revenues. Increases in revenue per line for wireline service providers and decreases in revenue per subscriber for wireless service providers that occurred between 1999 and 2001 stabilized, as each of these metrics showed no change in 2002.

The wireline share of the telecommunications service revenues decreased slightly to 77% in 2002 from 79% in the previous year due to the strong growth of the wireless industry. The incumbents' share of the wireline revenues decreased from 81% in 2001 to 80% in 2002, while wireline competitors increased their share from 19% in 2001 to 20% in 2002.

The industry EBITDA increased in 2002 to $11.6 billion from $10.4 billion in the previous year as the industry realized the benefits of its restructuring activities. The wireline share of the industry EBITDA decreased from 88% in 2001 to 81% in 2002 as wireless increased its EBITDA from $1.27 billion in 2001 to $2.23 billion in 2002, a 75% increase compared to a 3% increase for wireline. The wireline incumbents' share of the wireline EBITDA declined slightly from 97% in 2001 to 93% in 2002; whereas the wireline competitors' share of the wireline EBITDA increased from 3% in 2001 to 7% in 2002. Although wireline competitors increased their revenues and EBITDA, the wireline incumbents continue to have the lion's share of the wireline revenues and EBITDA.

Wireless service providers, wireline incumbents and wireline competitors combined decreased their capital expenditures in 2002 by 25%. Wireline competitors experienced the greatest decline in capital expenditures as a percentage of their revenues. The decrease in the wireline competitor capital expenditures had the secondary impact of adding to their inter-carrier expenses, which, in 2002, were 34% of their total telecommunications revenues. The current indications are that the Canadian telecommunications industry's capital expenditures are further trending downward in 2003. The continued decline of capital investment may have a negative impact on future growth.

[30] Source: Company News Releases.

4.2 Long Distance

Highlights

- Long distance revenues continued to decline, down $0.18 billion to $6.5 billion in 2002.
- Competitors' share of long distance revenues remained relatively unchanged at 27%.
- Competitors' share of the domestic long distance revenue market declined from 21% in 2001 to 18% in 2002.
- Incumbents had 80% of residential long distance revenues, down from 81% in the previous year, and 62% of business long distance revenues in 2002, up from 60% in 2001.

Sector Description

a) Description of Services

The long distance market segment encompasses wireline voice traffic to a location outside the local service area. Toll services have traditionally been carried over the Public Switched Telephone Network (PSTN) and billed on a per minute usage basis. However, in recent years, various billing option plans were introduced that range from the traditional usage based billing, to plans that provide unlimited calling for a fixed monthly fee, to pre-paid services. As well, recent developments in Internet Protocol (IP) standards have resulted in some carriers beginning to use the IP network for the transmission of voice traffic.

b) Markets and Observations for 2002

Table 4.4 provides long distance revenues and minutes for the period 2000 to 2002. Revenues include retail revenues for traffic sold to the residential consumer and business customer, wholesale revenues for traffic sold to other service providers for the purposes of resale, and settlement revenues paid to another carrier for the transport of traffic outside a service provider's operating territory. Long distance minutes include both retail and wholesale minutes, but exclude minutes associated with settlement revenues.

Table 4.4[31]
Long Distance Market

	2000	2001	2002	*Growth 2001 - 2002*	*CAGR 2000 - 2002*
Revenues *($ millions)*	7,059 #	6,638 #	6,454	*-2.8%*	*-4.4%*
Minutes *(millions)*	50,515 #	52,608 #	54,440	*3.5%*	*3.8%*

Source: CRTC Data Collection

[31] Prior year amounts denoted by # have been restated to reflect new and/or updated information provided by survey respondents. Additionally, some prior year revenues have been reclassified within market segments to provide a consistent basis for comparison with the current year's data.

Table 4.5 provides the revenue components of long distance revenues for 2002. Retail revenues constitute 76% of total long distance revenues, while subscription plans and fees (fixed charges) make up 12% of retail revenues. Settlement revenues were approximately 72% of wholesale revenues and 17% of overall long distance revenues.

Table 4.5
2002 Long Distance Revenues by Component

	Retail		Wholesale		Total	
Item	$ millions	Percent	$ millions	Percent	$ millions	Percent
Usage Based	4,059	83	400	26	4,459	69
Fixed Charges	606	12	0	0	606	9
Settlement	0	0	1,088	72	1,088	17
Payphone	104	2	0	0	104	2
Other	158	3	38	2	196	3
Total	4,928	100	1,526	100	6,454	100

Source: CRTC Data Collection

c) Sector Participants

The market participants primarily include the large incumbent telephone companies, several facilities-based carriers providing both local and switched long distance services, and a variety of resale companies who resell long distance minutes typically purchased from either the incumbent or interexchange (IX) facilities-based carriers.

While retail long distance consumers pre-select their Primary IX Carrier (PIC) for long distance traffic, consumers also have the option of using alternative service providers to their designated PIC. This option is typically available through a dial-in access number to connect to the alternative service provider, followed by the phone number to the party being called. This form of long distance service is primarily provided via "10-10 Dial Around" service providers, or through pre-paid card long distance service. In 2002, revenues from these services constituted approximately 6% of retail long distance revenues.

d) Regulatory Framework

Competition within the Canadian long distance market began in 1990 with the resale of certain switched long distance services (Decision 90-3).[32] In 1992, the market was further opened to include facilities-based carriers (Decision 92-12).[33] In 1998, pursuant to Decision 97-10[34], the CRTC forbore from rate regulation of incumbent long distance services, with the exception of Northwestel, with certain conditions imposed on the incumbents, most notably price ceilings applying to each basic toll rate schedule.

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[32] *Resale and sharing of private line services*, Telecom Decision CRTC 90-3, 1 March 1990.

[33] *Competition in the provision of public long distance voice telephone services and related resale and sharing issues*, Telecom Decision CRTC 92-12, 12 June 1992.

[34] *Teleglobe Canada Inc. – Resale and sharing of international private line services*, Telecom Decision CRTC 97-10, 5 May 1997.

Since its inception, the competitive environment has gone through numerous changes, from the initial influx of facilities-based and resale competitors, through a period of consolidation and retrenchment, amongst both the incumbents and competitors alike. Through all of this, the long distance service consumer has benefited from continual reductions of long distance rates, in combination with a host of various discount plans and options to meet their particular needs.

Market Segments

Retail Long Distance

The retail wireline long distance market in 2002 was approximately $4.9 billion, down $0.1 billion or 1.9% from the previous year. The decline in revenues was experienced in all market sectors, except Other, and is reflected in Table 4.6 below. Domestic toll revenues continue to make up the bulk of retail long distance revenues, representing 55.4% of total retail revenues, up slightly from 55.2% in 2001. Overall, long distance competitor revenues constituted 26.7% of total retail long distance revenues in 2002, down marginally from 27.3% in 2001.

Table 4.6
Retail Long Distance Revenues
($ millions)

	2000	2001	2002	*Growth 2001-2002*	*CAGR 2000-2002*
Domestic					
Incumbents	2,356.5	2,186.8	2,227.8	*1.9%*	*-2.8%*
Competitors	597.9	586.9	501.7	*-14.5%*	*-8.4%*
Total	2,954.5	2,773.7	2,729.5	*-1.6%*	*-3.9%*
Toll-Free					
Incumbents	437.8	434.8	407.1	*-6.4%*	*-3.6%*
Competitors	336.4	331.7	307.7	*-7.2%*	*-4.4%*
Total	774.2	766.5	714.8	*-6.7%*	*-3.9%*
U.S.					
Incumbents	407.0	369.9	346.2	*-6.4%*	*-7.8%*
Competitors	186.9	154.4	162.8	*5.4%*	*-6.7%*
Total	593.9	524.3	509.0	*-2.9%*	*-7.4%*
Overseas					
Incumbents	607.7	557.5	530.5	*-4.8%*	*-6.6%*
Competitors	312.9	263.6	285.6	*8.4%*	*-4.5%*
Total	920.6	821.0	816.1	*-0.6%*	*-5.8%*
Other					
Incumbents	103.3	105.6	99.4	*-5.9%*	*-1.9%*
Competitors	6.9	34.5	59.1	*71.3%*	*192.7%*
Total	110.2	140.1	158.5	*13.1%*	*19.9%*
Total					
Incumbents	3,912.4	3,654.6	3,611.0	*-1.2%*	*-3.9%*
Competitors	1,441.0	1,371.1	1,316.9	*-3.9%*	*-4.4%*
Total	5,353.4	5,025.7	4,927.9	*-1.9%*	*-4.1%*

Source: CRTC Data Collection

While the trend in retail revenues reflects a continuing decline, total retail minutes continued to grow, though at a much slower pace than in 2001. The overall minute growth was driven by calls to the United States (U.S.) and Overseas, and toll-free markets. This growth was partially offset by a decrease in domestic toll traffic, which declined by 4.3% in 2002. The decline in domestic minutes was due in part to many of the major facilities-based carriers curtailing their residential discount plans over the past couple of years. Overall, the competitor share of retail long distance minutes in 2002 increased to 34%, up from 32% in 2001.

Table 4.7
Total Retail Long Distance Minutes
(Millions)

	2000	2001	2002	*Growth 2001-2002*	*CAGR 2000-2002*
Domestic					
Incumbents	21,217.8	20,954.5	19,797.4	*-5.5%*	*-3.4%*
Competitors	6,683.5	6,680.1	6,638.8	*-0.6%*	*-0.3%*
Total	27,901.3	27,634.7	26,436.1	*-4.3%*	*-2.7%*
Toll-Free					
Incumbents	4,254.0	5,199.8	6,017.7	*15.7%*	*18.9%*
Competitors	4,082.0	4,525.8	5,137.8	*13.5%*	*12.2%*
Total	8,336.0	9,725.6	11,155.5	*14.7%*	*15.7%*
U.S.					
Incumbents	1,839.7	2,080.1	2,115.4	*1.7%*	*7.2%*
Competitors	1,734.1	1,748.4	2,042.8	*16.8%*	*8.5%*
Total	3,573.8	3,828.6	4,158.2	*8.6%*	*7.9%*
Overseas					
Incumbents	849.5	984.5	1,006.9	*2.3%*	*8.9%*
Competitors	834.3	944.4	1,176.1	*24.5%*	*18.7%*
Total	1,683.9	1,928.9	2,183.0	*13.2%*	*13.9%*
Total					
Incumbents	28,161.2	29,218.9	28,937.3	*-1.0%*	*1.4%*
Competitors	13,333.9	13,898.8	14,995.5	*7.9%*	*6.0%*
Total	41,495.0	43,117.7	43,932.8	*1.9%*	*2.9%*

Source: CRTC Data Collection

The decline in retail long distance revenues was reflective of the continuing decline in long distance rates, as competitive pressures continue to cause market participants to lower their per minute toll rates. In 2002, the average revenue per minute (ARPM) declined to $0.11, down 3.5% from the previous year. Figure 4.9 shows the ARPM for the years 2000, 2001 and 2002 for each market segment. Across market segments, U.S., Overseas, and Toll-free rates all experienced ARPM decreases in excess of 16% in 2002, while the overall domestic ARPM increased by 1%. The increase in the domestic ARPM was in large part attributable to the curtailment of some carrier residential discount plans over the past couple of years, and to the network administration fees (i.e., $2.95 per month) introduced in late 2001, charged to residential customers who subscribe to long distance discount plans.

Figure 4.9
Retail Long Distance Average Revenue Per Minute

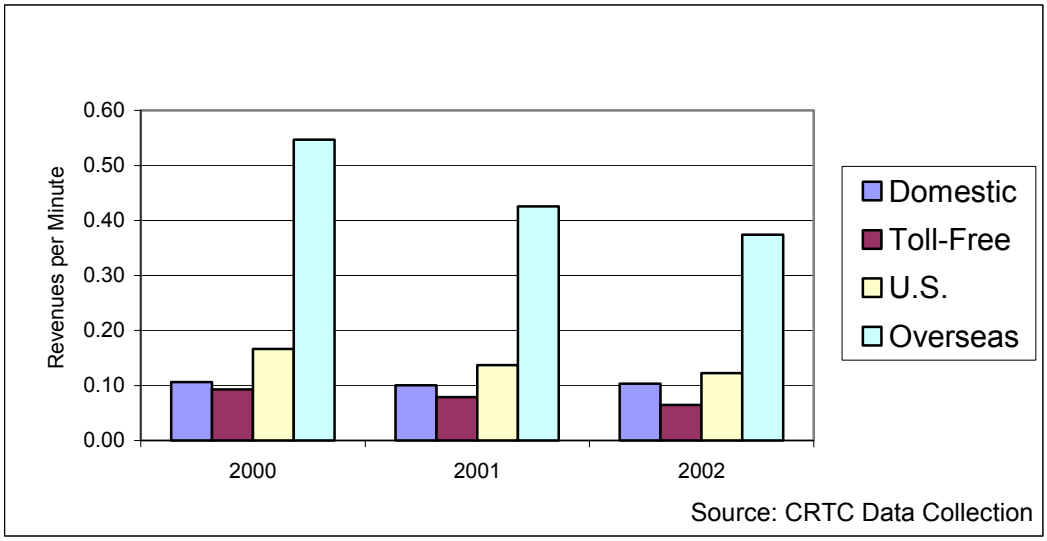


Table 4.8 provides the major incumbent telephone companies' retail market shares in 2002, measured in terms of residential and business long distance revenues, in their traditional operating provinces.

Table 4.8
Incumbent Telephone Companies' Long Distance
Revenue Market Share by Region (2002)

Region	Percent
BC, Alberta	75
Saskatchewan	82
Manitoba	78
Ontario, Quebec	67
Atlantic	71

Source: CRTC Data Collection

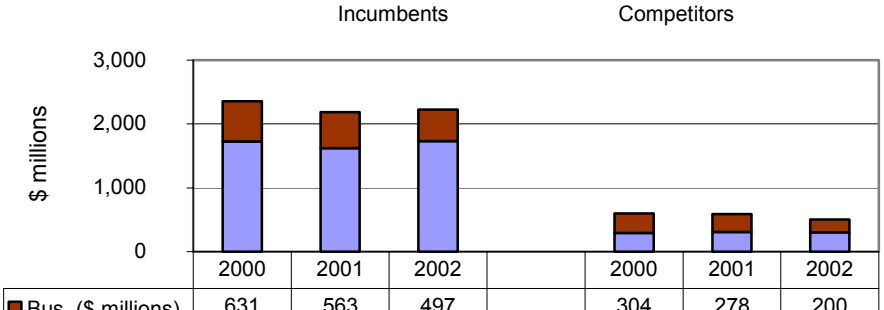
Retail Long Distance – Domestic

Domestic retail long distance revenues in 2002 equalled $2.7 billion, down 1.6% from $2.8 billion in 2001. Domestic retail revenues comprised 55.4% of total retail revenues in 2002, up slightly from 55.2% the previous year. The increase in the domestic share of total long distance revenues reflects in part the addition of network administrative charges collected by several major providers as part of their residential discount packages, in combination with lower long distance rates in other market segments. These factors were partially offset by a decrease in the ratio of domestic to total long distance minutes. Overall, the competitor market share of the domestic retail long distance revenues was 18% in 2002, down from 21% in 2001.

Within the domestic retail market, residential revenues comprised the biggest proportion of revenues, which was reflective of their proportion of domestic toll minutes and the higher overall ARPM associated with residential traffic. As noted above, additional network administration charges associated with residential long distance discount plans implemented by several incumbents have increased the ARPM experienced in this market, while the other domestic market segments continued to trend downward, reflecting competitive pressures. Because of the higher ARPM experienced by the incumbent carriers, the competitor market share of revenues was lower than their share of domestic long distance traffic. Overall, competitors comprised 15% of residential domestic toll revenues in 2002, down from 16% in 2001.

Within the domestic retail long distance business market, the competitor share of domestic business toll revenues was 29% in 2002, down from 33% in 2001. The decline in the competitors' business market share was in large part reflective of declines in associated traffic minutes, likely due to the loss of customers during restructuring efforts amongst several competitors in 2002.

Figure 4.10
Domestic Retail Long Distance Revenues, ARPM



	Incumbents				Competitors		
	2000	2001	2002		2000	2001	2002
Bus. ($ millions)	631	563	497		304	278	200
Res. ($ millions)	1,725	1,624	1,731		294	309	302
Bus. - ARPM	0.13	0.11	0.09		0.09	0.10	0.07
Res. - ARPM	0.10	0.10	0.12		0.09	0.09	0.08

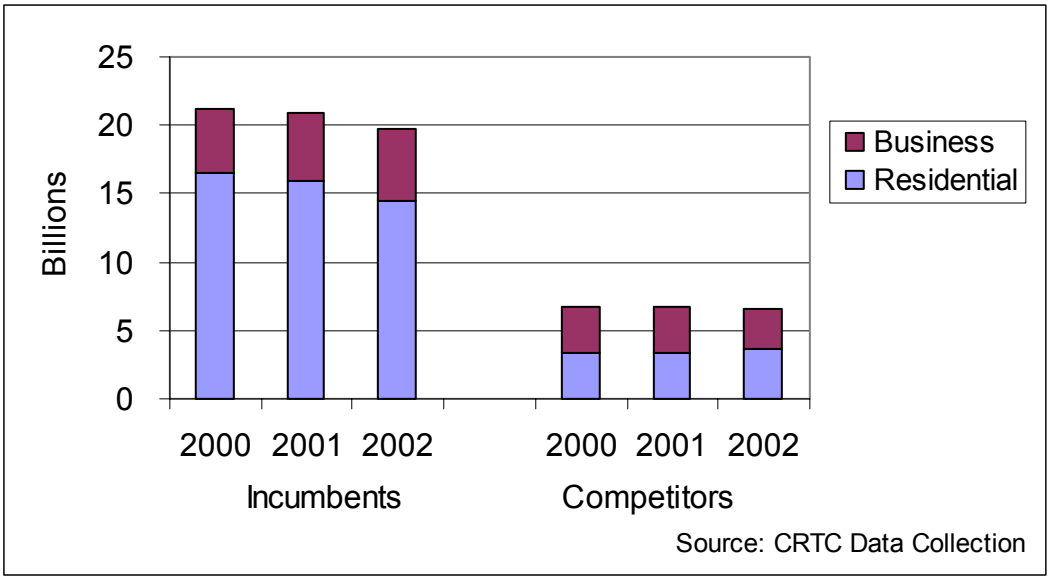
Source: CRTC Data Collection

Domestic retail long distance minutes comprise 60% of total retail minutes in 2002, down from 64% in 2001 and 67% in 2000. Both the incumbents and competitors experienced declines in their percentage of domestic to total retail minutes. On a domestic minutes share basis, competitors comprise approximately 25% of the market, up from 24% in 2001.

Residential traffic comprised approximately 68% of overall domestic minutes in 2002, which was dominated by the incumbent carriers, with 80% of the market. While the incumbents' market share was down from 82% in 2001, their position in the residential market was in large part a result of their similar position as the dominant local carrier where, overall, competitors have only experienced pockets of market penetration.

Within the business market, competitors captured a larger share of the domestic minutes, at 36% in 2002. However, this was down from 39% in 2001, in large part due to Call-Net's decision to concentrate on the residential and small to medium business market, and restructuring efforts in 2002 by many of the major competitors, which likely impacted business customer's decisions in choosing their long distance carrier.

Figure 4.11
Domestic Retail Long Distance Minutes

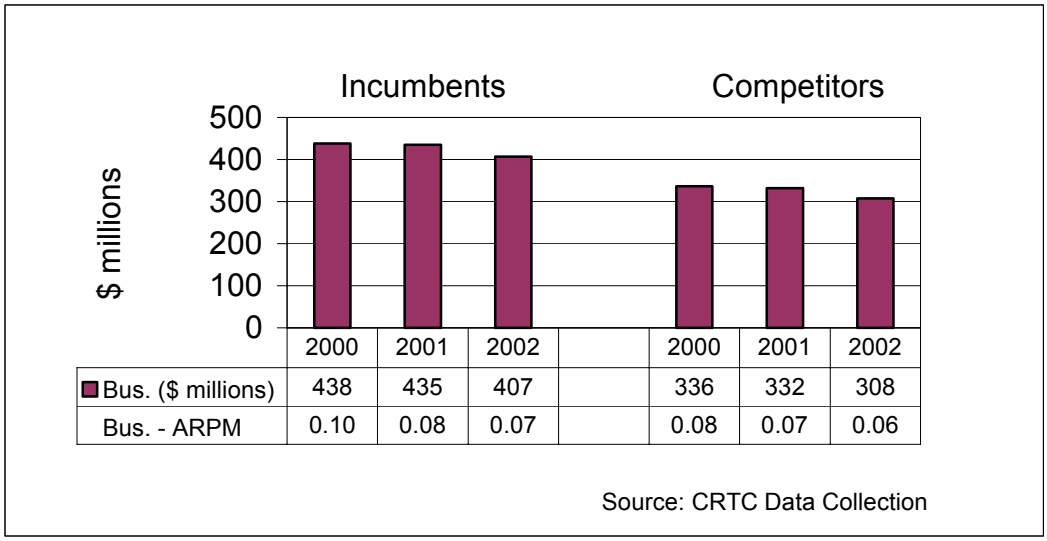


Retail Long Distance – Toll-Free

Toll-free traffic is business related, with the billing performed at the terminating end of a long distance call. Toll-free retail long distance revenues were $715 million in 2002, or 15% of total retail long distance revenues, down $52 million or 7% from the previous year. Revenues have fallen over the past three years as rates have continued to experience competitive pressures, offsetting the growth in long distance minutes in this market. Industry ARPMs have declined 30% over the past two years, with the incumbents' declining 34% relative to the competitors' 27% decline.

Competitor share of retail toll-free long distance revenues was 43% in 2002, similar to 2001.

Figure 4.12
Toll-Free Retail Long Distance Revenues, ARPM



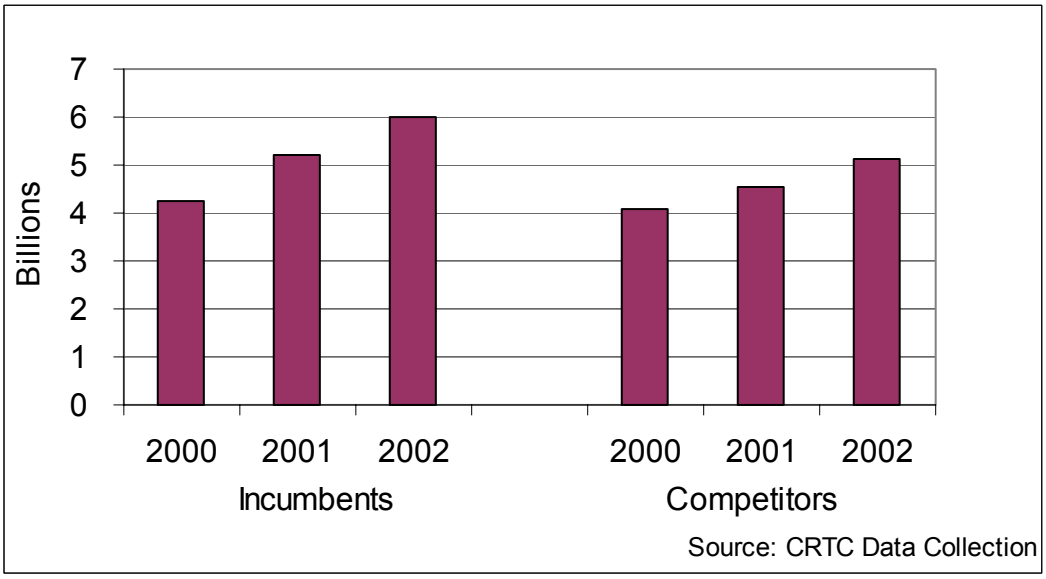
	2000	2001	2002		2000	2001	2002
Bus. ($ millions)	438	435	407		336	332	308
Bus. - ARPM	0.10	0.08	0.07		0.08	0.07	0.06

Source: CRTC Data Collection

In 2002, approximately 81% of the toll-free retail minutes were within Canada, while the remaining 19% of minutes were international, primarily with the U.S.

The toll-free minutes were a strong growth area in the retail long distance market in recent years, an area where the competitors made significant inroads. However, in 2002, the competitors' share of toll-free retail long distance minutes stabilized at 46% of the market, similar to 2001, and down from 49% in 2000.

Figure 4.13
Toll-Free Retail Long Distance Minutes

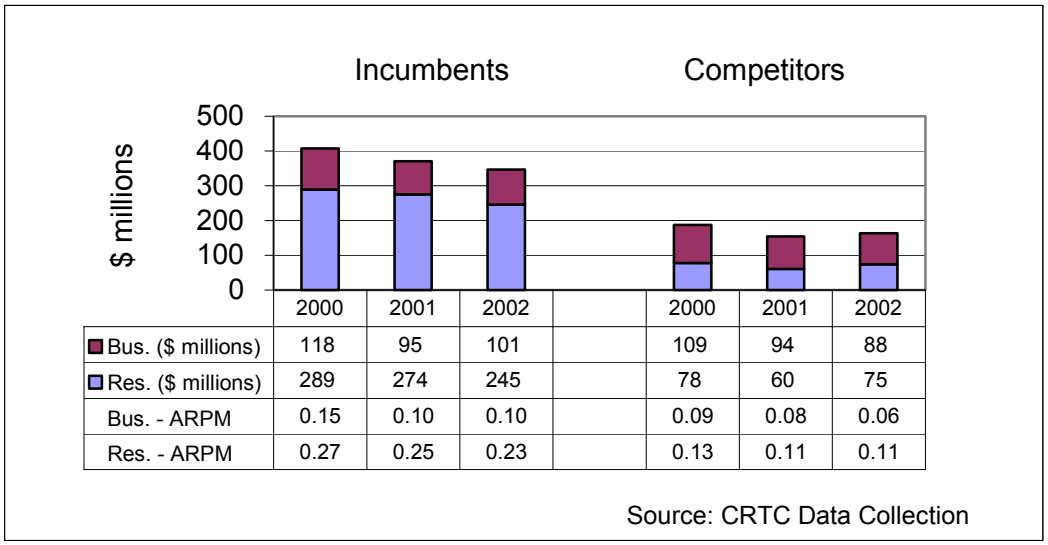


Retail Long Distance – United States

U.S. retail long distance revenues were $509 million in 2002 or 10.3% of the retail long distance market. Overall, U.S. retail long distance revenues declined approximately 3% from 2001, due in large part to declines in the residential ARPM for the incumbent carriers. However, incumbents' residential ARPMs remained significantly higher on average relative to the competitors', which include several companies that rely on pre-paid card and dial around options to provide lower prices.

Within the U.S. retail long distance market, competitors maintained a 32% market share of revenues in 2002, up from 29% in 2001. Within the residential sector of this market, competitors experienced a 23% market share in 2002, up from 18% in 2001, due to the growth in their proportion of U.S. retail traffic in combination with the incumbents' reduction in their ARPM. Conversely, within the U.S. business sector, competitors' market share in 2002 was 47%, down from 50% in 2001, as their ARPM continued to trend downward relative to the incumbent carriers.

Figure 4.14
U.S. Retail Long Distance Revenues, ARPM

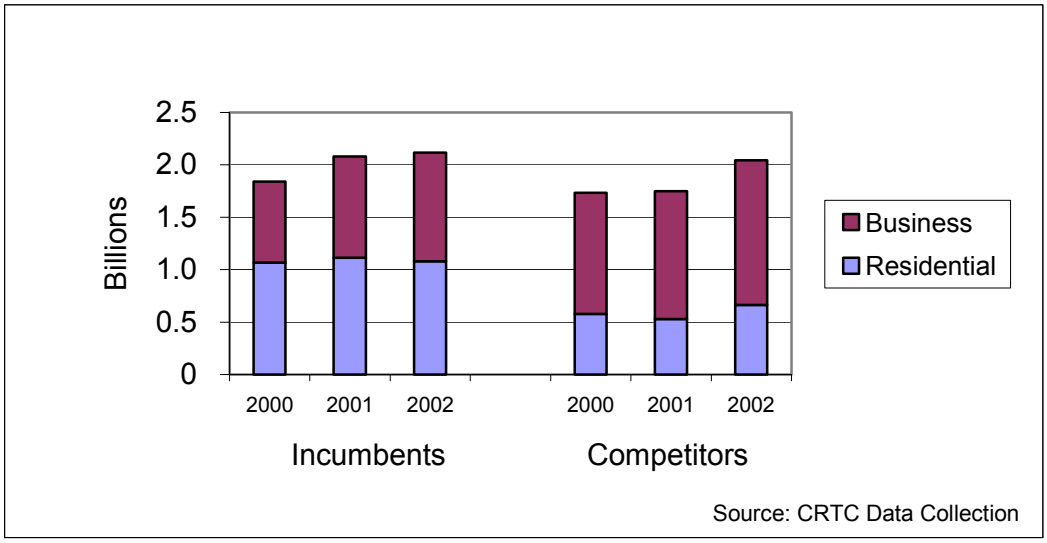


	Incumbents				Competitors		
	2000	2001	2002		2000	2001	2002
Bus. ($ millions)	118	95	101		109	94	88
Res. ($ millions)	289	274	245		78	60	75
Bus. - ARPM	0.15	0.10	0.10		0.09	0.08	0.06
Res. - ARPM	0.27	0.25	0.23		0.13	0.11	0.11

Source: CRTC Data Collection

Retail long distance toll minutes to the U.S. comprised 9.5% of the total Canadian retail long distance market, up from 8.8% in 2001 and 8.6% in 2000. The majority of the U.S. toll minutes were business related, which made up nearly 58% of this market in 2002. The competitors had 57% of the U.S. business minutes in 2002, up slightly from 56% in 2001. Within the residential sector, the competitors' minute share was not as high, at 38%, though this was up from 32% in 2001.

Figure 4.15
U.S. Retail Long Distance Minutes



Retail Long Distance – Overseas

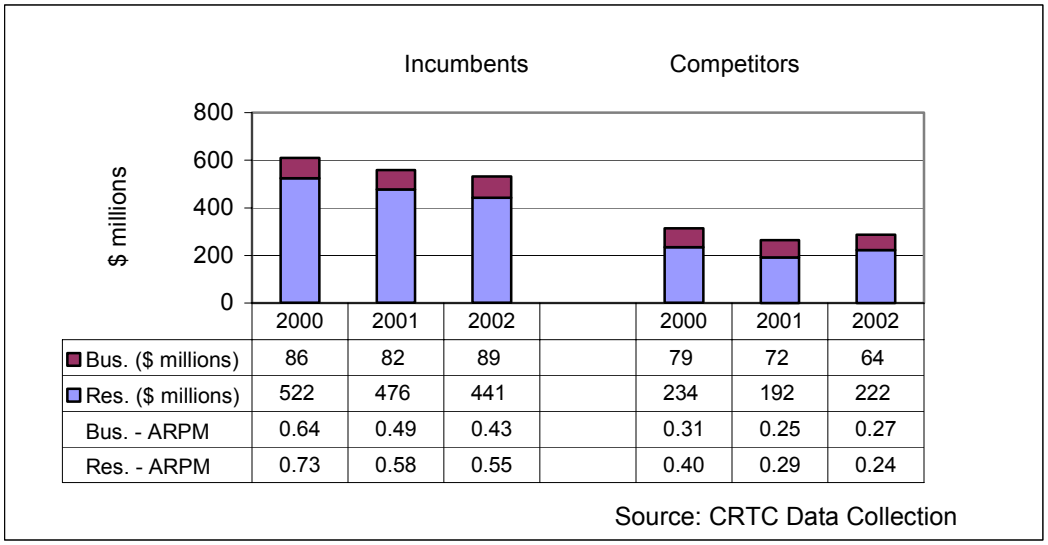
Overseas toll minutes represent traffic with countries other than the U.S. Overseas retail long distance revenues in 2002 were $816 million, or 17% of total retail revenues. Revenues were down slightly from 2001, by $5 million, or 1%, as the ARPM declined by 12%, offset by an 13.2% increase in traffic.

The Overseas market was dominated by residential revenues, which comprised 81% of revenues in 2002, of which the competitors had 33%. The competitor percentage was up from 29% in 2001, as residential traffic increased, particularly through strong growth in alternative competitor options, which provide a much lower overall ARPM. These lower rates are in large part the result of pre-paid card and dial around options provided by various competitors, which provide significantly lower rates due to additional dialling requirements.

ARPMs in the retail overseas market have continued to drop significantly, down 30% on average from 2000. The decline was most noticeable in the residential market, where the ARPMs were down 34% over the same time period, and was largely driven by the competitors' traffic, and more specifically the pre-paid card suppliers who had a large proportion of the competitor residential market.

Overall, competitors improved their overseas revenue market share to 35% in 2002, from 32% in the previous year, on the strength of their residential growth discussed above. Within the business segment, competitors' revenue market share declined to 42% in 2002, from 47% in 2001, which was largely reflective of their reduced share of overall business long distance minutes.

Figure 4.16
Overseas Retail Long Distance Revenues, ARPM

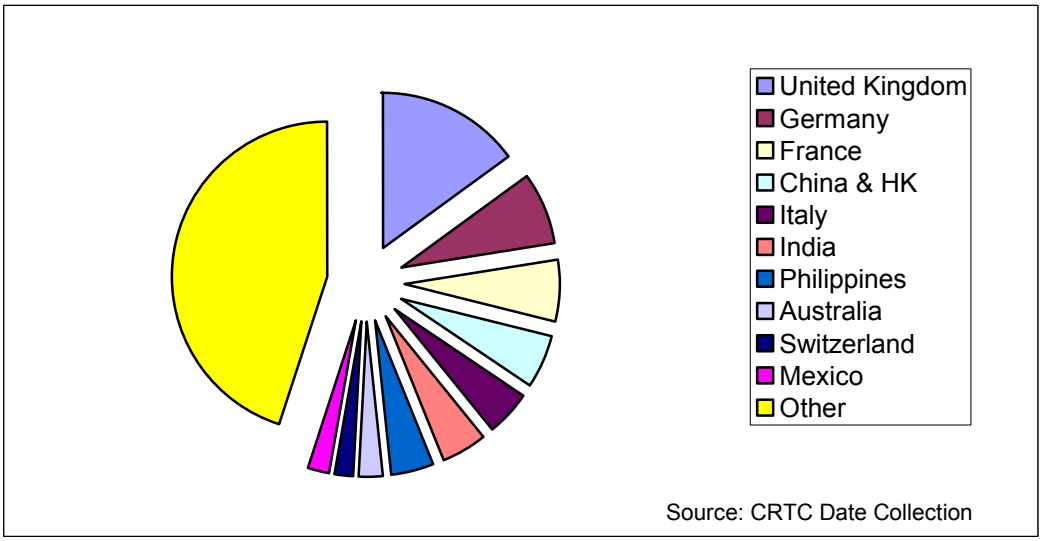


	2000	2001	2002		2000	2001	2002
Bus. ($ millions)	86	82	89		79	72	64
Res. ($ millions)	522	476	441		234	192	222
Bus. - ARPM	0.64	0.49	0.43		0.31	0.25	0.27
Res. - ARPM	0.73	0.58	0.55		0.40	0.29	0.24

Source: CRTC Data Collection

Overseas toll minutes represent 5.0% of total toll minutes in 2002, up significantly from 4.0% and 4.5% in 2000 and 2001, respectively. The majority of traffic was concentrated to a few major countries, where the top ten destinations represent approximately 54% of overseas minutes in 2002, as indicated in Figure 4.17.

Figure 4.17
Overseas Minute Destinations – 2002

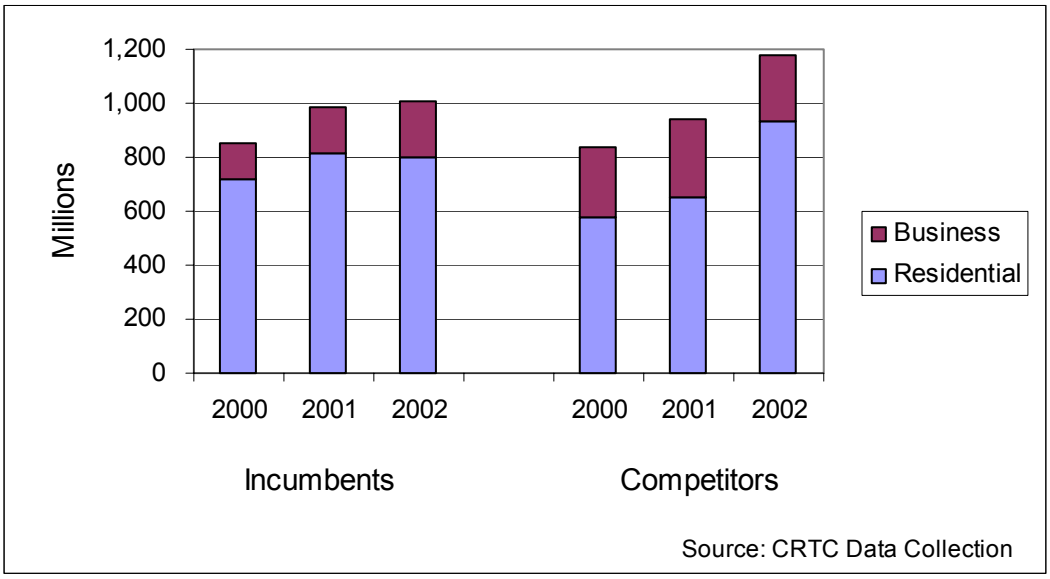


Source: CRTC Date Collection

Overseas retail long distance minutes continued to grow at rates greater than 10% annually. This growth was in part stimulated by continuing decreases in international settlement rates which were reflected in the consumer rates offered by many service providers. In addition, the emergence of numerous prepaid card and dial-around service providers targeting international voice traffic has contributed to the overall decline in associated consumer rates, thus stimulating traffic demand in this market.

Overseas retail long distance minutes were primarily comprised of residential traffic, which made up almost 80% of total retail overseas minutes, with competitors holding 54% of both the residential and business segments in 2002. Competitor minute market share was 44% and 64% for the residential and business sectors in 2001, respectively, as the pre-paid card market continued to capture market share in the residential market, while restructuring amongst certain facilities-based competitors appeared to have resulted in market share losses within the business sector.

Figure 4.18
Overseas Retail Long Distance Minutes

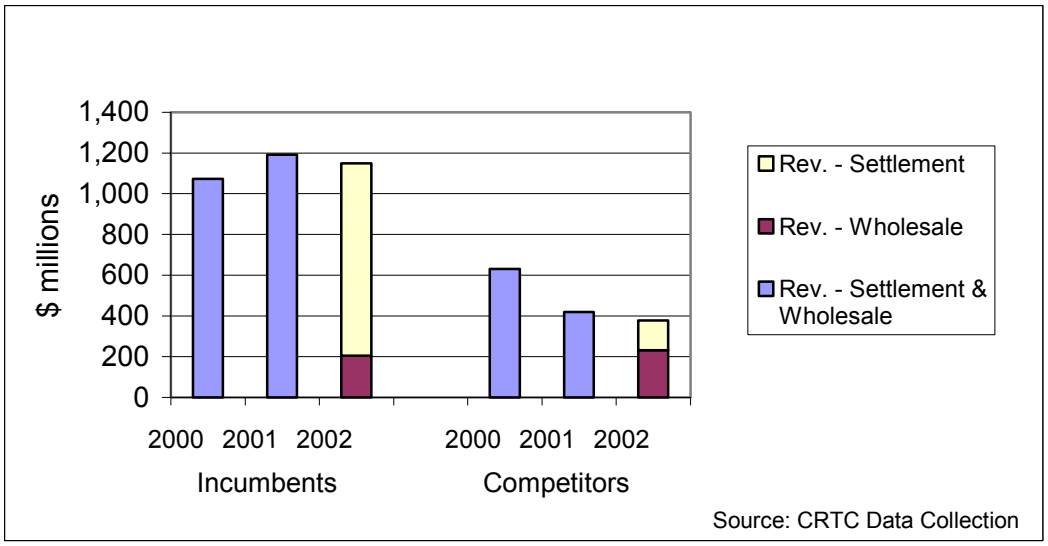


Wholesale Long Distance

Wholesale long distance services are provided by long distance carriers to other telecommunications service providers, who in turn use these services in combination with their own toll network facilities to provide long distance service to their retail customers. Wholesale revenues accounted for $1.5 billion in reported long distance revenues, of which $0.4 billion was related to wholesale, and $1.1 billion was related to settlement revenues. Settlement revenues are payments by one carrier to another to transmit traffic on the latter's facilities, either for transiting or call completion purposes, but where the billed revenues from the business or residential consumer are retained by the original carrier.

Wholesale long distance revenues decreased by approximately 5% annually in both 2001 and 2002. This decrease was in part the result of decreases in international settlement rates, and overall decreases in wholesale minute rates as service providers vie for this market. In 2002, of the resale related wholesale market, the competitors controlled approximately 53% of the $400 million in revenues, and 52% of the 10 billion related minutes. Conversely, competitors had approximately 14% of the $1.1 billion in settlement revenues, and 12% of the associated 25 billion settlement minutes.

Figure 4.19
Wholesale Long Distance Revenues[35]



Summary

Within the long distance retail market, competitors gained revenue market share in the residential market, from 19% in 2001 to 20% in 2002, due in large part to competitor growth in pre-paid calling card and 'dial around' services. While competitors had a stronger share of residential minutes, up from 20% in 2001 to 24% in 2002, their services tend to be lower priced due to the additional dialling requirements, and hence revenue growth was not as strong.

Within the business segment of retail long distance, the competitors' market share declined to 38% in 2002 from 40% in 2001, as several of the facilities-based service providers that serve this market went through corporate restructuring efforts during this period. As a result, it appears that some long distance business customers reverted their long distance traffic to the traditional incumbent carriers during this period.

Looking forward, it is expected that competitors will continue to gain residential market share, as the use of pre-paid cards continues to expand. In addition, within the business market, renewed focus by the various competitors after their corporate restructuring may slow the erosion that they have seen in this sector of the market.

[35] For years 2000 and 2001, a breakout of wholesale revenues by settlement and wholesale resale was not surveyed.

4.3 Local and Access

Highlights

- Local and access revenues declined 9.3% in the past year, from $11.0 billion in 2001 to $10.0 billion in 2002, mainly due to contribution revenue decreases.
- The number of local lines decreased by 2.4%, from 21.1 million lines in 2001 to 20.6 million lines in 2002.
- Competitors' share of local business revenues (excluding out-of-territory incumbents) increased from 5.3% in 2001 to 8.1% in 2002.
- Competitors' share of local residential revenues increased from 0.4% in 2001 to 1.1% in 2002.

Sector Description

a) Description of Services

Basic local telephone service is the main source of local and access revenues. This category encompasses revenue from the recurring charge paid by subscribers for local PSTN service, including any optional or mandatory touch-tone dialling, and Extended Area Service (EAS) charges. Local telephone service also includes optional local features, such as Call Waiting and Voice Mail, business Centrex, Integrated Services Digital Network (ISDN) services, and other user services such as inside wiring, teleconferencing and other miscellaneous local services.

The local and access segment also includes services provided to competitors for accessing the local network, including unbundled loops, the telephone wire between a customer and the telephone company's central office. There are also interconnection services such as switching and aggregation, a tariffed interconnection charge which a service provider must pay another service provider to load PSTN traffic off the former's and onto the latter's network.

There are two categories of local and access revenues that are included in the overall segment revenues reported in Table 4.9, but excluded from the remaining tables in the local and access section of this report: revenues from local payphone services and revenues from contribution. Local payphones are public telecommunications terminals which provide coin- or card-based billing on a per-transaction basis as discussed in Section 4.8. Contribution revenues currently represent subsidies received by local exchange carriers (LECs) to support local residential service in high-cost serving areas.

Revenues from the sale of wireline terminal equipment, such as telephone handsets and PBX switching equipment, are excluded from the local and access revenues covered in this report.

b) Markets and Observations for 2002

Table 4.9 provides results for total local and access revenues and lines for 1998 to 2002.

Table 4.9[36]
Total Local and Access Revenues and Lines

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Total Local and Access Revenues *($ millions)*	9,344 #	9,730 #	10,345 #	11,023 #	10,003	*-9.3%*	*1.7%*
less Contribution Revenues *($ millions)*	825 #	904 #	957 #	1,002 #	250	*-75.0%*	*-25.8%*
Local and Access Service Revenues *($ millions)*	8,519 #	8,826 #	9,388 #	10,021 #	9,753	*-2.7%*	*3.4%*
Lines *(000s)*	19,587 #	20,380 #	20,840 #	21,126 #	20,622	*-2.4%*	*1.3%*

Source: CRTC Data Collection

Total local and access revenues include local and access monthly rates and service charges, contribution, and local payphone services. Local lines in Table 4.9 include wireline payphones as well as lines provided on a wholesale basis to affiliated companies and third party providers of telecommunications services. All other tables and figures in this section, unless otherwise noted, exclude revenues from contribution, as well as payphone lines and revenues.

Between 2001 and 2002, local and access revenues declined 9.3%, from $11.0 billion in 2001 to $10.0 billion in 2002. This decrease was primarily caused by a decrease in contribution revenues of 75.0%, from $1.0 billion in 2001 to $250 million in 2002. Local and access service revenues, excluding contribution revenues, declined by 2.7% or $268 million from 2001 to 2002. The decline in these revenues was in large part due to the decrease in the number of local lines over the same period, which declined by 2.4% from 21.1 million lines in 2001 to 20.6 million lines in 2002.

c) Sector Participants

The key sector participants in this segment are the large incumbent local exchange carriers (ILECs), who operate in most areas of the country. Small ILECs operate in limited areas of Ontario, Quebec and B.C., and include certain municipally-owned carriers.

There has been a limited amount of competitor penetration in the local and access segment since the introduction of local competition in 1998. Competitors have typically been facilities-based competitive service providers who own a portion of their PSTN network facilities, or resellers of Centrex service purchased from either the incumbent or, to a limited extent, other facilities-based competitors. There has also been some limited market entry by cable service providers, and by utility telcos who can offer services using their existing infrastructure. Competitor entry has focused on the local business market in larger urban centers, though there has been some penetration in the local residential market in a limited number of cities.

[36] Prior year amounts, denoted by # have been restated to reflect new and/or updated information provided by survey respondents. Additionally, some prior year revenues have been reclassified within market segments to provide a consistent basis for comparison with the current year's data.

d) Regulatory Framework

As discussed in Section 3.2, local telephone service was opened to facilities-based competition in 1997, and the services covered by this sector continue to be regulated by the CRTC. Prior to the introduction of competition, ILECs were subject to a rate-of-return regulatory framework, under which local service prices were set based on a pre-determined rate of return approved by the CRTC.

Rate-of-return regulation has been replaced in recent years by price cap regulation. Price cap regulation uses a formula approach to determine the maximum allowable prices for different baskets of services. Price cap regulation is recognized as being more effective than rate-of-return regulation in that ILECs are provided with stronger incentives to minimize costs, operate more efficiently and be more innovative in the provision of services.

e) Regulatory Developments in the Past Year

There were several important regulatory decisions that had a significant impact on the local and access segment for 2002 and subsequent years. Both the federal government and the CRTC have expressed their concern over the limited amount of competition in the local market, and have stated that removing the barriers to local competition is a priority.

As discussed in Section 3.2 of this report, the new regulatory regimes established with the recent price cap decisions, Decisions 2002-34 and 2002-43, imposed service-specific local rate constraints to provide customers with additional price protection where competition is expected to develop slowly, particularly in the residential market. The decisions also reduced some rates charged for business services and services provided to competitors to access the incumbents' network. Decision 2001-756 imposed a price protection regime for the small ILECs.

The level of contribution subsidies established by the CRTC was changed so that subsidies were only available to service providers of local residential service in high-cost serving areas and were calculated on an incremental rather than an embedded cost basis, pursuant to the implementation of Decisions 2000-745[37] and 2001-238.[38] The decrease in contribution revenues is reflected in the 2002 local and access revenues reported in Table 4.9.

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[37] *Changes to the contribution regime*, Decision CRTC 2000-745, 30 November 2000.

[38] *Restructured bands, revised loop rates and related issues,* Decision CRTC 2001-238, 27 April 2001.

Appendix 3 of this report outlines a number of recent CRTC rulings that support the removal of barriers to competition in the telecommunications industry, primarily in the local market. These decisions relate, amongst other things, to ILECs' behaviour on such issues as winback rules, bundling of services, and selling of bundled services through affiliates. As well, in early 2003, the Federal Cabinet rejected the Allstream (formerly AT&T Canada Telecom Services Company) appeal of the price cap decision (i.e., Decision 2002-34), thereby upholding the CRTC's decision.

Market Segments

Table 4.10 presents a summary of local and access revenues segmented on a residential, business and unaffiliated wholesale basis for 1998 through 2002. Revenues from contribution and payphone services are not included in this table. Table 4.11 provides the local lines that correspond to these market segments.

Table 4.10
Local and Access Revenues by Market Segment
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Residential	4,270	4,421	4,833	5,060	5,140	*1.6%*	*4.7%*
Business	3,593	3,637	3,769	3,946	3,544	*-10.2%*	*-0.3%*
Other	475	577	636	740	893	*20.7%*	*17.1%*
Total	8,338	8,635	9,238	9,746	9,577	*-1.7%*	*3.5%*

Source: CRTC Data Collection

Table 4.11
Local Lines by Market Segment
(thousands)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Residential	12,595	12,772	12,909	12,920	12,913	*-0.1%*	*0.6%*
Business	6,528	7,080	7,378	7,561	7,024	*-7.1%*	*1.8%*
Wholesale	290	350	381	474	521	*9.9%*	*15.8%*
Total	19,413	20,202	20,668	20,955	20,458	*-2.4%*	*1.3%*

Source: CRTC Data Collection

Between 2001 and 2002, local and access revenues (excluding contribution, terminal equipment and payphone revenues) decreased by 1.7% in total. This net decrease resulted from a decrease of 10.2% in business revenues to $3.5 billion, partially offset by an increase in residential revenues of 1.6% to $5.1 billion and an increase of 20.7% in other revenues to $0.9 billion.

Over the same period, local lines declined by 2.4%, from 21.0 million in 2001 to 20.5 million in 2002. This decline was due to a small decrease in residential lines of 0.1% to 12.9 million, a decrease in business lines of 7.1% to 7.0 million, and an increase of 9.9% in other lines to 0.5 million.

Company annual reports suggested that factors causing the decline in local lines include: a reduction in the number of second phone lines due to the growth in high-speed Internet access; wireless substitution for wireline services; and loss of lines due to business customer failures and downsizings. The annual reports also attribute the decrease in local and access revenues in part to the decline in local lines and to the reduction in certain rates charged for business services and services provided to competitors, pursuant to the 2002 price cap decisions.

Market Share by Province

Table 4.12 shows the major incumbents' share of local lines (including wholesale lines provided to affiliates) by province. The incumbents' market share excludes their out-of-territory local operations.

Table 4.12
Incumbents' Local Market Share by Province (lines)

Province	2000	2001	2002
British Columbia	97.3%	97.2%	96.0%
Alberta	97.4%	96.5%	94.2%
Saskatchewan	100.0%	100.0%	100.0%
Manitoba	98.7%	98.2%	98.1%
Ontario	94.2%	94.4%	93.3%
Quebec	97.6%	96.9%	96.7%
New Brunswick	99.8%	99.8%	99.8%
Nova Scotia	99.2%	94.9%	92.0%
Prince Edward Island	100.0%	99.5%	95.7%
Newfoundland and Labrador	98.9%	98.1%	97.2%

Source: CRTC Data Collection

At the national level, the incumbents' local market share, including their out-of-territory activities, declined from 96.1% in 2001 to 95.2% in 2002.

Table 4.13 provides further information on market share, measured in lines, for a list of major Canadian cities and provincial capitals as defined by census metropolitan area (CMA). In several cities, competition by out-of-territory incumbents was negligible or non-existent, and this indicator has been removed from the table in those cities.

Table 4.13
Market Share (Local Lines) in Major Centres[39] – 2002

Province	City	Business Lines	Residential Lines	Total Lines*
British Columbia	Vancouver			
	Incumbents	87.5%	98.0%	94.2%
	Out-of-territory incumbents	1.9%	0.0%	0.8%
	Competitors	10.6%	2.0%	5.1%
	Victoria			
	Incumbents	91.4%	100.0%	97.5%
	Out-of-territory incumbents	1.4%	0.0%	0.4%
	Competitors	7.2%	0.0%	2.1%
Alberta	Calgary			
	Incumbents	89.0%	96.9%	93.7%
	Out-of-territory incumbents	0.9%	0.0%	0.4%
	Competitors	10.1%	3.1%	5.9%
	Edmonton			
	Incumbents	88.8%	100.0%	95.9%
	Out-of-territory incumbents	3.0%	0.0%	1.1%
	Competitors	8.2%	0.0%	3.1%
Saskatchewan	Regina			
	Incumbents	99.9%	100.0%	100.0%
	Competitors	0.1%	0.0%	0.0%
	Saskatoon			
	Incumbents	99.9%	100.0%	100.0%
	Competitors	0.1%	0.0%	0.0%
Manitoba	Winnipeg			
	Incumbents	92.5%	100.0%	97.2%
	Competitors	7.5%	0.0%	2.8%
Ontario	Hamilton			
	Incumbents	80.5%	97.9%	92.3%
	Out-of-territory incumbents	0.5%	0.0%	0.1%
	Competitors	19.0%	2.1%	7.5%
	Kitchener			
	Incumbents	84.4%	97.9%	93.4%
	Out-of-territory incumbents	0.2%	0.0%	0.0%
	Competitors	15.4%	2.1%	6.6%
	London			
	Incumbents	76.6%	97.1%	90.7%
	Competitors	23.3%	2.9%	9.2%
	Oshawa			
	Incumbents	90.7%	97.5%	95.2%
	Competitors	9.3%	2.5%	4.8%
	Ottawa-Gatineau			
	Incumbents	91.9%	99.1%	95.4%
	Competitors	8.1%	0.9%	4.6%
	St. Catharines-Niagara			
	Incumbents	87.8%	100.0%	96.3%
	Competitors	12.2%	0.0%	3.7%
	Toronto			
	Incumbents	82.1%	95.9%	89.7%
	Out-of-territory incumbents	1.9%	0.0%	0.9%
	Competitors	16.0%	4.1%	9.4%
	Windsor			
	Incumbents	80.5%	100.0%	94.2%
	Competitors	19.5%	0.0%	5.8%
Quebec	Montréal			
	Incumbents	86.7%	98.0%	93.8%
	Out-of-territory incumbents	2.7%	0.0%	0.8%
	Competitors	10.6%	2.0%	5.4%
	Québec			
	Incumbents	83.4%	100.0%	94.1%
	Out-of-territory incumbents	4.2%	0.0%	1.3%
	Competitors	12.4%	0.0%	4.6%
New Brunswick	Fredericton			
	Incumbents	99.9%	100.0%	100.0%
	Competitors	0.1%	0.0%	0.0%
Nova Scotia	Halifax			
	Incumbents	94.5%	87.3%	90.3%
	Competitors	5.5%	12.7%	9.7%
Prince Edward Island	Charlottetown			
	Incumbents	99.9%	89.5%	93.6%
	Competitors	0.1%	10.5%	6.4%
Newfoundland and Labrador	St. John's			
	Incumbents	89.7%	100.0%	96.1%
	Competitors	10.3%	0.0%	3.9%

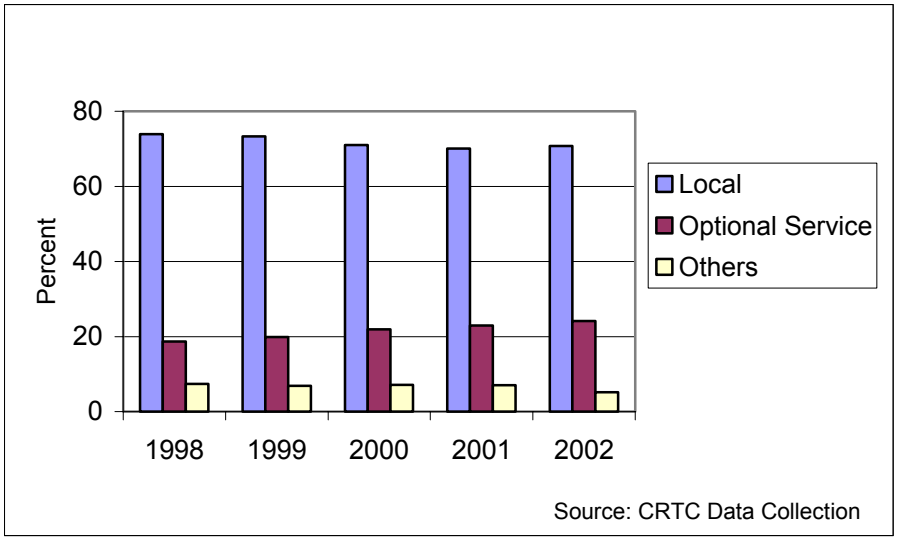
* Includes business, residential and other/wholesale lines

[39] Major centres as defined by CMAs.

As demonstrated in Table 4.13, the higher levels in competitors' market share as measured in lines, compared to provincial results presented in Table 4.12, demonstrate that competitors have primarily targeted the major centers in Canada in their entry strategies for the local market.

Figure 4.20 presents an analysis of local residential revenues by major components for the years 1998 to 2002.

Figure 4.20
Local Residential Revenues by Major Components



As in previous years, the data presented in Figure 4.20 demonstrates that basic service revenues make up the vast majority of local residential revenues, followed by optional services.

The following sections present results, by revenue and by local line, for the three main local market segments. For 2002, local lines have been grouped between incumbent, out-of-territory incumbent and competitor operations. Due to the inability to segregate the revenue information related to out-of-territory incumbent operations, these revenues have been included with those of the incumbents.

Local Business Market

In 2002, the local business market continued to be a focus for competitor entry in the local market. Table 4.14 presents local business revenues from 1998 to 2002, while Table 4.15 reports the number of local business lines for the same period.

Table 4.14
Local Business Revenues
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Incumbents	3,569	3,531	3,619	3,736	3,258	*-12.8%*	*-2.3%*
Competitors	24	106	150	210	286	*36.2%*	*85.8%*
Total	3,593	3,637	3,769	3,946	3,544	*-10.2%*	*-0.3%*

Source: CRTC Data Collection

Table 4.15
Local Business Lines[40]
(Thousands)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Incumbents	6,408	6,679	6,806	6,970	6,422	*-7.9%*	*0.1%*
Competitors	120	401	572	591	602	*1.9%*	*49.7%*
Total	6,528	7,080	7,378	7,561	7,024	*-7.1%*	*1.8%*

Source: CRTC Data Collection

Incumbents' local business revenues, including their out-of-territory operations, decreased by 12.8% in 2002 to $3.3 billion, while competitors' revenues increased by 36.2% to $0.3 billion in 2002. The incumbents' local business lines decreased 7.9% in 2002 which include their out-of-territory results which account for 89 thousand lines. Competitors' lines grew 1.9% over the same period.

Based on revenues, the competitors' share of local business revenues (excluding out-of-territory incumbents) increased from 5.3% in 2001 to 8.1% in 2002. However, based on lines, the competitors' share of the business market (excluding out-of-territory incumbents) increased to 8.6% in 2002 from 7.8% in 2001. Business lines resulting from ILEC out-of-territory operations accounted for an additional 1.3% market share in 2002.

Local Residential Market

In 2002, the local residential market witnessed additional competitor entry though the overall level of competition was relatively small. The majority of local residential competition was from competitors, while the competition provided through out-of-territory incumbents was negligible. Table 4.16 presents local residential revenues from 1998 to 2002, while Table 4.17 presents local residential lines for the same period.

[40] Out-of-territory results only available for 2002.

Table 4.16
Local Residential Revenues
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Incumbents	4,270	4,418	4,817	5,038	5,082	*0.9%*	*4.4%*
Competitors	0	3	16	22	58	*163.6%*	*390.7%*
Total	4,270	4,421	4,833	5,060	5,140	*1.6%*	*4.7%*

Source: CRTC Data Collection

Table 4.17
Local Residential Lines
(Thousands)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Incumbents	12,595	12,740	12,864	12,846	12,729	*-0.9%*	*0.3%*
Competitors	0	32	45	74	184	*148.6%*	*363.1%*
Total	12,595	12,772	12,909	12,920	12,913	*0.1%*	*0.6%*

Source: CRTC Data Collection

Incumbent local residential revenues increased slightly, by 0.9%, to reach $5.1 billion in 2002. Competitors' revenues in 2002 were $58 million, an increase of 163.6% over the previous year, reflecting an increased emphasis by some competitors on penetrating the local residential market, though overall the numbers are relatively small.

The incumbents' local residential lines decreased by 0.9% to 12.7 million in 2002, while competitors' lines grew by almost 150% to 0.2 million lines in 2002. As noted earlier, the number of residential lines provided through out-of-territory incumbent operations was negligible.

The competitors' percentage of residential local revenues grew from 0.4% in 2001 to 1.1% in 2002. The competitors' market share of local residential lines was slightly higher at 1.4% in 2002, above the 2001 level of 0.6%.

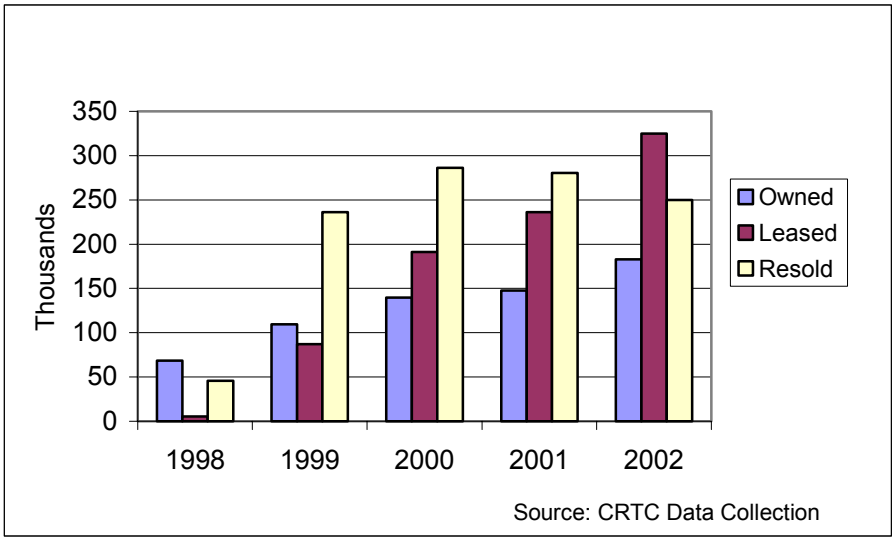
Types of Facilities and Services Used by Competitors

There are three types of facilities and/or services used by competitors:

a) owned facilities - self-provisioned loop facilities;
b) leased facilities - such as unbundled loops or loop-equivalent facilities leased from a facilities-based telecommunications provider; and
c) resold services - such as Centrex or its equivalents, purchased from a local exchange provider.

Figure 4.21 illustrates the proportions of non-incumbent competitor retail lines made up by each of these three methods of providing local service.

Figure 4.21
Competitor Local Retail Lines by Type of Facility



As evidenced in Figure 4.21, the make-up of competitor local retail lines showed a marked difference in 2002 compared to previous years. Competitor-owned lines increased by almost 24% during the year, while competitor leased lines increased by over 37%. This was partially offset by a decrease in competitor resold lines of 11%. In terms of relative use, in 2002, leased lines replaced resold lines as the primary means by which competitors provided local retail service. In 2002, the distribution was 43% over leased lines, 33% over resold lines and 24% over competitor-owned lines.

Other Local Revenues

Other local revenues includes such revenues as interconnection revenues, including switching and aggregation, and the sale of wholesale services, including unbundled loops, PSTN access, Centrex resale and other local wholesale revenues. Wholesale is defined as the provision of a telecommunications service or facility to a service provider, regardless of whether that service provider rebills the service or facility to another entity, or uses that service or facility internally to support the services that it bills. Table 4.18 provides a breakdown of the associated other local revenues.

Table 4.18
Other Local Revenues
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Interconnection	223	231	248	315	354	*12.4%*	*12.2%*
Centrex resale	52	69	84	120	163	*35.8%*	*33.1%*
PSTN Access	103	151	148	129	146	*13.2%*	*9.1%*
Unbundled Loops	8	16	13	31	53	*71.0%*	*60.4%*
Basic Local	27	36	38	55	84	*52.7%*	*32.8%*
Other User Charges	62	74	105	90	93	*3.3%*	*10.7%*
Total	475	577	636	740	893	*20.7%*	*17.1%*

Source: CRTC Data Collection

As reported in Table 4.19, incumbent other local revenues increased by 17.3% to $836 million in 2002. Excluding interconnection charges, incumbent growth was largely in Centrex resale and PSTN access. Competitor other local revenues increased significantly over the same period, climbing by 111.1% to $57 million, primarily within PSTN access and other user revenues.

Wholesale local lines increased by 9.9% in 2002 as indicated in Table 4.20, reflecting a 13.9% growth in incumbents' lines, including 34 thousand out-of-territory lines, offset by a 3.8% decline in competitors' lines.

Table 4.19
Other Local Revenues
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Incumbents	469	569	608	713	836	*17.3%*	*15.5%*
Competitors	6	8	28	27	57	*111.1%*	*75.6%*
Total	475	577	636	740	893	*20.7%*	*17.1%*

Source: CRTC Data Collection

Table 4.20
Wholesale Local Lines
(Thousands)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Incumbents	280	306	289	368	419	*13.9%*	*10.6%*
Competitors	10	44	92	106	102	*-3.8%*	*78.7%*
Total	290	350	381	474	521	*9.9%*	*15.8%*

Source: CRTC Data Collection

Competitors' share of other local revenues increased from 3.6% in 2001 to 6.4% in 2002. The competitors' share of wholesale local lines decreased over this period, from 22.4% in 2001 to 19.6% in 2002. The wholesale lines resulting from ILEC out-of-territory operations accounted for an additional 6.5% market share in 2002. The differences in market share and growth between the competitors' revenues and lines have been driven, in large part, by competitor revenue growth in PSTN access and other revenues.

Summary

The size of the local and access market declined in 2002, both in terms of revenues, excluding contribution (-2.7%) and lines (-2.4%). The large incumbents continued to hold the lion's share of the market, although some inroads were made by competitors, primarily in business urban markets but also to some degree in residential urban markets, in certain areas of the country. The growth in competitor market share has originated primarily from competitors, and to a much lesser extent, from the out-of-territory operations of some of the major incumbents, primarily in the business sector. There was a shift in the type of facilities used by competitors away from resold lines, in favour of a greater combination of owned and leased local lines.

4.4 Internet Services

Highlights

- Internet revenues reached $3.3 billion in 2002, an increase of 24% relative to the previous year, making it one of the fastest growing segments of the Canadian telecommunications services industry.
- Retail Internet access services, which reached $2.5 billion in 2002 (77% of the all Internet service revenues), grew at a rate of 27% relative to 2001 and an annual average rate of 40% over the last three years.
- In 2002, the cable companies' and ILECs' share of both the residential and business segments of the Internet access market continued to grow steadily, especially in the provision of residential high-speed services, while other competitors' share of the market had eroded.
- Residential Internet access subscriptions reached 6.5 million in 2002, representing 51% of all Canadian households and, for the first time, high-speed subscriptions outnumbered low-speed, dial-up subscriptions.

Sector Description

a) Description of Services

Internet-related telecommunications services can be divided into three broad market segments: retail Internet access, Internet transport and Internet applications.

Retail Internet access is the provision of an Internet Protocol (IP) connection to an end-user which allows the end-user to exchange applications traffic with Internet hosts and other end-users. Retail Internet access service consists of three distinct components:

- a physical access line, such as a twisted-pair or coaxial copper cable, a fibre optic cable, or over-the-air spectrum;
- a low- or high-speed data link, to move information between the end-user's modem or switch and the Internet service provider's (ISP's) facilities; and
- an IP connection established by a computer or similar device behind the end-user's modem and the ISP's facilities.

Retail Internet access services are provisioned at a variety of speeds. Low-speed, or narrowband access services, operate at speeds of up to 64 kilobits per second (Kbps), and are typically provided over dial-up access lines. High-speed access services, including wideband (up to 1.5 megabits per second (Mbps)) and broadband (faster than 1.5 Mbps), are for the most part delivered over digital subscriber line (DSL), coaxial cable and, particularly to businesses, fibre optic cables. Satellite and terrestrial wireless technologies are also used to provide high-speed access services.

Internet transport service, in effect, is the provision of Internet connectivity to ISPs. Internet transport capacity is provided over Internet backbone facilities that carry aggregated traffic across domestic and international intercity links between Internet traffic switches or routers. In some cases, peering arrangements between Internet backbone service providers substitute for the outright purchase of Internet transport by one ISP from another. Consequently, separate accounting of all Internet transport services is not available.

Internet applications include a growing number of services which piggyback on the Internet connectivity services. They include e-mail, Web surfing and hosting, instant messaging, audio- and video-over-IP, among others. Typically, many of the application services are bundled together with Internet access services. However, ISPs and other telecommunications companies do participate in emerging stand-alone business Internet applications markets which include services such as premium Web hosting, Internet data centres and off-site data storage, security, firewall, and network management; audio, video, and Web conferencing, VoIP, IP-PBX, and Internet fax services; and domain name registration, among others.

b) Markets and Observations for 2002

Internet-related telecommunications revenues in Canada were roughly $3.3 billion in 2002, representing an increase of roughly 24% over the previous year. Based on Table 4.21, retail Internet access services accounted for the majority of these revenues (77%), followed by retail and wholesale Internet transport, application and other services (23%).[41]

Table 4.21
Internet Revenues[42]
($ billions)

	2000	2001	2002	*Growth 2001-2002*	*CAGR 2000-2002*
Retail Internet Access Services	1.293	2.000 #	2.537	*26.9%*	*40.1%*
Internet Transport, Applications and Other	0.459	0.660	0.748	*13.4%*	*27.6%*
Total Internet Revenues	1.752	2.659 #	3.285	*23.5%*	*36.9%*

Source: CRTC Data Collection

The Internet transport, applications and other related revenues reported in Table 4.21 are not reflective of the entire Canadian market for such services. They simply reflect the revenues reported by telecommunications service providers participating in the CRTC's data collection process. Consequently, the following sections focus primarily on retail Internet access and transport services which make up the majority (77%) of the collected data on Internet-related revenues.

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41 This category includes wholesale Internet access services, Internet transport and retail and wholesale Internet applications services and equipment, Internet access/transport equipment and ancillary services.

42 Prior year amounts denoted by # have been restated to reflect new and/or updated information provided by survey respondents. Additionally, some prior year revenues have been reclassified within market segments to provide a consistent basis for comparison with the current year's data.

c) Sector Participants

There are four principal groups of market participants providing retail Internet access and transport services in Canada. The first group includes the ILECs who provide dial-up and DSL Internet access services over copper access lines as well as high-speed services to business customers over fibre facilities. The second group includes the cable companies who provide high-speed Internet access over their coaxial cable facilities and, to a limited degree, dial-up access services. The third group includes competitive facilities-based telecommunications service providers such as Allstream, Call-Net, 360networks, FCI Broadband and Look Communications, as well as utility company affiliated telecommunications service providers. This group of alternative Internet service providers focuses to a greater extent on business market services and relies in large part on fibre facilities or wireless technologies. Lastly, the fourth group consists of non-facilities based ISPs such as AOL Canada Inc., Cybersurf Corp., Inter.net Canada and PCNet International who focus primarily on the provision of Internet access services.

In addition to retail Internet access services, some facilities-based service providers, including the ILECs, cable companies and competitors, also provide Internet transport services.

d) Regulatory Framework

In 1999, in its consideration of new media[43], the CRTC found that while some Internet applications fell under the *Broadcasting Act*, they did not warrant regulation. The regulatory framework for the Internet in Canada has, therefore, been concerned primarily with the wholesale Internet access market.

While both low-speed and high-speed retail Internet access services were forborne from regulation over five years ago, the CRTC continues to regulate the provision of wholesale Internet access services. In the case of the ILECs, the underlying facilities and services required by third-party DSL Internet access service providers are subject to price regulation and generally fall within the Competitor Services basket of services under the current price cap regime. Cable companies have also been required to provide third-party access to their underlying facilities. In the interim, the CRTC has put in place a resale regime in which the rate for this service is set at a 25% discount to the cable companies' lowest advertised retail price. Technical problems have delayed the implementation of the cable companies' third-party Internet access service.

e) Regulatory Developments in the Past Year

Internet-related regulatory developments over the last year include the imposition of new competitive safeguards restricting the winback activities of Bell Canada, which were later extended to other ILECs. These restrictions are similar to those already in place for cable providers of high-speed Internet access. More recently, the CRTC directed the ILECs to, upon

[43] *New Media*, Telecom Public Notice CRTC 99-14, Broadcasting Public Notice CRTC 1999-84, 17 May 1999.

request, provide retail DSL Internet service to any competitive local exchange carrier's (CLEC's) primary exchange service customer that uses the ILEC's unbundled loops for provisioning of local service.[44]

Market Segments

Whereas the retail Internet access market can be divided into residential and business segments, the provision of Internet transport is a purely business segment service. Table 4.22, therefore, provides a market segment breakdown for only the retail Internet access service market. As of 2002, residential Internet access revenues accounted for 77% of the retail market, down from 83% in 1998. The annual revenue growth rates in both the residential and business segments of the market have been steadily declining over time; nevertheless, the average annual growth rate for both segments combined was 59% over the period 1998 to 2002, making retail Internet access services one of the fastest growing market segments in the telecommunications industry.

Table 4.22
Residential and Business Internet Access Service Revenues
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Residential	325.5	556.4	974.7	1,461.9	1,943.0	*32.9%*	*56.3%*
Market Share	*82.9%*	*71.5%*	*75.4%*	*73.1%*	*76.6%*		
Business	67.2	221.3	318.5	537.6 #	593.8	*10.4%*	*72.4%*
Market Share	*17.1%*	*28.5%*	*24.6%*	*26.9%*	*23.4%*		
Total Revenues	392.7	777.7	1,293.2	1,999.5 #	2,536.8	*26.9%*	*59.4%*

Source: CRTC Data Collection

Table 4.23 provides a breakdown of retail Internet access revenues by market participant (i.e., ILECs, cable companies and all other competitors (facilities and non-facilities based)). The cable companies, as a group, have experienced the fastest average annual rate of growth in revenues since 1998 at close to 101% per year and, as a result, boosted their share of the retail Internet access market to roughly 36% in 2002 from 14% in 1998. ILEC retail Internet access revenues also grew quickly, at over 65% per year, increasing their market share to 41% as of 2002. In contrast, other competitors' revenues declined in 2002 and, moreover, their market share was cut in half to 23% since 1998. During the same time, as displayed in Table 4.24, the market share of the four largest companies in the retail Internet access market (i.e., Bell Canada, TELUS, Rogers and Shaw) steadily increased to 51%.

[44] *Call-Net Enterprises Inc. – Request to lift restrictions on the provision of retail digital subscriber line Internet services,* Telecom Decision CRTC 2003-49, 21 July 2003 (Decision 2003-49).

Table 4.23
Internet Connectivity Service Revenues by Market Participant Group
($ millions)

	Retail Internet Access					Internet Transport	TOTAL	*Access Growth 2001-2002*	*Access CAGR 1998-2002*
	1998	**1999**	**2000**	**2001**	**2002**	**2002**	**2002**		
ILECs	141.7	333.2	443.8	781.9 #	1,045.4	51.4	**1,096.9**	*33.7%*	*64.8%*
Market Share	*36.1%*	*42.8%*	*34.3%*	*39.1%*	*41.2%*	*30.7%*	***40.6%***		
Cable	54.9	145.4	331.7	615.1 #	899.4	30.0	**929.4**	*46.2%*	*101.2%*
Market Share	*14.0%*	*18.7%*	*25.7%*	*30.8%*	*35.5%*	*17.9%*	***34.4%***		
Competitors	196.1	299.1	517.6	602.6 #	591.9	86.3	**678.2**	*-1.8%*	*31.8%*
Market Share	*49.9%*	*38.5%*	*40.0%*	*30.1%*	*23.3%*	*51.4%*	***25.1%***		
Total	392.7	777.7	1,293.1	1,999.5 #	2,536.8	167.7	**2,704.5**	*26.9%*	*59.4%*

Source: CRTC Data Collection

Table 4.23 also includes a breakdown of Internet transport service revenues for 2002. Competitors hold just over 51% of the Internet transport market in 2002[45], while the ILECs account for the majority of the balance (31%).

Table 4.24 provides a breakdown of the retail Internet access revenues by market participant and identifies their respective share of retail Internet access revenues for both dial-up and high-speed segments for the years 1998 to 2002. The incumbent telephone companies increased their share of retail Internet revenues from 1998 to 2002 in both the dial-up and high-speed segments. Their share of the dial-up revenues increased from 42% in 1998 to 51% in 2002. The incumbents' share of high-speed revenues increased from 12% in 1998 to 37% in 2002. These gains came at the expense of both the cable companies and competitors who experienced decreases in each of these segments.

[45] Earlier data is not available, so it is unclear how market share has been changing in this market segment.

Table 4.24
Retail Internet Access Revenues by Market Participant
($ millions)

	1998		1999		2000		2001		2002		*Growth*	*CAGR*
	Revenues	Share	Revenues	Share	Revenues	Share	Revenues	Share	Revenues	Share	*2001-2002*	*1998-2002*
Telco Incumbents												
Dial-Up	132.5	42%	231.9	48%	282.2	41%	363.5	46%	381.6	51%	5.0%	30.3%
Other	9.2	12%	101.3	34%	161.6	26%	418.3	35%	663.9	37%	58.7%	191.3%
Retail	**141.7**	**36%**	**333.2**	**43%**	**443.8**	**34%**	**781.9**	**39%**	**1,045.4**	**41%**	**33.7%**	**64.8%**
Business Share	16.2%	-	34.8%	-	21.8%	-	29.5%	-	25.4%	-		
Cable Incumbents												
Dial-Up	14.7	5%	17.5	4%	16.4	2%	28.0	4%	17.1	2%	-39.1%	3.8%
Other	40.2	54%	127.9	43%	315.3	52%	587.1	49%	882.3	49%	50.3%	116.4%
Retail	**54.9**	**14%**	**145.4**	**19%**	**331.7**	**26%**	**615.1**	**31%**	**899.4**	**35%**	**46.2%**	**101.2%**
Business Share	7.6%	-	1.9%	-	1.7%	-	7.2%	-	5.9%	-		
Competitors												
Dial-Up	171.4	54%	233.2	48%	386.5	57%	406.3	51%	343.2	46%	-15.5%	19.0%
Other	24.7	34%	65.9	22%	131.1	22%	196.2	16%	248.7	14%	26.7%	78.1%
Retail	**196.1**	**50%**	**299.1**	**38%**	**517.6**	**40%**	**602.6**	**30%**	**591.9**	**23%**	**-1.8%**	**31.8%**
Business Share	21.8%	-	34.3%	-	41.7%	-	43.6%	-	46.5%	-		
Total												
Dial-Up	318.9	100%	482.5	100%	683.2	100%	797.9	100%	741.8	100%	-7.0%	23.5%
Other	73.8	100%	295.1	100%	609.9	100%	1201.6	100%	1794.9	100%	49.4%	122.1%
Retail	**392.7**	**100%**	**777.6**	**100%**	**1,293.1**	**100%**	**1,999.5**	**100%**	**2,536.8**	**100%**	**26.9%**	**59.4%**
Business Share	17.1%	-	28.5%	-	24.6%	-	26.9%	-	23.8%	-		
Four Largest Companies												
Dial-Up	122.3	38%	179.8	37%	185.7	27%	222.7	28%	222.7	30%	0.0%	16.2%
Other	16.5	22%	113.5	38%	320.0	52%	652.6	54%	1067.2	59%	63.5%	183.5%
Retail	**138.8**	**35%**	**293.3**	**38%**	**505.7**	**39%**	**875.3**	**44%**	**1,289.9**	**51%**	**47.4%**	**74.6%**

Source: CRTC Data Collection

As reflected in Table 4.25, competitors' market share declined in both the residential and business segments of the retail Internet access market. Their market share losses were most pronounced in the residential market segment, where competitors' market share dropped from 47% to 16% between 1998 and 2002. The sharp decline is largely explained by the fact that competitors have very little share of the growing residential high-speed access market. Competitors' share of the business segment of the Internet access market has gradually eroded from 64% of the market to 46% over the same period.

Table 4.25
Internet Access Revenues by Market Participant Group
($ millions)

Residential Segment - Retail Internet Access Revenues					
	1998	**1999**	**2000**	**2001**	**2002**
ILECs	118.5	217.3	334.5	551.5	780.0
Market Share	*36.4%*	*39.1%*	*34.3%*	*37.7%*	*40.1%*
Cable	53.5	142.6	326.1	570.8	846.2
Market Share	*16.4%*	*25.6%*	*33.5%*	*39.0%*	*43.6%*
Competitors	153.5	196.5	314.1	339.6	316.9
Market Share	*47.2%*	*35.3%*	*32.2%*	*23.2%*	*16.3%*
Total	325.5	556.4	974.7	1,461.9	1,943.0
Business Segment - Retail Internet Access Revenues					
	1998	**1999**	**2000**	**2001**	**2002**
ILECs	23.0	115.9	96.9	230.4	265.5
Market Share	*34.3%*	*52.4%*	*30.4%*	*42.8%*	*44.7%*
Cable	1.4	2.8	5.6	44.3	53.2
Market Share	*2.1%*	*1.3%*	*1.8%*	*8.2%*	*9.0%*
Competitors	42.7	102.6	216.0	263.0	275.1
Market Share	*63.6%*	*46.4%*	*67.8%*	*48.9%*	*46.3%*
Total	67.1	221.3	318.5	537.6 #	593.8

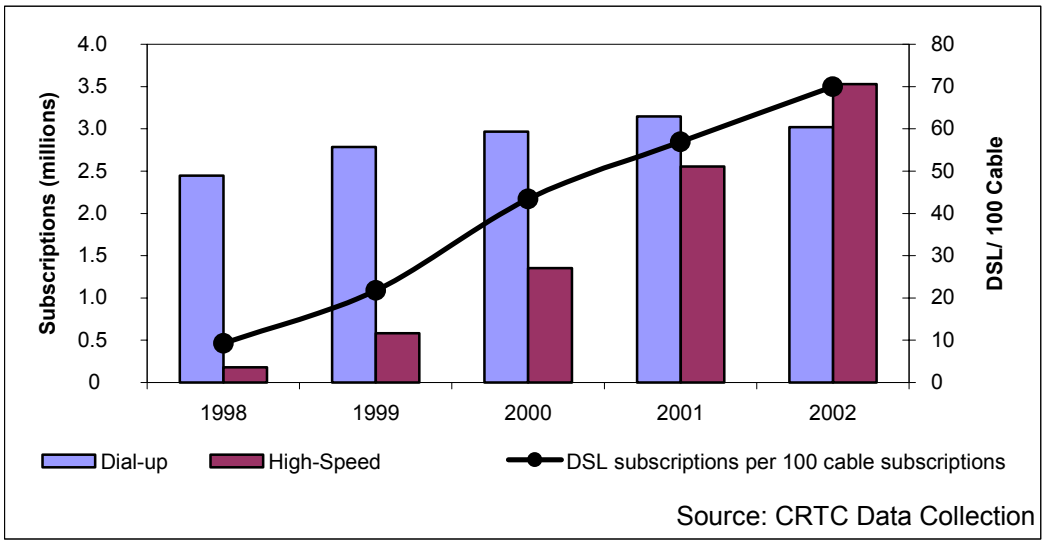
Source: CRTC Data Collection

The volume of Internet access connections are generally measured on the basis of end-user subscriptions. However, business Internet access subscriptions are difficult to unitize, since businesses vary significantly in size. Consequently, the following data on subscriptions focuses solely on the residential segment of the market.

As of year-end 2002, more than 6.5 million, or 51%, of all Canadian households had Internet access subscriptions, an increase of 15% over year-end 2001 and an increase of 51% relative to year-end 2000. In 2002, for the first time, total high-speed exceeded dial-up subscriptions.

Figure 4.22 illustrates the steady ongoing shift from dial-up to high-speed Internet access subscriptions over the last five years. In 2002, dial-up access subscriptions declined slightly relative to 2001 to just 3.0 million subscriptions. High-speed subscriptions grew rapidly in 2002 reaching 3.5 million subscriptions (an increase of roughly 38% over the previous year). DSL subscriptions grew more than twice as fast as cable subscriptions, closing the lead cable had over DSL to roughly 621,000 subscriptions. As shown in Figure 4.22, as of 2002, there were roughly 70 DSL subscriptions per 100 cable subscriptions.

Figure 4.22
Dial-up and High-Speed Residential Internet Subscriptions



In 2002, DSL and cable Internet access service providers launched so-called "high-speed lite" services which provide always-on connections at slower transmission speeds (e.g., in the range of 128 Kbps). These new services are included in the high-speed category shown in Figure 4.22 and account for roughly one third of all new high-speed subscriptions in 2002 (i.e., roughly 290,000 subscriptions which are split almost equally between DSL and cable).

Table 4.26 displays the residential and business Internet access revenues by access technology. In 2002, competitive facilities-based providers and ISPs accounted for just under half of the low-speed, dial-up sector, down considerably from 1998 at which time they held 59% of the market segment. On the other hand, they accounted for only 4% of the residential DSL market (up from 3% the year before) and a negligible share of the cable market.

Table 4.26
Retail Residential and Business Internet Access Revenues and Revenue Market Share by Access Technology
($ millions)

	1998			1999			2000			2001			2002			*Growth*	*CAGR*
	$	ILEC/ Cable Share	Access Mode Share	$	ILEC/ Cable Share	Access Mode Share	$	ILEC/ Cable Share	Access Mode Share	$	ILEC/ Cable Share	Access Mode Share	$	ILEC/ Cable Share	Access Mode Share	*2001-2002*	*1998-2002*
Total																	
Residential	326	48%	100%	556	61%	100%	975	66%	100%	1,462	75%	100%	1,943	83%	100%	*32.9%*	*56.3%*
Business	67	36%	100%	221	54%	100%	319	33%	100%	538	49%	100%	594	54%	100%	*10.4%*	*72.6%*
Retail	**393**	**46%**	**100%**	**778**	**59%**	**100%**	**1,293**	**58%**	**100%**	**2,000**	**68%**	**100%**	**2,537**	**76%**	**100%**	***26.9%***	***59.4%***
Business Share	17%			28%			25%			27%			23%				
Dial-Up																	
Residential	281	41%	86%	407	48%	73%	562	43%	58%	640	46%	44%	628	51%	32%	*-1.8%*	*22.2%*
Business	38	48%	56%	76	50%	34%	121	31%	38%	158	45%	29%	114	54%	19%	*-28.2%*	*31.9%*
Retail	**319**	**41%**	**81%**	**482**	**48%**	**62%**	**683**	**41%**	**53%**	**798**	**45%**	**40%**	**742**	**51%**	**29%**	***-7.0%***	***23.5%***
Business Share	12%			16%			18%			20%			15%				
DSL																	
Residential	5	93%	1%	24	93%	4%	98	96%	10%	262	97%	18%	473	96%	24%	*81.0%*	*214.5%*
Business	3	60%	5%	37	89%	17%	45	76%	14%	118	80%	22%	150	76%	25%	*27.2%*	*165.5%*
Retail	**8**	**80%**	**2%**	**61**	**91%**	**8%**	**143**	**90%**	**11%**	**380**	**92%**	**19%**	**624**	**91%**	**25%**	***64.2%***	***198.4%***
Business Share	39%			61%			32%			31%			24%				
Cable																	
Residential	39	100%	12%	125	100%	23%	311	100%	32%	555	100%	38%	835	99%	43%	*50.5%*	*114.5%*
Business	1	100%	1%	2	100%	1%	5	85%	2%	11	84%	2%	26	92%	4%	*124.6%*	*143.6%*
Retail	**40**	**100%**	**10%**	**127**	**100%**	**16%**	**316**	**100%**	**24%**	**566**	**99%**	**28%**	**860**	**99%**	**34%**	***52.0%***	***115.2%***
Business Share	2%			1%			2%			2%			3%				
ISDN and Other																	
Residential	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	75%	0%	*335.7%*	*n/a*
Business	7	0%	11%	27	0%	12%	39	3%	12%	39	1%	7%	40	10%	7%	*3.7%*	*53.5%*
Retail	**7**	**0%**	**2%**	**27**	**0%**	**3%**	**39**	**3%**	**3%**	**39**	**1%**	**2%**	**40**	**10%**	**2%**	***3.9%***	***53.6%***
Business Share	100%			100%			100%			100%			100%				
Fibre																	
Residential	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	12%	0%	*21.5%*	*n/a*
Business	18	17%	27%	79	58%	36%	108	24%	34%	210	42%	39%	252	46%	43%	*20.1%*	*92.7%*
Retail	**18**	**17%**	**5%**	**79**	**58%**	**10%**	**108**	**24%**	**8%**	**210**	**42%**	**11%**	**253**	**46%**	**10%**	***20.1%***	***92.8%***
Business Share	100%			100%			100%			100%			100%				
Fixed Wireless and Satellite																	
Residential	0	0%	0%	1	100%	0%	4	100%	0%	6	69%	0%	6	48%	0%	*3.4%*	*n/a*
Business	0	100%	0%	0	83%	0%	1	86%	0%	1	49%	0%	12	29%	2%	*1,177.9%*	*176.9%*
Retail	**0**	**100%**	**0%**	**1**	**94%**	**0%**	**4**	**98%**	**0%**	**7**	**66%**	**0%**	**18**	**36%**	**1%**	***161.1%***	***207.5%***
Business Share	100%			35%			14%			13%			66%				

Notes:
Access Mode Share shows access mode's share of total revenues in same category.
Access Mode Share for residential dial-up, for example, shows residential dial-up's share of total residential revenues.
ILEC/Cable Share shows share of total revenues held by companies incumbent in that access mode:
- For dial-up, DSL, ISDN and Other, and fixed-wireless and satellite, the share shows incumbents' share of revenue.
- For cable, the share shows cable incumbents' share of revenue.
- For fibre and total, the share shows combined market share for incumbents, cable incumbents, and rights-of-way incumbents (utilities and municipalities).

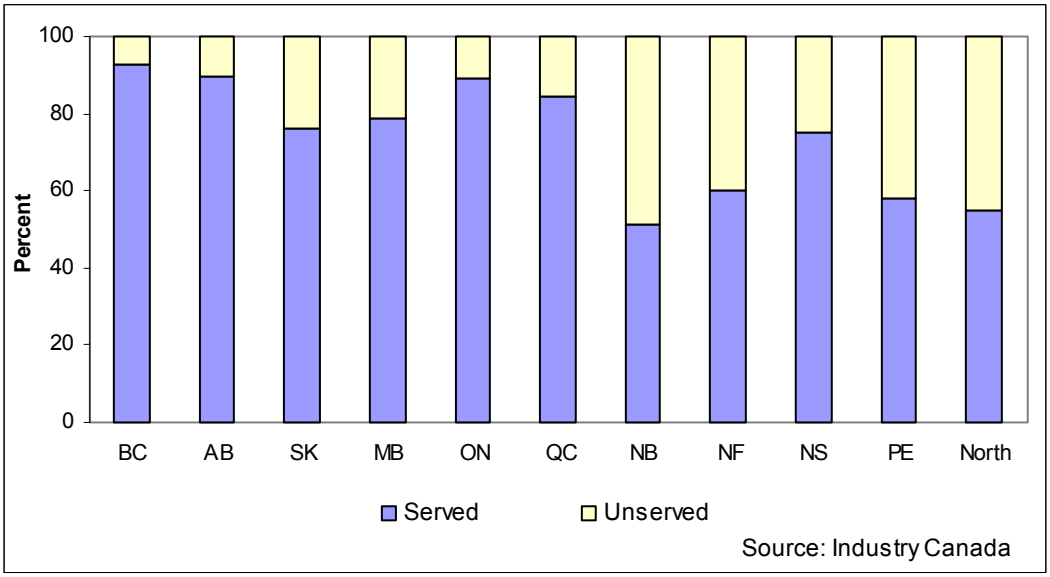
Source: CRTC Data Collection

High-Speed Service Availability by Province

High-speed Internet access services are increasingly available to a growing share of the Canadian population. As Figure 4.23 shows, high-speed access is available to over 80% of the population in the provinces of British Columbia, Alberta, Ontario and Quebec. However, the provinces of New Brunswick, Prince Edward Island, Newfoundland and Labrador, along with the Northern Territories lag significantly behind these levels of penetration.

While available in urban areas and larger communities, many smaller communities do not have access to high-speed Internet service. There are a variety of initiatives currently in place that are intended to accelerate the deployment of high-speed services to rural, remote and First Nations communities so that all Canadians have access to high-speed Internet service. These initiatives are discussed in detail in Section 5.

Figure 4.23
High-Speed Access by Provincial Population



Types and Sources of Facilities and Services Used by Competitors

Competitive ISPs rely on ILEC facilities and services and third-party Internet access services to provide Internet connectivity to end-users. The same applies in the case of cable company third-party Internet access services. However, as noted above, technical difficulties have largely precluded competitors from providing service through this means to date. In addition, in some cases, competitive ISPs rely on the incumbents as well as other competitive telecommunications providers for Internet access and transport facilities.

To date, as displayed in Tables 4.26 and 4.27, competitors have made little headway in the residential segment of the high-speed Internet access market by making use of incumbent facilities and services, as indicated by the relatively small share they hold of that market (i.e., roughly 4% in the case of DSL and virtually zero in the case of cable). On the other hand, reliance on wholesale facilities and services is far more common in the provision of Internet access services to business customers.

Table 4.27
Residential Retail Internet Subscribers by Market Participant

		1998		1999		2000		2001		2002			
		Subs /1000	Share (*)	Subs /1000	Share	Subs /1000	Share	Subs /1000	Share	Subs /1000	Share	*Growth 2001-2002*	*CAGR 1998-2002*
Telco Incumbents	Dial-Up	695	28.4%	1,016	36.5%	1,318	44.4%	1,524	48.4%	1,390	46.1%	*-8.8%*	*18.9%*
	High Speed and Lite	15	8.1%	95	16.4%	396	29.3%	900	35.3%	1,394	39.7%	*54.8%*	*211.8%*
	All Fibre	0	-	0	-	0	0.0%	0	0.0%	0	23.3%	-	-
	Fixed Wireless	0	-	0	-	0	-	0	0.0%	3	40.6%	-	-
	Satellite	0	-	0	-	1	100.0%	3	100.0%	4	91.0%	*54.4%*	-
	Other Types	0	-	0	-	0	-	0	0.0%	0	0.0%	-	-
Other	Dial-Up	1,677	68.5%	1,686	60.5%	1,576	53.1%	1,560	49.5%	1,558	51.6%	*-0.1%*	*-1.8%*
	Cable Higher Speed and Lite	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6	0.3%	-	-
	DSL Higher Speed and Lite	1	4.5%	9	8.5%	14	3.4%	25	2.7%	60	4.2%	*143.1%*	*205.2%*
	All Fibre	0	-	0	-	0	100.0%	0	100.0%	1	62.9%	*37.8%*	-
	Fixed Wireless	0	-	0	-	0	-	6	100.0%	4	59.4%	*-28.4%*	-
	Satellite	0	-	0	0.0%	0	0.0%	0	0.0%	0	9.0%	-	-
	Other Types	0	-	0	-	0	-	0	0.0%	0	0.0%	-	-
Cable Incumbents	Dial-Up	75	3.1%	83	3.0%	74	2.5%	65	2.1%	70	2.3%	*7.4%*	*-1.9%*
	High Speed and Lite	166	91.5%	478	82.1%	943	69.7%	1,624	63.7%	2,055	58.5%	*26.6%*	*87.5%*
	All Fibre	0	-	0	-	0	0.0%	0	0.0%	0	13.8%	-	-
	Fixed Wireless	0	-	0	-	0	-	0	0.0%	0	0.0%	-	-
	Satellite	0	-	0	0.0%	0	0.0%	0	0.0%	0	0.0%	-	-
	Other Types	0	-	0	-	0	-	0	100.0%	0	100.0%	*52.7%*	-
Totals	Dial-Up	2,447	93.1%	2,784	82.7%	2,969	68.7%	3,149	55.2%	3,018	46.1%	*-4.1%*	*5.4%*
	High Speed and Lite	182	6.9%	582	17.3%	1,354	31.3%	2,549	44.7%	3,515	53.7%	*37.9%*	*109.8%*
	All Fibre	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.0%	*119.2%*	-
	Fixed Wireless	0	0.0%	0	0.0%	0	0.0%	6	0.1%	7	0.1%	*20.6%*	-
	Satellite	0	0.0%	0	0.0%	1	0.0%	3	0.0%	4	0.1%	*69.7%*	-
	Other Types	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	*52.7%*	-
Industry Total		2,629		3,367		4,324		5,706		6,546		*14.7%*	*25.6%*

* Percentages refer to access mode's proportion of all residential Internet subscriptions of its type, except for the total rows, where they are a proportion of total industry residential revenues.

Source: CRTC Data Collection

Summary

In 2002, Internet service revenues reached $3.3 billion, increasing close to 24% over the previous year and making it one of the fastest growing segments of the Canadian telecommunications industry. Retail Internet access services account for 77% of the market, while Internet application and other services account for 18% and Internet transport services account for the remaining 5% of the market.

The largest service category, retail Internet access, has also grown very quickly in recent years, increasing at an average annual rate of 40% between 1998 and 2002. The residential segment makes up roughly three-quarters of the market, although its share has been shrinking slightly over the last five years since it has grown less quickly than the business segment of the market. The cable companies' and ILECs' share of virtually all major segments of the market grew steadily and, in the case of residential high-speed services they account for virtually the entire market. Competitors' market shares declined in all major market segments, including the business segment where it declined from 64% to 46% between 1998 and 2002.

As of year-end 2002, more than 6.5 million, or 51%, of all Canadian households had Internet access subscriptions, an increase of 15% over year-end 2001 and an increase of 51% relative to year-end 2000. In 2002, for the first time, total high-speed exceeded dial-up subscriptions.

4.5 Mobile and Paging

Highlights

- In 2002, the wireless industry experienced a growth rate of 10.8% in revenues and 11.1% in wireless subscribers.
- Overall growth in subscribers slowed in 2002, while the percentage of subscribers using post-paid plans increased marginally.
- In 2002, market share (based on revenues) for TELUS, Bell Wireless Alliance (BWA) and Rogers combined was just over 90%.
- After several years of decline, the average revenue per subscriber (ARPU) in 2002 has stabilized at $48 per month.

Sector Description

a) Description of Services

The mobile and paging market segment encompasses telecommunications services provided via wireless access facilities. These services include mobile telephone (including fixed wireless), mobile data such as text messaging, wireless Internet access and paging services. Although satellite private line services are included in the data and private line section of this report, satellite services as they relate to mobile telephone are included in this section.

b) Markets and Observations

Wireless revenues continued to grow at a much higher rate than wireline revenues (see Figure 4.1). The introduction of new services (specifically wireless Internet and digital applications), targeted pricing plans, improved handsets, innovative service bundles and increased substitution for wireline have contributed to the increases in wireless revenues and subscribers. Table 4.28 displays the mobile and paging revenues from 1998 to 2002.

Table 4.28
Mobile and Paging Revenues
($ millions)

	1998	1999	2000	2001	2002	*Growth 2001-2002*	*CAGR 1998-2002*
Basic Voice	3,317.5	3,615.5	4,246.3	5,106.9	5,812.6	*13.8%*	*15.1%*
Long Distance	363.8	399.1	459.4	494.3	517.7	*4.7%*	*9.2%*
Paging	198.3	208.8	240.9	232.0	166.4	*-28.3%*	*-4.3%*
Data	254.8	295.7	364.5	416.9	617.4	*48.1%*	*24.8%*
Terminal	427.6	459.1	513.7	521.3	389.6	*-25.3%*	*-2.3%*
Total	4,562.0	4,978.2	5,824.8	6,771.4	7,503.7	*10.8%*	*13.2%*

Source: CRTC Data Collection

c) Sector Participants

Industry participants include both national and regional wireless carriers as well as entities that resell the services of the national or regional wireless carriers. In 2002, the mobile and paging sector had revenues of approximately $7.5 billion, a 10.8% increase over the previous year, and approximately 12.0 million subscribers representing an 11.1% increase over the previous year.

d) Regulatory Framework

Since 1998, mobile and paging services have been forborne from CRTC regulation. Industry Canada does, however, continue to regulate the spectrum required by the wireless industry.

e) Regulatory Developments

In Decision 2002-34, the Commission reduced rates for wireless access services categorized as Category 1 Competitor Services so as to generally price them at Phase II cost plus a 15% mark-up. The Commission also subjected these services to an inflation minus productivity pricing constraint.

In Decision 2002-38[46], the Commission denied applications by Bell Mobility Inc. (Bell Mobility), Microcell, Rogers Wireless Inc. (Rogers) and TELUS for interim orders prohibiting the Greater Toronto Airport Authority from disconnecting their telecommunications facilities currently located at the Lester B. Pearson International Airport (Toronto).

In Decision 2003-26[47], the Commission denied an application by Microcell requesting that the Commission order Rogers and Bell Mobility to cease and desist from certain specific conduct in the wireless marketplace that Microcell alleged was contrary to section 27(2) of the *Telecommunications Act*.

In Decision 2003-53[48], the Commission set conditions under which wireless carriers could offer services as wireless CLECs, and introduced public safety obligations and liability limitations for all wireless carriers.

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[46] *Part VII Application by Bell Mobility Inc., Microcell Telecommunications Inc., Rogers Wireless Inc. and TELUS Mobility – Disconnection of wireless facilities at Lester B. Pearson International Airport*, Telecom Decision CRTC 2002-38, 5 July 2002.

[47] *Application by Microcell regarding alleged contraventions of section 27(2) of the* Telecommunications Act *by Rogers Wireless and Bell Mobility*, Telecom Decision CRTC 2003-26, 28 April 2003.

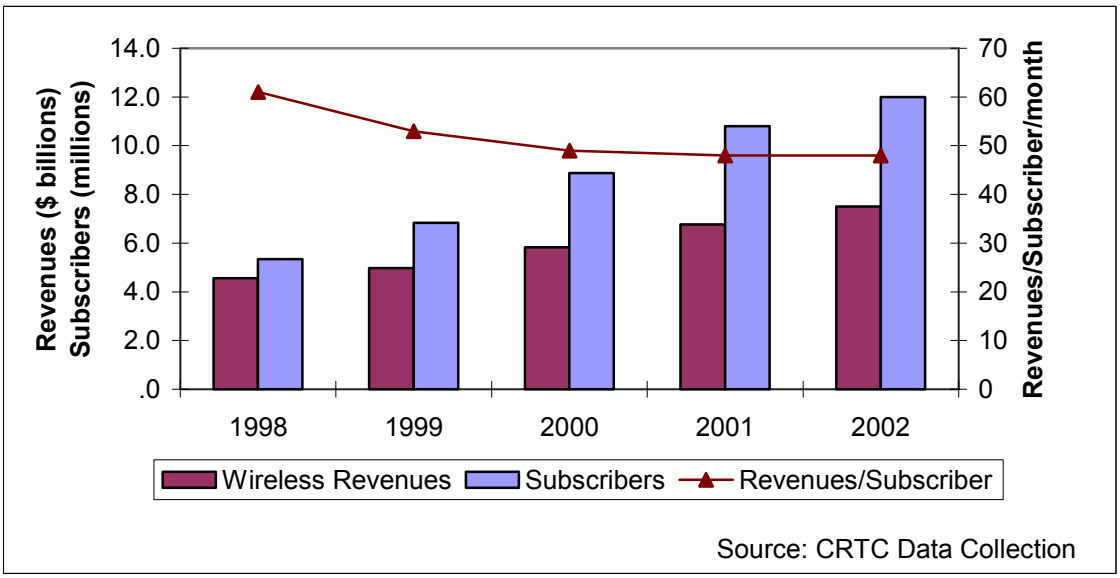
[48] *Conditions of service for wireless competitive local exchange carriers and for emergency services offered by wireless service providers*, Telecom Decision CRTC 2003-53, 12 August 2003.

Market Segments

As displayed in Figure 4.24, wireless revenues have increased from $4.6 billion in 1998 to $7.5 billion in 2002, representing a CAGR of 13.2%. Similarly, the number of wireless subscribers has increased from 5.3 million in 1998 to almost 12.0 million in 2002, resulting in a CAGR of 22.5%. Over the same period, revenues per subscriber dropped from an average of $61 per month to $48 per month, although the downward trend has stabilized in 2002.

Figure 4.24 also shows the ARPU for the years 1998 to 2002. As indicated, the ARPU is beginning to stabilize at the 2001 rate after several years of decline. This results primarily from an increased emphasis by the suppliers on post-paid as opposed to pre-paid plans, reflecting the fact that the ARPU for post-paid plans is significantly higher.

Figure 4.24
Mobile and Paging Revenues, Subscribers and Revenues per Subscriber



As displayed in Figure 4.25, the number of subscribers to wireless services has increased over the period 1999 to 2002. However, the growth rate declined in 2001 and again in 2002. Although the CAGR from 1998 to 2002 was 22.5%, the year-over-year increase for 2002 was only 11.1%. The slower growth rate can be attributed to overall economic conditions and the fact that the mobile market is maturing.

Figure 4.25
Wireless Subscriber Growth

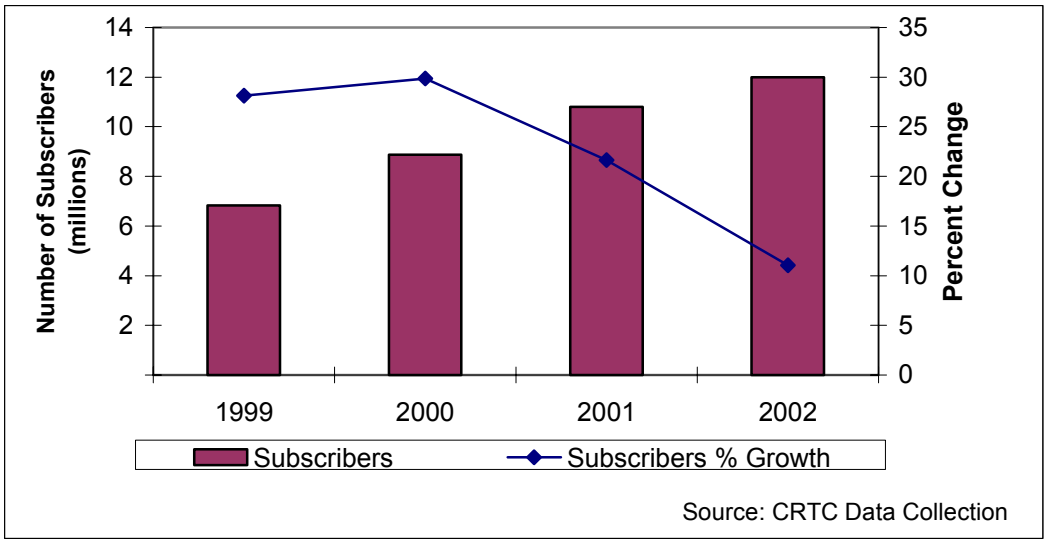
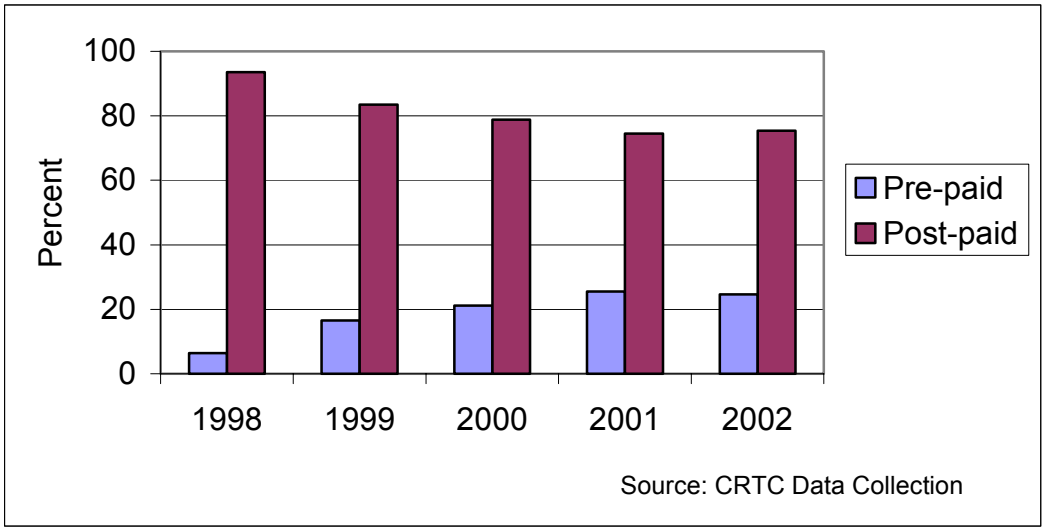


Figure 4.26 presents a comparison of the percent of pre-paid and post-paid subscribers. It shows that from 2001 to 2002 the proportion of post-paid subscribers increased marginally from 74.5% to 75.4%, reversing the downward trend since 1998. A variety of different post-paid plans and options are now available, giving customers more choices and more services, including some, such as mobile Internet access, that are unique to wireless. Most wireless service providers targeted the post-paid segment of the market in order to retain the high value paying customers and minimize their churn rate. Churn rate measures customer turnover, expressed as a rate per month.

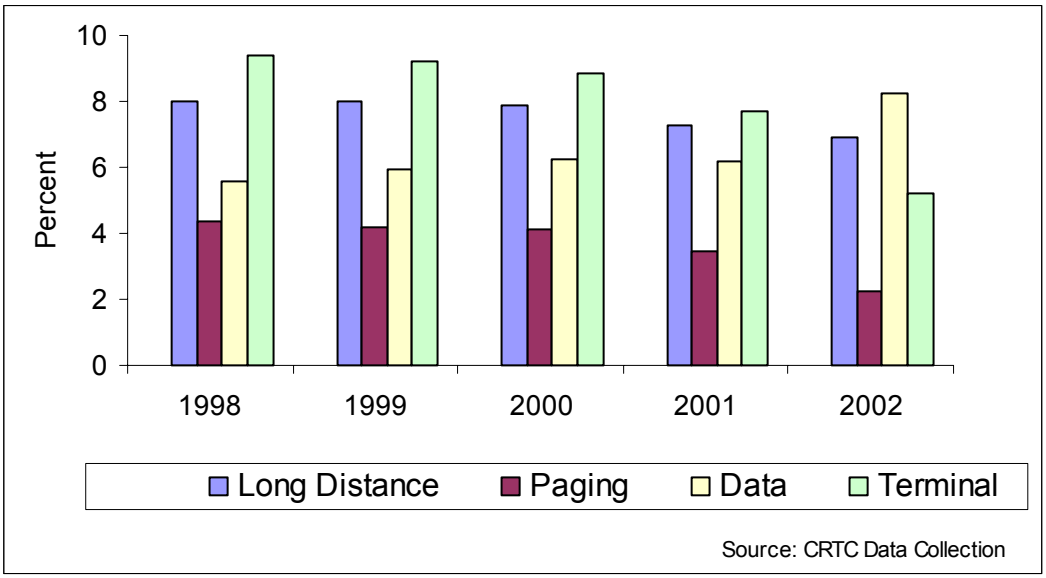
Figure 4.26
Percent of Pre-Paid and Post-Paid Subscribers



Major Revenue Components

From 1998 to 2002, the percentage of mobile and paging revenues attributable to basic voice packages remained relatively constant at roughly 70% of the total revenue. Figure 4.27 shows mobile and paging revenues broken down by major component, excluding basic voice packages. It indicates that the revenues from paging and terminal equipment, as a percent of total wireless revenues, declined each year, while, each year the percent of revenues generated by data increased. In particular, data continues to gain popularity, as revenue from this service has increased by 48% since 2001. This increase is a result of improved technologies which have enabled new wireless data applications. Paging revenues have been decreasing steadily over the last five years, due primarily to replacement of pagers by mobile phones.

Figure 4.27
Mobile and Paging Revenues by Major Component (excluding Basic Voice)



Figures 4.28 and 4.29 portray the market share of each of the major players in the industry, measured in terms of revenues (Figure 4.28) and subscribers (Figure 4.29).

BWA[49] reported a growth in its customer base of 11.5% over 2001, as well as revenues of $2.5 billion, an increase of 17%. Bell Mobility, its largest member, had 73% of its customers on post-paid plans, compared to 70% in 2001. In 2002, its blended ARPU was $47 and its churn rate was 1.6%.

In 2002, TELUS reported a 16% increase in subscribers, while revenues increased by 11.5% to $2.0 billion. Post-paid subscribers represented 83% of their total customers. The blended ARPU was $55, down from $57 in 2001. The churn rate for 2002 was 1.8%.

Rogers reported an increase, in 2002, in subscribers of 10.9%, together with revenues of $1.97 billion, which represented an increase of 12.1%. Its percent of post-paid subscribers was 77%. The blended ARPU was $45, and its post-paid churn rate was 2.0%.

Microcell reported revenues of $591 million for 2002, an increase of 9.2%. However, subscribers decreased in 2002 over 2001 by 5.4%. The percent of pre-paid customers in 2002 increased to just over 53%, while the blended ARPU declined to $40 from $41. The churn rate in 2002 increased to 3.4%.

[49] BWA includes Bell Mobility, Aliant Telecom, SaskTel, MTS, Northwestel Mobility Inc., Télébec Mobilité and NorTel (Northern) Mobility.

Overall, based on revenues, the three largest suppliers (TELUS, BWA and Rogers) have a market share of approximately 90%. Microcell's share of the market declined in 2002. Microcell restructured in 2002 which provided relief on its balance sheet. In June 2003, Microcell entered into an agreement with Sprint Canada Inc. (Call-Net) to offer a residential wireless-wireline bundled service. This arrangement is designed to provide home telephone and wireless phone services with one point of customer contact and one monthly bill.

Figure 4.28
Major Wireless Players' Market Share (Revenues)

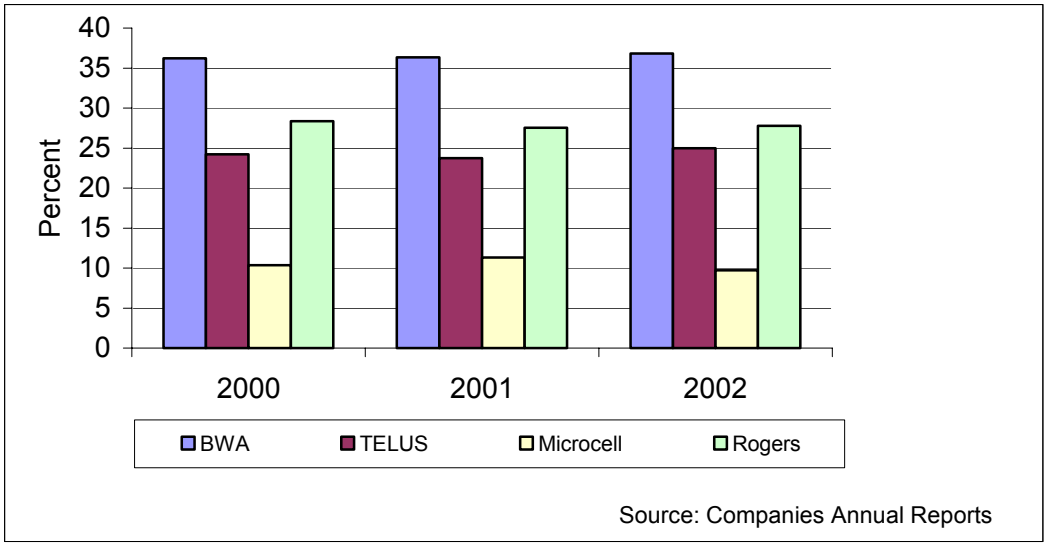


Figure 4.29
Major Wireless Players' Market Share (Subscribers)

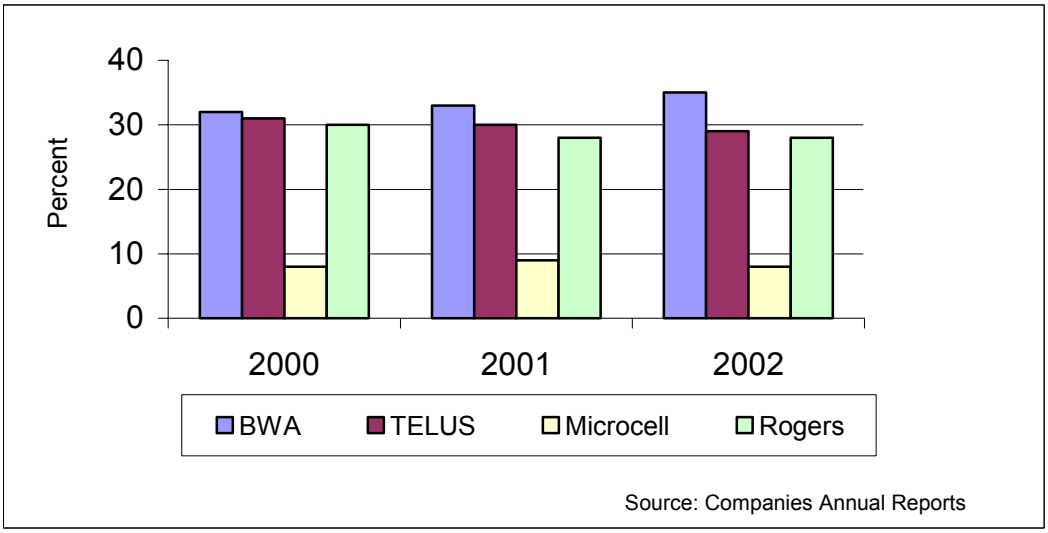


Table 4.29 shows the churn rate for each of the major players for the last five years. It is calculated by dividing the disconnected subscriber units by the average number of units. Without number portability and platform compatibility between service providers, and with longer term post-paid contracts, these rates are generally low. The churn rates in 2002 declined for two of the carriers and increased for the other two.

Table 4.29
Churn Rate[50]

	1998	1999	2000	2001	2002
Bell Mobility	1.4%	1.7%	1.5%	1.5%	1.6%
Microcell	2.1%	2.1%	2.2%	2.6%	3.4%
Rogers	1.9%	1.9%	2.4%	2.2%	2.0%
TELUS	1.3%	1.6%	2.0%	2.0%	1.8%

Source: Companies Annual Reports

Paging

The number of subscribers in the paging market decreased over the previous year by 13.8%, while the revenues declined 20.9%.

Bell Mobility, Rogers and TELUS continued to dominate the market, accounting for just less than 90% of the paging revenues in 2002.

[50] Churn rates for Rogers are for post-paid accounts.

Mobile Coverage

The maps on the following pages show mobile coverage across Canada, first by type of technology (digital/analog) and then by the number of service providers.

Mobile coverage did not expand significantly in 2002, due to a sizable decrease in capital expenditures, and to the previous year's increase in coverage as a result of enhanced roaming agreements between TELUS and BWA.

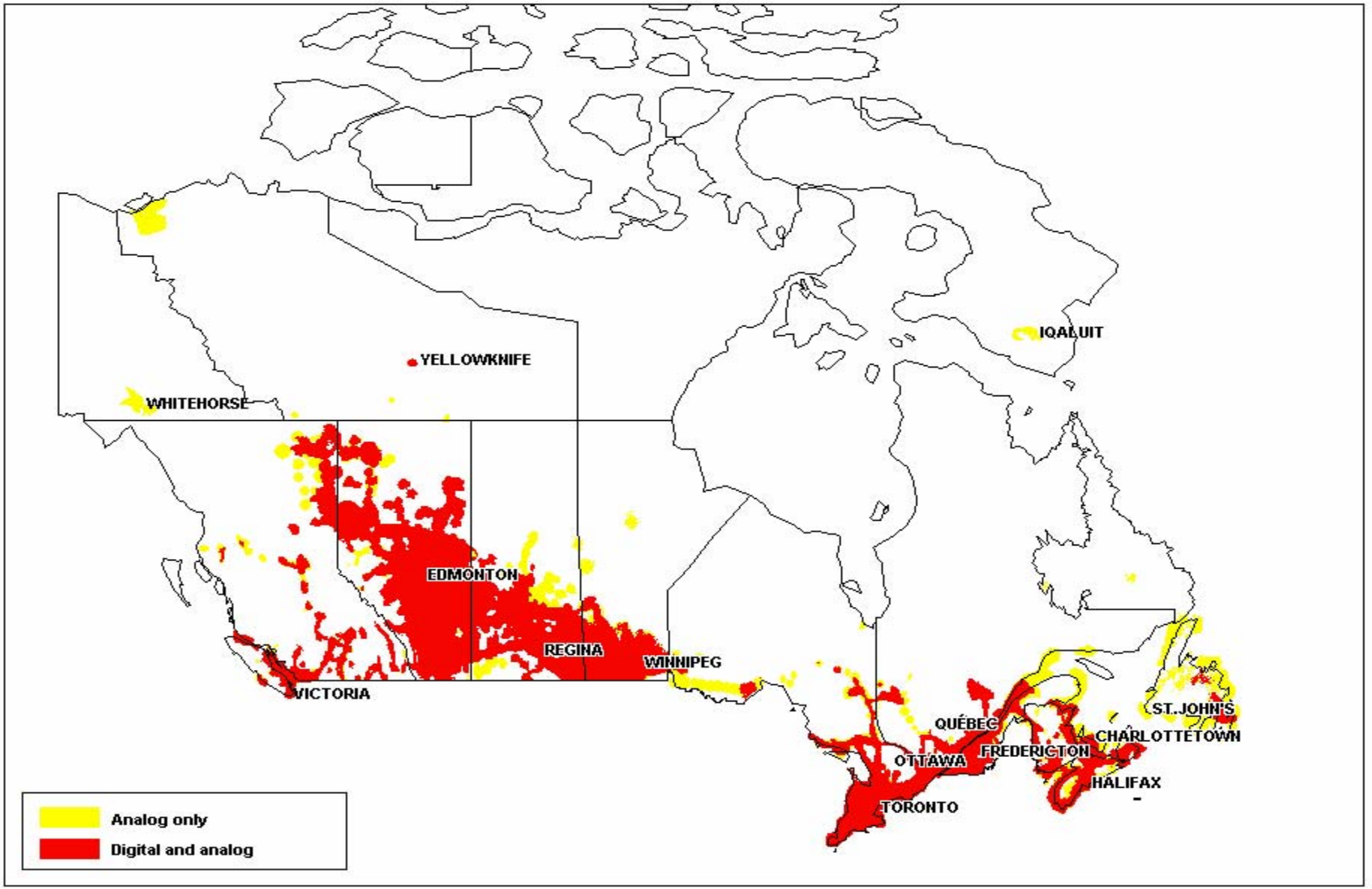
Summary

The size of the mobile market, both in terms of revenues and subscribers, continued to increase significantly in 2002, although at a lower rate than that of previous years. While long distance revenues continue to grow, the data market appears to be the area with the most potential for growth in the coming years. New data applications, combined with better wireless technologies, should fuel this growth.

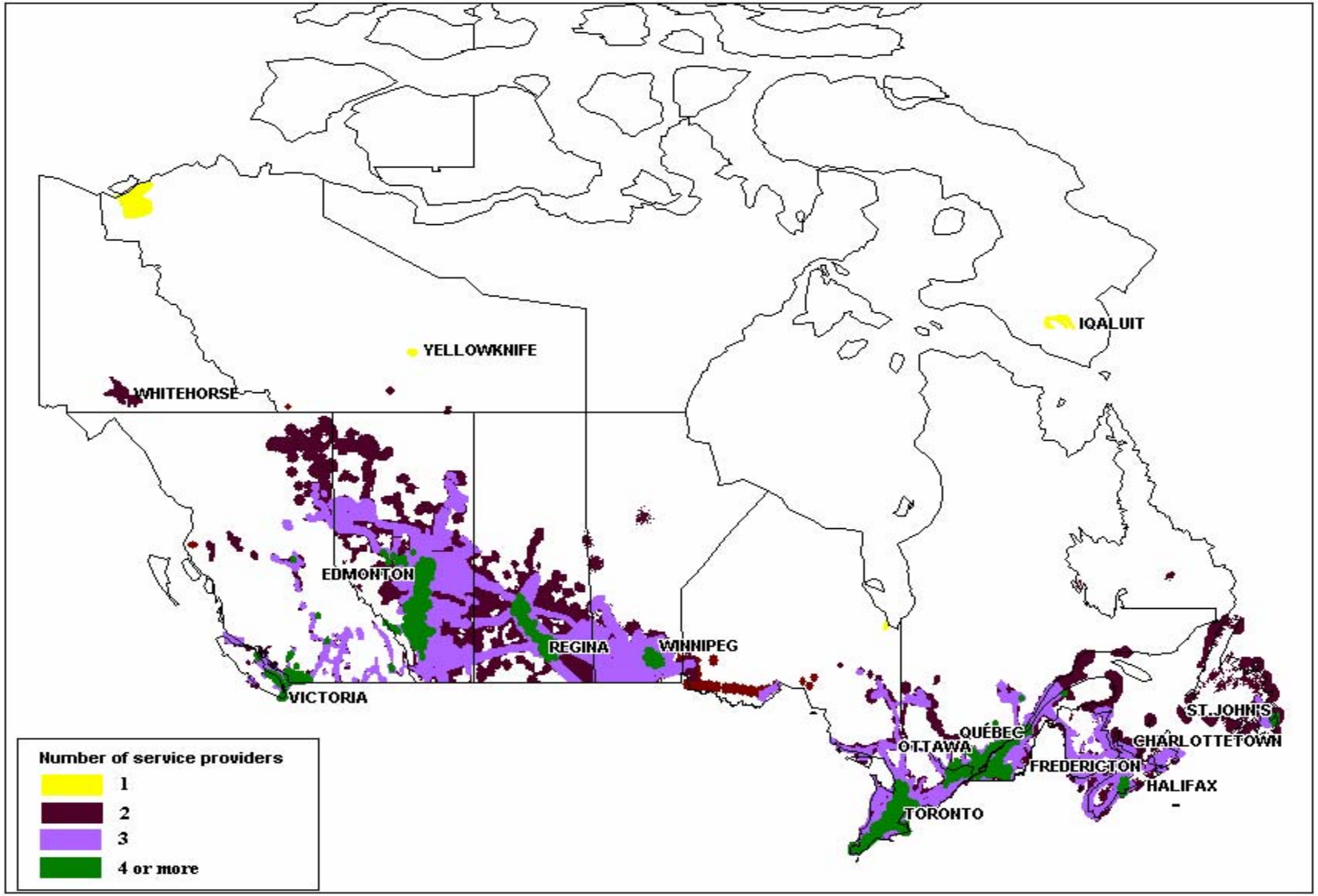
The market share, based on revenue, of the three largest carrier groups (TELUS, BWA and Rogers) continues to exceed 90%. The ARPU, after several years of decline, has stabilized.

Not all segments of the market expanded. Paging continued its downward trend in 2002 as customers switched to other mobile technologies.

National Mobile Coverage (Digital and Analog Service)



Presence of Mobile Service Providers



4.6 Data and Private Line

Highlights

- Data and private line revenue growth declined from 14% in 2001 to 1.6% in 2002.
- Data revenue growth declined from 10.5% in 2001 to 4.2% in 2002.
- Competitors' share of data revenues in 2002 increased from 22% in 2001 to 24% in 2002.
- Private line revenue growth declined from 17% in 2001 to a negative 0.4% in 2002.
- Competitors' share of private line revenues declined from 31% in 2001 to 28% in 2002.

Sector Description

a) Description of Services

Data services are used to provide access to, and connectivity between, local area data, video and voice networks to establish dedicated or virtual private networks (VPNs) within a metropolitan area or on a broader national or international scale, providing customers with managed local area network and wide area network services. Data services include X.25 (packet switched network), Frame Relay, Asynchronous Transfer Mode (ATM), IP-enabled Frame Relay (or IP-VPN) and Ethernet.

Private line services provide the capability to link two or more locations over dedicated facilities for the purpose of transporting data, voice or video traffic. Private line services include high-capacity digital transmission services (at speeds ranging from 56/64 Kbps to gigabit speeds over fibre) and digital data systems, as well as voice grade and other analog services.

b) Markets and Observations for 2002

The data and private line market segment is the third largest telecommunications segment with an annual growth rate of approximately 8% over the period 2000 to 2002, and revenues of $5.0 billion or roughly 15% of total telecommunications revenues in 2002.

Data revenues represented 44% of the data and private line revenues while private line revenues represented 56%.

Table 4.30
Data and Private Line Revenues[51]
($ millions)

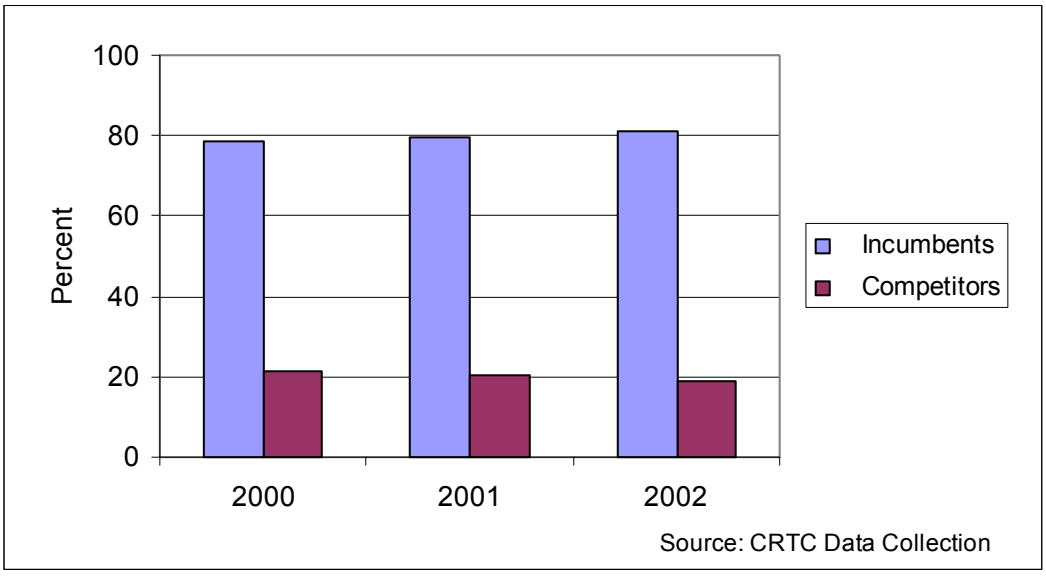
	2000	2001	2002	*Growth 2001-2002*	*CAGR 2000-2002*
Data	1,913 #	2,113 #	2,201	*4.2%*	*7.3%*
Private Line	2,398 #	2,813 #	2,801	*-0.4%*	*8.1%*
Total	4,311 #	4,925 #	5,002	*1.6%*	*7.7%*

Source: CRTC Data Collection

c) Sector Participants

Data and private line services are provided by a number of players including both wireline and satellite service providers. These include incumbent PSTN wireline carriers, satellite service providers such as Telesat Canada, competitive service providers, both facilities- and resale-based, cable companies and, more recently, utility telcos. Data and private line services are marketed to end-customers in the retail market, as well as to other service providers as wholesale services that are either resold or used by these service providers in the provision of their other services.

Figure 4.30
Data and Private Line Revenues
Incumbents v. Competitors



[51] Prior year amounts, denoted by # have been restated to reflect new and/or updated information provided by survey respondents. Additionally, some prior year revenues have been reclassified within market segments to provide a consistent basis for comparison with the current year's data.

Figure 4.30 provides a summary of the incumbents' and competitors' share of data and private line revenues (including retail and wholesale) for the years 2000 to 2002. Although the sector revenues have increased in 2002 by approximately 1.6%, the competitors' share of these revenues continues to decline from slightly above 20% in 2000 to slightly below 20% in 2002.

d) Regulatory Framework

Competition was first permitted in the interexchange private line and data market in 1979. The CRTC has since forborne from the regulation of much of the incumbents' data services as well as their private line services on many interexchange routes.

Generally, the Commission forbears pursuant to section 34 of the *Telecommunications Act* when it considers that the service is, or will be, subject to a level of competition sufficient to protect the interests of users of the service.[52]

Market Segments

Data Services

For the purpose of this report, data service revenues have been disaggregated into four categories: X.25, Frame Relay, ATM and Other (including IP-VPN and Ethernet service).[53] A summary of the industry-wide data service revenues for the years 2000 to 2002 and for each of the major categories is provided in Table 4.31.

[52] Order 99-434, 12 May 1999, directs competitors that provide telecommunications services, to file with the CRTC, on 1 April and 1 October of each year a report identifying all interexchange private line routes on which they provide or offer IXPL service at the equivalent of a DS-3 (44.736 Mbps) bandwidth, using their own terrestrial facilities, terrestrial facilities leased from other than an ILEC or an affiliate of an ILEC. The Order further states that upon the Commission being satisfied that one or more competitors meet this criterion, it would proceed quickly to forbear without process given that the evidence on which the forbearance determination would be made stem from the ILECs' competitors. Incumbents are free to apply for forbearance.

[53] In 2002, the services in Other included: Ethernet (26%), IP-VPN (5%), Network Management (20%) and various other services. Source: CRTC Data Collection.

Table 4.31
Data Service Retail and Wholesale Revenues by Service Category
($ millions)

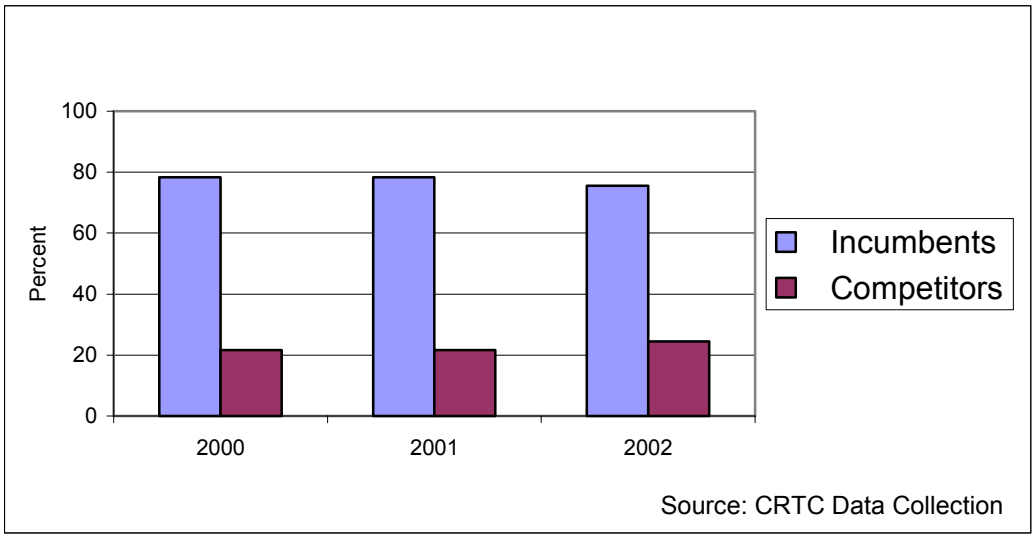
	2000	2001	2002	*Growth 2001-2002*	*CAGR 2000-2002*
X.25					
Retail	148 #	160 #	161	0.4%	*4.2%*
Wholesale	19 #	20 #	23	11.1%	*8.1%*
Sub-Total	168 #	181 #	184	1.6%	*4.6%*
Frame Relay					
Retail	509 #	531 #	608	14.5%	*9.3%*
Wholesale	65 #	80 #	74	-8.4%	*6.3%*
Sub-Total	574 #	611 #	681	11.5%	*9.0%*
ATM					
Retail	67 #	97 #	120	24.1%	*33.7%*
Wholesale	8	9	12	41.0%	*23.3%*
Sub-Total	75 #	106 #	133	25.5%	*32.6%*
Other					
Retail	819 #	944 #	1,050	11.2%	*13.2%*
Wholesale	277 #	271 #	153	-43.5%	*-25.6%*
Sub-Total	1,096 #	1,215 #	1,203	-1.0%	*4.8%*
Total Data Services					
Retail	1,543 #	1,732 #	1,939	11.9%	*12.1%*
Wholesale	369 #	380 #	262	-31.2%	*-15.8%*
Total	1,913 #	2,113 #	2,201	4.2%	*7.3%*

Source: CRTC Data Collection

As Table 4.31 illustrates, in 2002, total retail and wholesale data service revenues were approximately $2.2 billion, representing an increase of approximately 4.2% over 2001. However, the growth rate of the individual data service categories, both retail and wholesale, vary considerably. With respect to specific services, X.25 revenues increased by 1.6% in 2002 while Frame Relay revenues, representing the largest component of data service revenues at roughly 30%, increased 11.5%. The fastest revenue growth in 2002 is ATM service at approximately 25.5%. The Other service category experienced a slight decline of approximately 1% mainly due to declines in the wholesale sector.

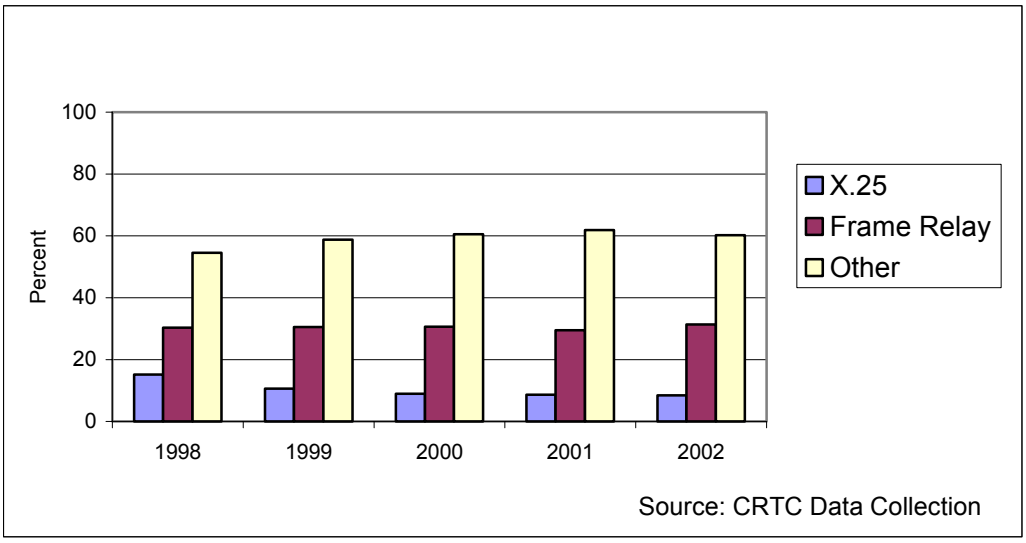
As illustrated in Figure 4.31, the competitors' share of data service revenues remained relatively unchanged since 2000, increasing slightly in 2002 to approximately 24%.

Figure 4.31
Data Service Revenues
Incumbents v. Competitors



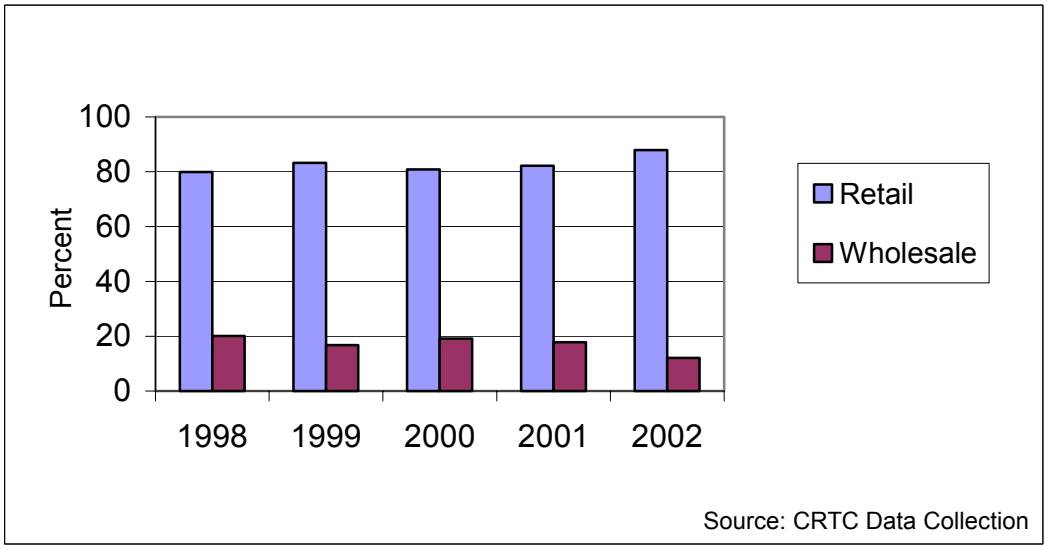
Due to the varying growth rates in specific data services revenues, the distribution of service revenues within the data sector changed significantly between 1998 and 2002. As shown in Figure 4.32, the share of revenues attributable to X.25 in 2002 is slightly less than in 2001, whereas the share of Frame Relay revenue increased slightly since 2001. Although the share of Other service revenues decreased from 58% in 2001 to 55% in 2002, the retail portion of these revenues increased by 11% and the wholesale portion decreased by 44% suggesting that competitors are relying less on incumbent facilities in the provision of new services.

Figure 4.32
Data Services
Revenue Distribution by Service Category



Data wholesale revenues, as displayed in Figure 4.33, declined by approximately 31% in 2002. This reduced data wholesale revenues as a percentage of overall data service revenues from 18% in 2001 to 12% in 2002.

Figure 4.33
Retail and Wholesale Revenues
as a Percent of Total Data Service Revenues



As displayed in Table 4.32, the competitors' share of total data revenues is approximately 24%. However, within specific market segments, competitors' share of these revenues varies widely from approximately 1% for X.25 service to 42% for Frame Relay.

Table 4.32
Market Share by Data Service Category

	1998	1999	2000	2001	2002
X.25					
Incumbents	93%	98%	100%	100%	99%
Competitors	7%	2%	0%	0%	1%
Frame Relay					
Incumbents	52%	52%	54%	56%	58%
Competitors	48%	48%	46%	44%	42%
Other (Includes ATM, Ethernet and Frame Relay)					
Incumbents	90%	87%	87%	85%	82%
Competitors	10%	13%	13%	15%	18%
Total					
Incumbents	79%	77%	78%	78%	76%
Competitors	21%	23%	22%	22%	24%

Source: CRTC Data Collection

In 2002, Ethernet revenues represented 26% of the revenues in the Other category. In 2002, competitors had 14% of the Ethernet revenues. The industry is introducing new data services to meet customer requirements for increased speed, functionality and reduced cost. Ethernet and IP based Virtual Private Network (VPN) solutions are new services that meet these customer requirements and tend to replace existing mature data services such as X.25, Frame Relay, and ATM. Both incumbents and competitors are aggressively introducing these new services into the marketplace to capture market share in the data services segment.

As indicated in Table 4.31, 2002 data wholesale revenues were approximately $0.3 billion. Wholesale revenues declined in 2002 by approximately 31%. This decrease in wholesale revenues is attributable to both Frame Relay and Other data services which decreased in 2002 by 8% and 44% respectively.

Private Line Services

Private line service is non-switched point-to-point or multipoint connections that can be used for voice, data and video transmissions with various bandwidths. Private lines can be analog or digital, and be provided over copper wire, fibre optics or satellites. In this report, private line services have been disaggregated into two main categories: short-haul and long-haul private lines. A further breakdown of long-haul service between satellite and terrestrial providers is also provided.

Table 4.33 provides a summary of industry-wide revenues for the years 2000 to 2002 for both short- and long-haul private line services.

Table 4.33
Private Line Service Retail and Wholesale Revenues by Market Segment
($ millions)

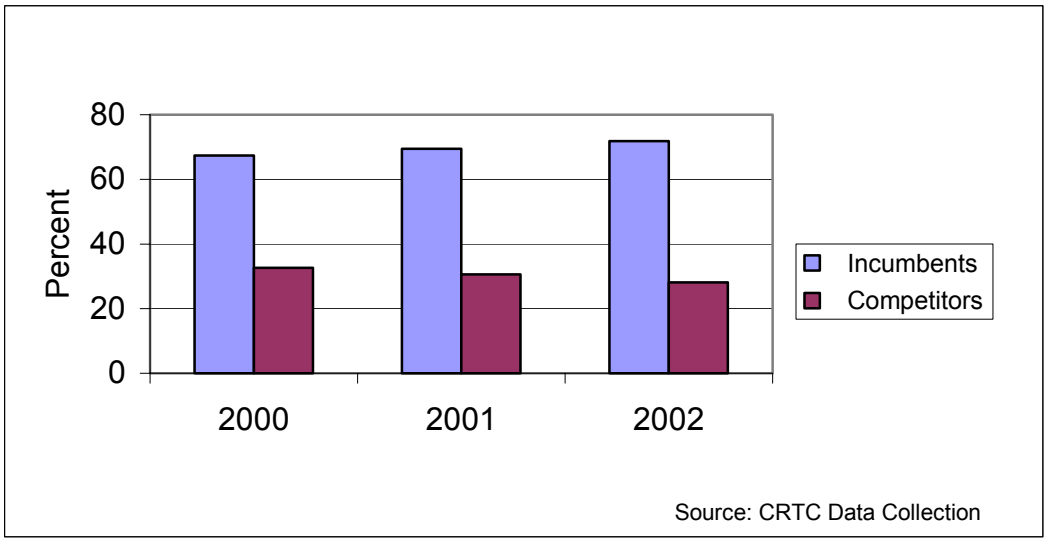
	2000	2001	2002	*Growth 2001-2002*	*CAGR 2000-2002*
Short-Haul					
Retail	385	471	527	*11.7%*	*17.0%*
Wholesale	379	515	650	*26.4%*	*31.0%*
Total	763	986	1,177	*19.4%*	*24.2%*
Long-Haul					
Retail	922	971	800	*-17.6%*	*-6.9%*
Wholesale	712	856	825	*-3.6%*	*7.6%*
Total	1,634	1,827	1,624	*-11.1%*	*-0.3%*
Total					
Retail	1,307	1,442	1,326	*-8.0%*	*0.7%*
Wholesale	1,091	1,370	1,475	*7.6%*	*16.3%*
Total	2,398	2,813	2,801	*-0.4%*	*8.1%*

Source: CRTC Data Collection

Total private line revenues reached $2.8 billion in 2002, a marginal decrease of 0.4% over 2001. However, over the three-year period, private line revenues experienced growth at an annual average growth rate of approximately 8.1%. The short-haul segment of the market is growing while the long-haul has experienced a small average annual reduction over the three-year period, but a significant reduction of 11.1% in 2002. The relative share of the private line revenues attributable to the short-haul market rose from approximately 35% in 2001 to 42% as of 2002.

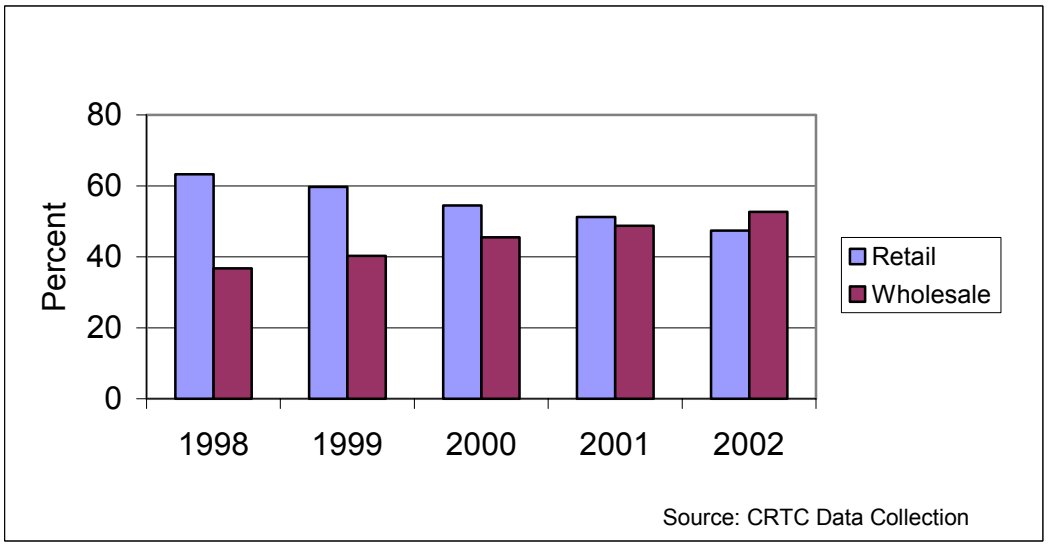
Figure 4.34 displays the incumbents' and competitors' share of private line revenues from 2000 to 2002. Incumbents are gaining a greater share of private line revenues that, as displayed in Table 4.33, are growing at approximately 8% since 2000. In 2002, competitors' share of private line revenues was 28%, down from 31% from the previous year.

Figure 4.34
Private Line Service Revenue Trends
Incumbents v. Competitors



In general, wholesale revenues for the short-haul segment experienced a growth of 26% over 2001, while the wholesale long-haul revenues experienced a decline of approximately 4% over the same period.

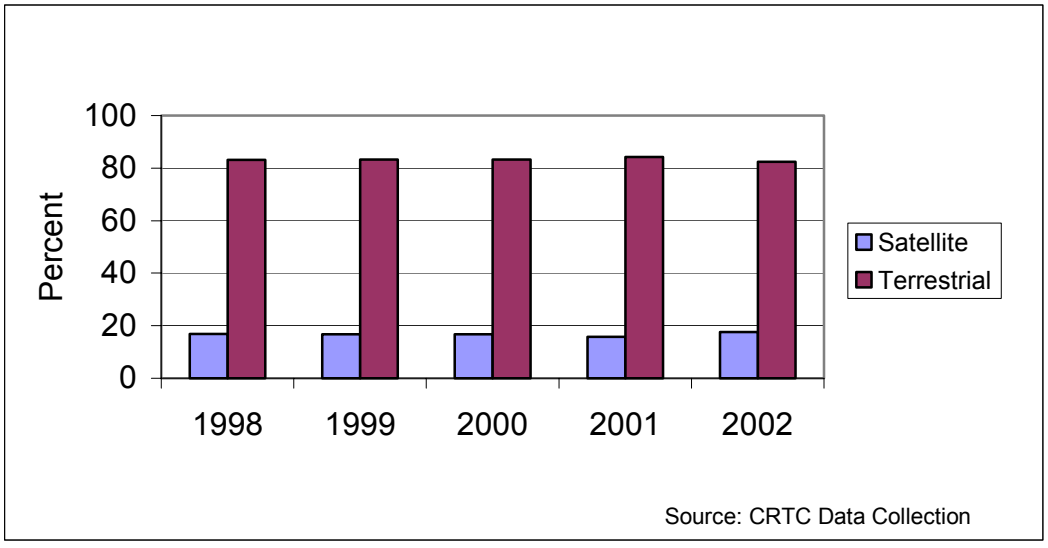
Figure 4.35
Private Line Service Revenue Distribution
Retail v. Wholesale



In 2002, wholesale private line revenues exceeded retail revenues as illustrated in Figure 4.35.[54] Wholesale private line revenues grew from 2000 to 2002 at an annual growth rate of 16.3%. Most of this growth is attributable to the growth in short-haul wholesale revenues that increased from $379 million in 2000 to $650 million in 2002, representing an annual growth rate of roughly 31%. The fact that wholesale revenues exceeded retail revenues would suggest that competitors were increasingly using short-haul private lines for backhaul purposes when provisioning their services.

Long-haul private line services are provided over terrestrial facilities as well as via satellites. The share of the total retail and wholesale private line revenues provided via satellites remained relatively constant, ranging from 16% to 18% over the 1998 to 2002 period, as illustrated in Figure 4.36.

Figure 4.36
Long-Haul Private Line Service
Satellite v. Terrestrial Facilities



The incumbents accounted for approximately 85% of the revenues in the private line market, as illustrated in Table 4.34 which provides a breakdown of incumbents and competitors revenue-based market share in the private line market for the 1998 to 2001 period.

[54] As defined in the survey forms, wholesale is the provision of a telecommunications service or facility to a service provider, regardless of whether that service provider rebills the service or facility to another entity, or uses that service or facility internally to support the services it bills.

Table 4.34
Private Line Service Revenues
Short-Haul and Long-Haul Market Share

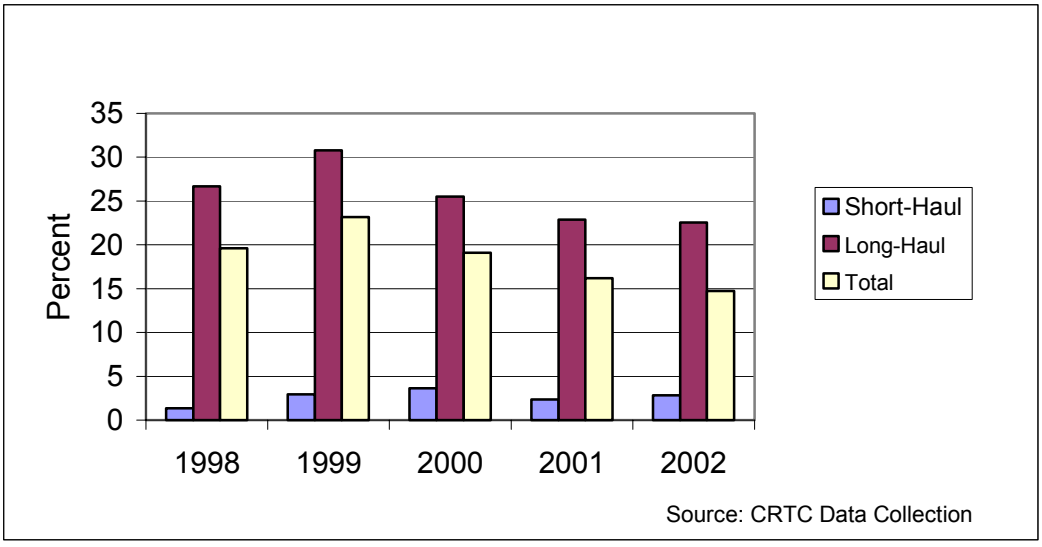
	1998	1999	2000	2001	2002
Short-Haul					
Incumbents	95%	95%	95%	97%	93%
Competitors	5%	5%	5%	3%	7%
Long-Haul					
Incumbents	78%	73%	72%	72%	80%
Competitors	22%	27%	28%	28%	20%
Total					
Incumbents	83%	80%	79%	81%	85%
Competitors	17%	20%	21%	19%	15%

Source: CRTC Data Collection

As of 2002, competitors' share of the private line revenues decreased to 15% versus the 19% in 2001. Competitors' share of short-haul revenue was much smaller at 7%, whereas their share of the long-haul market segment was much higher at 20%.

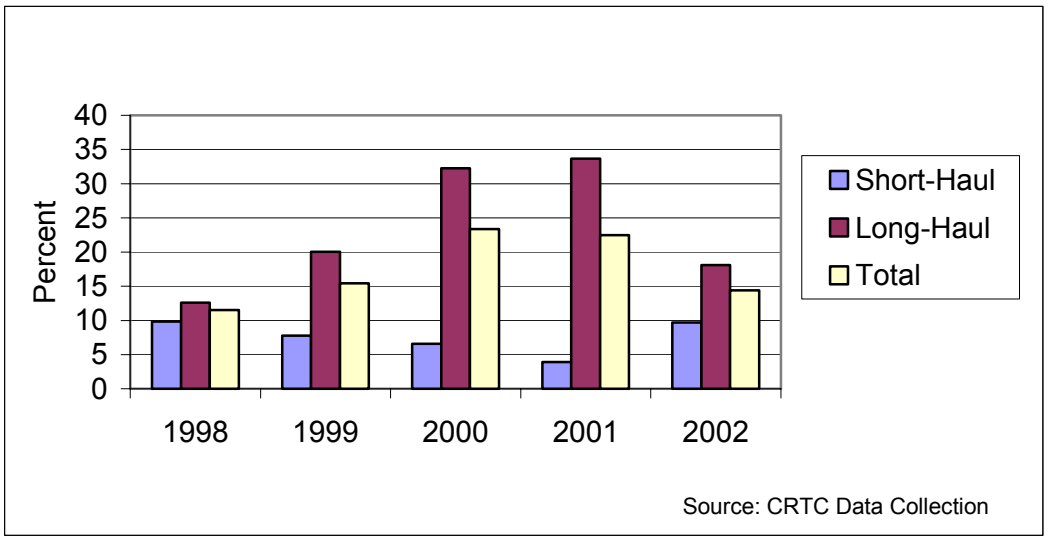
Over the past five years, competitors' market share of the retail revenues of the private line market generally declined. For the period 1998 to 2001, the decline was most pronounced in the long-haul segment, but for 2002 the segment market held by competitors was about the same as in 1998, but in total, the competitors' share of the retail private line market fell from 17% in 1998 to 15% in 2002. Figure 4.37 illustrates the trend in competitors' retail private line market share over the period 1998 to 2002.

Figure 4.37
Retail Private Line Revenues
Competitors' Market Share



In contrast to the retail market segment for the period 1998 to 2001, competitors' share of the wholesale private line market generally increased. However, for 2002 with the exception of the short-haul market which increased from 4% to 10%, the wholesale private line long-haul market trend reversed into a decline. While the competitors held 34% of the wholesale long-haul market in 2001, their share dropped to 17% in 2002. In total, the competitors' share of the total wholesale market declined from 23% held in 2001 to 14% in 2002.

Figure 4.38
Wholesale Private Line Service Revenues
Competitors' Market Share



As displayed in Table 4.33, in 2002 the private line wholesale revenues were approximately $1.5 billion. The incumbents accounted for roughly 86% of the wholesale revenues.[55] Private line wholesale revenues increased by 8% in 2002 and displayed annual growth rates of 16% since 2000. Short-haul private line wholesale revenues increased roughly 26% in 2002 and 31% since 2002, suggesting continued reliance on incumbent facilities. Long-haul private line wholesale revenues decreased by 4% which may be reflective of the decline in retail long-haul private line revenues of 18%.

[55] Source: CRTC Data Collection.

Forborne Routes

By the end of 2002, the Commission had forborne from regulating approximately one thousand interexchange private line routes.[56] Table 4.35 lists these routes by city/exchange. Many of these routes are between exchanges located in smaller cities or municipalities.

Table 4.35
Interexchange Private Line Routes Forborne
(Based on Originating City)

Province	Originating City	Number of Terminating Locations		Province	Originating City	Number of Terminating Locations
Alberta	Calgary	24		Quebec	Beloeil	27
	Edmonton	21			Boucherville	26
British Columbia	Burnaby	1			Bromont	25
	Kamloops	23			Châteauguay	24
	Kelowna	1			Chicoutimi	23
	New Westminster	25			Drummondville	22
	Penticton	1			Granby	21
	Prince George	5			Joliette	20
	Vancouver	36			Jonquière	19
	Victoria	24			Lacolle	28
Manitoba	Winnipeg	20			Lévis	18
New Brunswick	Bathhurst	1			Longueuil	17
	Edmunston	1			Loretteville	16
	Fredericton	2			Magog	15
	Miramichi	3			Mirabel	30
	Saint John	2			Montréal	17
Nova Scotia	Campbellton	1			Pointe-Claire	12
Ontario	Belleville	4			Pont Viau	11
	Brampton	13			Québec	12
	Brantford	8			Rivière-du-Loup	28
	Guelph	12			Roberval	30
	Hamilton	8			Shawinigan	9
	Kingston	1			Sherbrooke	8
	Kitchener	11			Sorel	30
	London	9			Ste-Rose	7
	Mississauga	1			St-Félicien	30
	Oshawa	5			St-Jean	6
	Ottawa	17			St-Jérôme	5
	Sarnia	14			St-Lambert	4
	Smith Falls	1			Ste-Thérèse	33
	St. Catherines	6			Trois-Rivières	3
	Stratford	10			Vaudreuil	2
	Streetsville	1			Victoriaville	1
	Sudbury	16		Saskatchewan	Regina	19
	Thunder Bay	17			Saskatoon	19
	Toronto	24				
	Unionville	4				
	Waterloo	2				
	Windsor	1		Total Number of Forborne Routes		993

Source: CRTC Records

[56] These routes are incumbents' routes that, based on the criteria used by the Commission, have been forborne from regulation. Generally, a route is forborne from regulation if a competitor is providing or offering to provide private line service on a route at a capacity that is equal or greater to a DS-3 (44.736 Mbps) bandwidth.

Summary

The data and private line market grew at a rate of 1.6% in 2002, compared to 14.2% in 2001. The competitors' share of data and private line revenues decreased slightly to just below 20%. With respect to data service revenues, retail data service revenues increased 11.9% in 2002, while the wholesale revenues decreased by 31.2%, resulting in an overall growth of 4.2%. The competitors' share of these revenues increased slightly from 22% in 2001 to 24% in 2002. The majority of the decrease in data revenue growth was attributed to wholesale revenues which was mainly related to the Other category that includes the newer services such as Ethernet and IP-VPN. However, within the Other category, retail revenues increased by 11.2% in 2002, whereas wholesale revenues decreased by 43.5%.

Private line revenues decreased in 2002 by 0.4% compared to a 17.3% growth rate in 2001. The competitors' share of these revenues decreased from roughly 31% in 2001 to 28% in 2002. Long-haul private line revenues decreased by 11.1% while short-haul revenues increased by 19.4%. The increase in short-haul revenues was mainly due to wholesale revenues which grew more than twice as fast as the retail revenues. In 2002, wholesale revenues exceeded retail revenues suggesting that competitors are increasingly relying on incumbents' short-haul private line services for backhaul purposes when provisioning their services.

4.7 Fibre Backbone and Metropolitan Area Networks

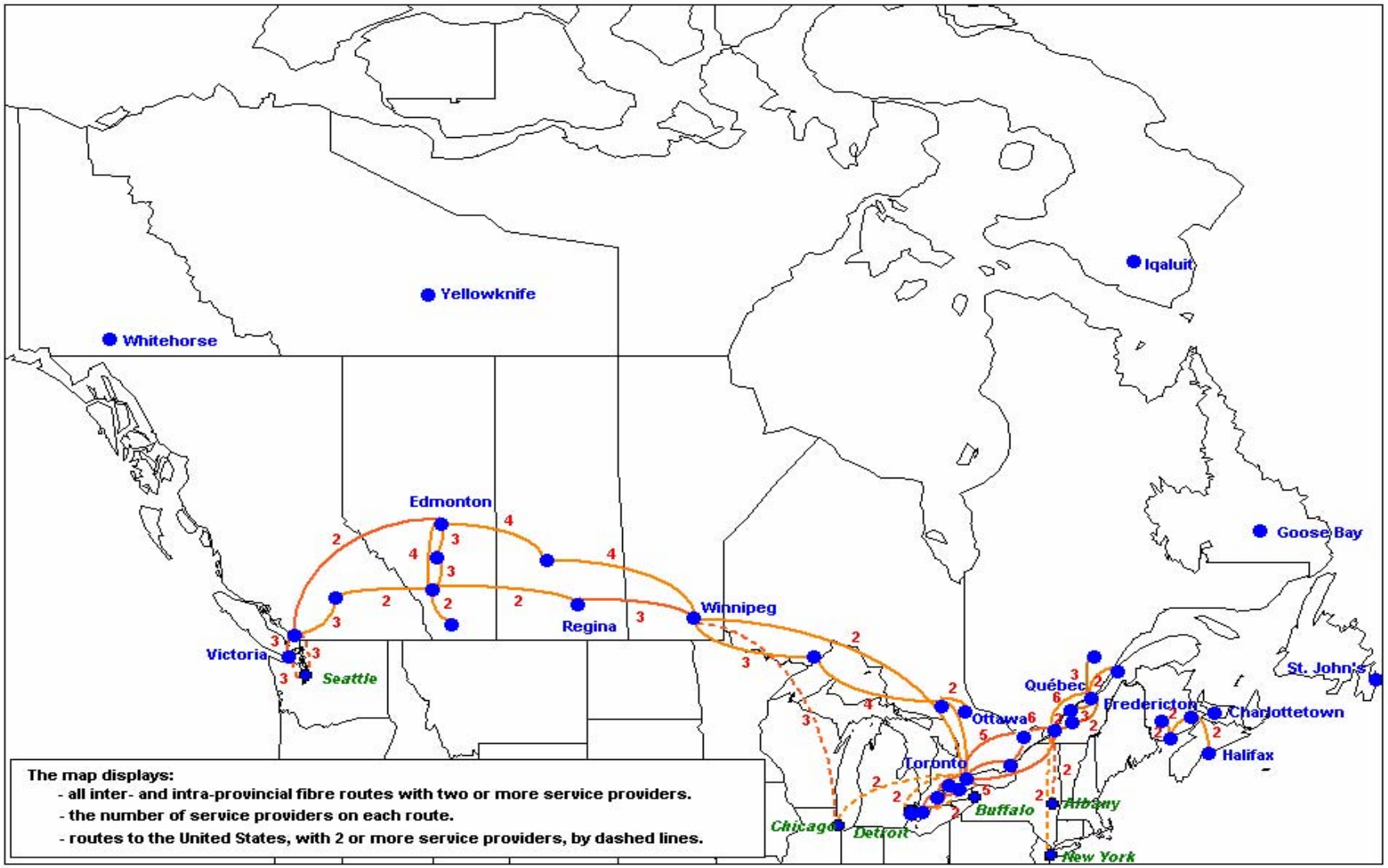
Fibre backbone and metropolitan area networks (MANs) constitute some of the facilities utilized by telecommunications carriers to provide local, long distance, data and private line services to both retail and wholesale customers.

Fibre Backbone

The fibre backbone is the core network that connects two or more network nodes for the purpose of transiting network traffic between edge nodes. The following map displays all fibre routes between major cities that have two or more providers of fibre backbone. The number appearing beside the route indicates the number of providers on that route. The map graphically displays the extent to which facilities-based competition has evolved for the transport of telecommunications traffic. The solid lines display the fibre routes between Canadian cities, whereas the dashed lines identify the routes to U.S. cities.

Fibre backbone networks are one of the ingredients used by carriers to provide the capacity which the industry uses for connectivity and applications. As previously noted, these networks support data and private line, Internet and long distance services.

Fibre Backbone Routes



Metropolitan Area Networks

A MAN is a network that interconnects networks in a geographic area or region larger than that covered by local area networks but smaller than the area covered by a wide area network. The term is applied to the interconnection of networks in a city into a single larger network. The MAN is used to provide private line services to connect dispersed buildings into a unified network.

Table 4.36 shows the percentage of buildings connected to MANs which were served by incumbents and competitors for 30 selected cities identified in Table 4.37 as defined by Census Metropolitan Areas (CMA). The table shows that in 2002 the incumbents' MANs connected 59% of the buildings that were passed by the MANs. The incumbents' MANs provided 75% of the bandwidth capacity and 39% of these buildings were connected at the highest speed (Gbps).

Table 4.36
Metropolitan Area Networks
2002 Incumbents/Competitors Split

	Percent		
	Buildings On MAN	Building-to-building segment with greatest lit capacity	
		Bandwidth (Gbps)	Connected at Highest Speed
Incumbents	59	75	39
Competitors	41	25	61
Total	100	100	100

Source: CRTC Data Collection

For each major center, Table 4.37 shows the number of service providers, the percentage of buildings on net passed by the incumbents' MANs, the percentage of fibre strands controlled by the incumbents, and the largest bandwidth capacity available in that center.

Table 4.37
Metropolitan Area Networks
Service Providers by Major Centers

	Number of Service Providers	Incumbents		
		Buildings on Net	Fibre Strands	Largest Bandwidth (Gbps)
Charlottetown	1	n/a	n/a	n/a
Fredericton	1	100.0%	100.0%	2.5
Kelowna	1	100.0%	100.0%	2.7
Saint John	1	100.0%	100.0%	2.5
St. John's	1	100.0%	100.0%	2.5
Abbotsford	2	83.0%	96.2%	2.5
Barrie	2	60.0%	n/a	5.0
Greater Sudbury	2	85.7%	n/a	2.0
Trois-Rivières	2	23.0%	n/a	2.5
Windsor	2	78.6%	n/a	2.8
Calgary	3	83.0%	73.3%	29.7
Chicoutimi - Jonquière	3	20.7%	n/a	2.5
Edmonton	3	89.7%	96.7%	13.9
Halifax	3	17.7%	10.0%	3.7
Hamilton	3	50.0%	n/a	30.4
Kingston	3	42.9%	n/a	2.5
Oshawa	3	67.9%	n/a	2.5
Regina	3	97.6%	83.3%	2.4
Saskatoon	3	97.5%	84.6%	2.4
Sherbrooke	3	35.3%	n/a	2.5
St. Catharines - Niagara	3	70.8%	n/a	13.2
Victoria	3	99.1%	92.4%	5.1
Kitchener	4	50.7%	n/a	15.0
London	4	62.9%	n/a	24.6
Ottawa - Gatineau	4	32.4%	n/a	133.7
Vancouver	4	51.9%	94.5%	16.8
Winnipeg	4	94.6%	11.0%	2.5
Québec	5	37.2%	n/a	15.6
Montréal	7	26.6%	n/a	10.0
Toronto	9	72.7%	n/a	46.2

Source: CRTC Data Collection

4.8 Payphones

Highlights

- The number of incumbent payphones continued to decline in 2002 by 3.7% to roughly 157 thousand payphones.
- The average revenues generated per payphone also continued to decline in 2002 to approximately $1,800 per payphone annually, down 19% from 2001.

Sector Description

a) Description of Services

Payphones are public telephone terminals that provide coin or card-based billing on a per transaction basis and can be located indoors, outdoors or in transportation vehicles such as airplanes and trains. Location types can include semi-public phones available on a restricted basis owing to their location (for example, payphones on private premises such as restaurants). More sophisticated payphone offerings now include such services as PSTN data jack, PSTN fax, Internet web, Internet E-Mail, Short Messaging Services (SMS), and WiFi.

In 2002, the payphone market sector generated $0.3 billion in revenues billed directly at the payphone location. Local calling charges make up 45% of payphone revenues, while local calls constitute 80% of actual traffic.

b) Sector Participants

Currently there are over 300 potential payphone service providers registered with the CRTC. Beyond the incumbent providers, only one company has established a national presence, with others only providing service in specific geographic locations.

c) Regulatory Framework

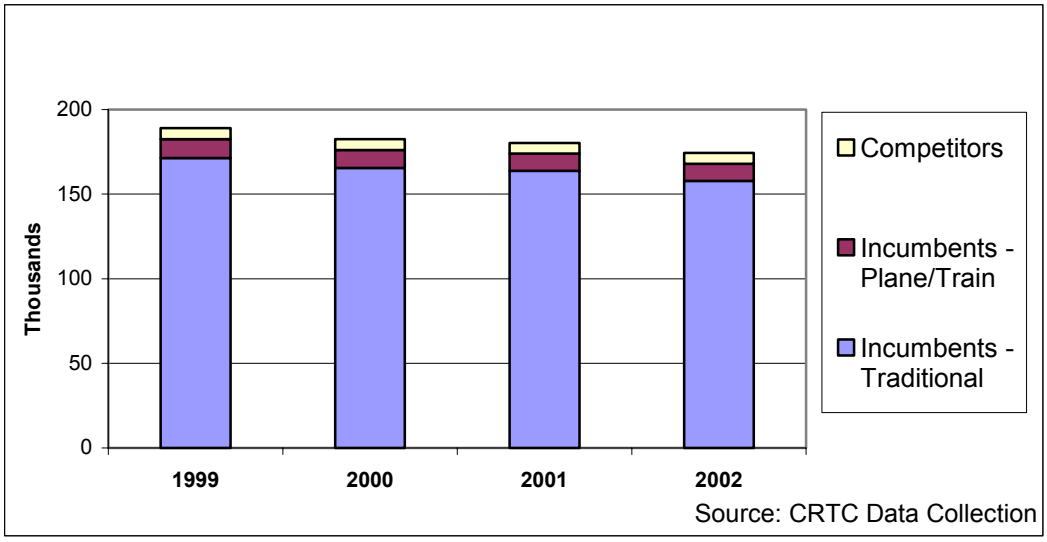
In June 1998, the Commission allowed competition in the provision of payphone services, while at the same time establishing related consumer safeguards. The Commission refrained from regulating payphone rates of new entrants, but retained rate regulation of pay telephone services offered by the incumbents. In addition, the incumbents are required to provide billing and collection agreements for the new entrants.

In *Access to pay telephone service,* Telecom Public Notice CRTC 2002-6, 5 December 2002, the CRTC initiated a proceeding to examine whether it would be in the public interest to impose an obligation for telephone companies to provide public interest pay telephones.

Market

The number of stationary incumbent payphones in Canada has continued to decline since the first full year of competition in 1999, by approximately 2.7% annually. The decline was primarily with the incumbents, who maintained approximately 96% of payphones in Canada.

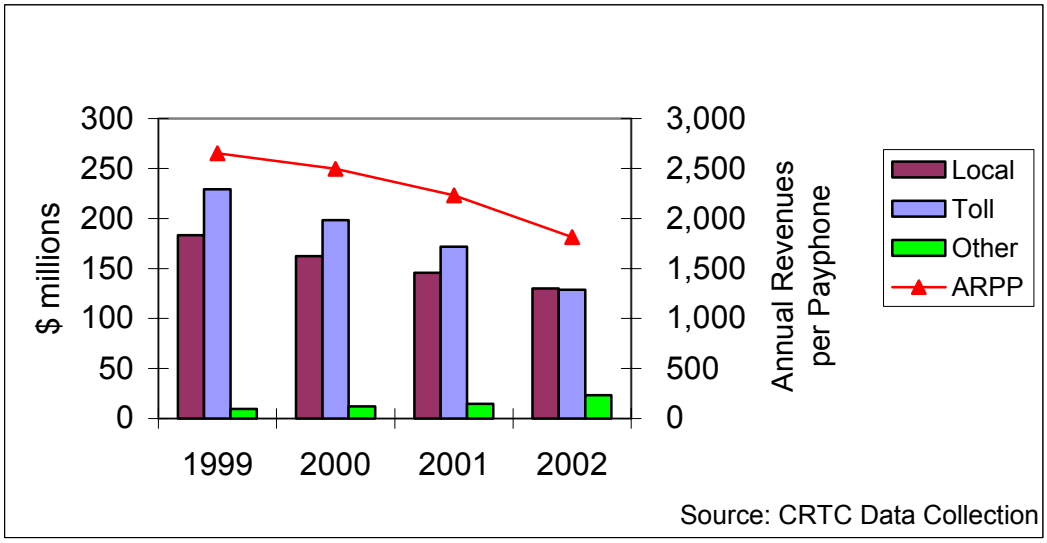
Figure 4.39
Number of Payphones in Canada



Over the same period, total revenues declined at an annual rate of 11.9%, reflecting decreasing usage of payphones. As of 2002, the average annual revenue per payphone was approximately $1,800. This trend was mainly attributable to the continued growth in cellular usage, which has resulted in a reduction in the average number of consumers requiring payphone facilities, and the growth in use of phone cards, which provided alternate long distance billing options.

Figure 4.40 illustrates the declining revenues associated with payphones over the four-year period 1999-2002. Toll revenues declined at an annual rate of 17% over that period, while local revenues declined 11%. This was offset in part by growth in other revenues, namely the $0.25 charge per message for 1-800 calls provided by service providers other than the payphone provider.

Figure 4.40
Incumbent Payphone Revenues



Summary

The pay telephone market continued to be affected by declining revenues as the increased market penetration of cellular phones reduced the demand for public payphones. In addition, optional payment means related to payphone usage, such as pre-paid phone cards, reduced the amount of revenues typically collected at the payphone location. The net result was a continuing downward trend in the level of revenues collected per payphone resulting in a decrease in the number of payphones in service.

Due to these continuing market trends, the ability of new entrants to enter and remain in this market on a large scale basis would be difficult. As such, the predominant market share will in all likelihood remain with the incumbent carriers.

5.0 Promising Means for Accelerated Broadband Deployment

5.1 Background

Canadian businesses and consumers in urban areas across the country generally have access to broadband communications services; however, the same is not true in most rural, remote, and Inuit and First Nations communities. Economic incentives exist for private industry to deliver broadband services in areas where population densities are high, as evidenced by the extensive investments in broadband facilities that have been made to date within and between metropolitan areas across the country. Without public funding and support, broadband services of similar quality and price to those available in urban areas will generally not be made available in rural and remote areas of the country.

The Government of Canada has announced that its goal is to eliminate this "digital divide" among Canadian communities by 2005. Other levels of government, including both provincial and territorial, are pursuing similar objectives within their respective territories.

At the federal level, one of the key initial steps taken to accomplish this goal was the establishment of the National Broadband Task Force (NBTF) in early 2001. The NBTF was asked to provide advice on ways in which broadband services could be extended to all Canadian communities within a three-year time frame. The NBTF provided its recommendations as to how to best achieve this goal in its report which was issued in June 2001.[57] In that report, it described two alternative models that could be effectively used to deploy broadband services to communities where market forces alone are unlikely to result in the delivery of such services.[58]

The first approach is an *infrastructure support model* aimed at providing incentives to stimulate the supply of broadband transport to a point of presence (POP) in an eligible community, as well as the construction of distribution and access infrastructure within the community. This "supply-oriented" approach involves directly funding both the deployment of transport facilities and access infrastructure within eligible communities. The NBTF recommended that the selection of facilities suppliers under this approach be based on an open competitive bidding process, and that open third-party access to facilities constructed should be provided as a pre-condition to government funding.

The second alternative approach is a *community aggregator model* aimed at providing incentives to stimulate demand for broadband capabilities within currently unserved communities by directly supporting a local "demand aggregator" or "community champion". Under this "demand-oriented" approach, a community champion would be responsible for aggregating demand within a community, creating partnerships, identifying matching funding and making the overall business case for the deployment of broadband facilities to and within the community. According to the NBTF, seed funding should be made available for this first phase of the process aimed at developing a business case for the delivery of broadband services to the community. In the second phase, additional funding should be made available to successful applicants for the

[57] National Broadband Task Force, *The New National Dream: Networking the Nation for Broadband Access*, June 2001.

[58] The two approaches are summarized in detail in Appendix G of the Task Force's June 2001 Report.

implementation of successful proposals. As a pre-condition for funding, applicants would be required to ensure that their proposals are implemented through an open bidding process, and that open third-party access be made to other potential broadband service providers.

The NBTF suggested that the infrastructure support model could be used to build a transport link from an existing national broadband network to a community POP, and then the community aggregator model could be used to connect public institutions, businesses and residences within the community. The NBTF recognized, however, that each community should be given the opportunity to implement broadband solutions that best serve their respective needs and it noted that, as a consequence, it would be wrong to impose any one approach in deploying broadband services to currently unserved communities.

The NBTF also recommended that, as a primary objective, governments should ensure broadband access is provided to every public learning institution, public library, health care centre and other designated public access point in the country.

The NBTF estimated that a total investment within the range of $2.8 to $4.6 billion would likely be required, in partnership with other public and private-sector stakeholders, to provide broadband access to all communities in Canada within a three-year time frame. The wide range in the estimates is a result of alternative assumptions including the mix of technologies used, the extent of take-up of service by institutions, businesses and individuals and existing provincial and territorial broadband deployment programs in place at the time the NBTF undertook its study.

The NBTF's cost estimates consisted of four main components:

i) $50 to $70 million to provide seed funding for community champions to prepare business cases for their respective communities;
ii) $1.3 to $1.9 billion for transport to unserved communities, with the higher level of investment resulting from the increased use of fibre rather than wireless and satellite technologies;
iii) $0.5 to $0.6 billion to connect public institutions (e.g., learning and health care centres and government facilities) within the communities, with the range in the estimates being driven by technology mix; and
iv) $0.9 to $2.0 billion to connect businesses and residences, with the range in the estimates driven by the possible mix of technologies involved.

In what follows, an overview of current federal, provincial, territorial and municipal government programs aimed at accelerating the deployment of broadband facilities in rural, remote and Inuit and First Nations communities is provided. It should be noted that the programs discussed below are intended to highlight some of the key initiatives currently in place rather than provide an exhaustive summary of all programs that directly and indirectly contribute to the deployment of broadband services throughout the country.

5.2 Federal Programs

In response to the NBTF's Report, Industry Canada established the *Broadband for Rural and Northern Development (BRAND) Pilot Program* in September 2002.[59] This program is modeled on the second of the two approaches recommended by the NBTF - i.e., the community aggregator model. The Government of Canada committed $105 million to the program.

The BRAND pilot program is targeted at rural, remote, northern and First Nations communities which currently have no broadband infrastructure available publicly, either via terrestrial or satellite connections. Community-based not-for-profit organizations serving as the community champion on behalf of an eligible community or group of communities are eligible recipients for funding under the program.

Funding is available through a two-step process, consistent with the NBTF's recommendations. In the first stage, eligible applicants can submit proposals for seed funding to support the development of a business plan for their respective communities. Successful applicants are eligible for 50% of the costs of their business plan preparation costs up to $30,000. In the second stage, additional funds will be made available to successful applicants to implement their broadband service proposals. The level of funding will be dependent on the quality of the submissions and the availability of funds.

Two application rounds were scheduled under the BRAND pilot program. The first commenced in the fall of 2002, and the second was in the spring of 2003. A national selection committee was established to review submissions and make recommendations as to which proposals should receive funding.[60] The members of the selection committee include individuals from academia, government, the private sector, health, education and community organizations.

After the review of the first round of applications was completed earlier this year, Industry Canada announced that it was providing a total of $2.4 million in seed funding to 89 successful applicants.[61] These applicants, who represent approximately 1,149 communities (including 156 First Nations communities), received funding to develop business plans outlining how each community covered by the applications would use broadband Internet services, and how those services would be delivered.

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[59] Details of the program are available at: http://broadband.gc.ca/.

[60] Industry Canada Press Release, 17 December 2002.

[61] Industry Canada Press Release, "Ministers Rock, Mitchell and Boudria Announce Recipients of First-Round Funding for Broadband Business Plan Development", 24 January 2003.

A further 65 proposals were approved for seed funding in July of this year following the review of submissions received in the second application round of the BRAND pilot program.[62] In total, a further $1.8 million was made available to successful applicants to assist in the development of broadband business plans for the 906 communities (which included an additional 110 First Nations communities) covered in the second-round set of proposals.

The completed business plans submitted by all of the successful applicants, along with any other self-funded proposals, will be reviewed and considered for further implementation funding. The Federal Government has indicated that decisions regarding implementation funding will be made in the fall of this year for successful first-round applicants, and in the spring of 2004 for successful second-round applicants.

At this time, the BRAND pilot program represents perhaps the most direct federal government initiative aimed at accelerating the deployment of broadband services to rural, remote, Inuit and First Nations communities. There are, however, a number of complementary federal government programs, most of which have been in place for several years, that may also contribute to the objective of ensuring broadband connectivity to all Canadian communities. These include a variety of Connecting Canadians/Canada On-line Programs such as the *Community Access Program (CAP)*, which provides support for the establishment of thousands of public Internet access sites across the country in places such as schools, libraries and community centres. In addition, the *SchoolNet* program has also helped connect Canadian schools to the Internet. Although virtually all schools in the country are connected, this program now focuses more so on providing teachers and students with skills relating to the use of information and communications technologies.[63] While some of this funding from these programs could potentially be used to assist with the deployment of broadband Internet services to eligible institutions, doing so is not their objective.[64]

In addition, the Federal Government also administers a number of regional economic development programs along with the $2 billion Strategic Infrastructure Fund that, in some measure, can be used to support the deployment of telecommunications infrastructure and networks, including broadband facilities and services. For example, under the *Federal Economic Development Initiative for Northern Ontario (FedNor),* funding for businesses in northern Ontario has been made available to assist with the deployment of high-speed data links to the communities in which they are located.[65] This program, however, extends beyond

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[62] Industry Canada Press Release, "Allan Rock, Andy Mitchell and Rey Pagtakhan Announce $1.7 Million in Funding for Broadband Business Plan Development", 10 July 2003.

[63] SchoolNet has been implemented by the federal government in partnership with provincial governments.

[64] In its 2003 budget, the Government of Canada committed $30 million to CAP and SchoolNet for the current fiscal year. It also offers a number of similar support programs such as *First Nations SchoolNet*, the *Voluntary Sector Network Support Program (VolNet)* and *LibraryNet*.

[65] Additional examples, which are discussed below, include funding for broadband deployment in Newfoundland and Labrador which has been made available through the Strategic Infrastructure Fund and funding for broadband deployment in Saskatchewan made available through the Federal Government's Western Economic Diversification Fund.

telecommunications infrastructure to include information and communications in general and e-commerce applications as well. Overall, funding from established federal economic development programs could help in the deployment of broadband facilities and services complementing the funds currently committed to the BRAND pilot program.

The Federal Government is also a partner in CANARIE, Canada's advanced Internet development organization established in 1993. CANARIE is a not-for-profit corporation made up of partners from government, industry, and the research and educational communities. It works with industry and the academic community to build advanced research networks and promote development of related applications and technologies. CANARIE's mission is to accelerate the development of Canada's advanced Internet infrastructure and next-generation communications products, applications and services.

The Federal Government has provided support for the design, deployment and operation of CANARIE's fourth generation network, CA*net 4, which is an advanced coast-to-coast research network linking universities, schools, research institutions and other organizations.[66] While CANARIE's existing network generally does not extend into rural and remote areas of the country, the technologies developed for and applied in constructing its network are expected to generate spillover benefits for the deployment of broadband facilities to such communities.

5.3 Provincial Programs

Most provincial governments have implemented initiatives aimed at accelerating the deployment of broadband facilities throughout their respective territories. These programs generally correspond to one of the two approaches recommended by the NBTF, although it should be noted that some of the programs were initiated before the NBTF completed its report in mid 2001.

Overviews of existing provincial programs are provided below in the order of their introduction.

Alberta

The Government of Alberta is currently supporting the construction of a high-speed, high-capacity broadband network – the *Alberta SuperNet* – which, once complete, will link 4,700 government offices, schools, health-care facilities and libraries in 422 communities across the province (covering roughly 80% of its population).[67] The Alberta SuperNet is intended to provide broadband connectivity for government, educators and health care workers province-wide. It will also allow other ISPs to "piggyback" on the SuperNet network, making it possible for a range of service providers to offer high-speed services to areas that, until now, have been too expensive or difficult to reach.

[66] In its 2001 Budget, the Government of Canada committed $110 million to CANARIE.

[67] Detailed information on the Alberta SuperNet is available at: http://www.albertasupernet.ca/.

The Alberta SuperNet is a three-year project that began in July 2001 and is scheduled for completion in mid-2004. It is being funded by the Government of Alberta together with private sector partners who are responsible for constructing and, in part, owning and managing the network.

The Alberta SuperNet consists of two geographic areas – the Base and Extended Areas – that will operate as one seamless network providing a consistent level of connectivity and service. The Base area is made up of 27 larger communities where competitive high-speed access already exists. Bell West Inc. is investing $102 million to build the Base Area, which it will own upon completion. The Extended Area includes 395 smaller communities, many of which have little or no high-speed connectivity or market competition. The Government of Alberta is investing up to $193 million in the project to fund the Extended Area portion of the network, which it will own upon completion. Bell West Inc. is also building the elements of the network's Extended Area. Based on a 10-year renewable contract with the Government of Alberta, Axia SuperNet Ltd. will manage and operate the Alberta SuperNet.

Under the project, fibre optic cable will link the Base Area communities and will be used in combination with wireless links to connect the Extended Area communities. The Alberta SuperNet network will consist of primarily fibre optic cable, covering over 10,000 kilometres and amounting to close to 80% of the network build. Fixed wireless point-to-point links will cover more than 2,000 kilometres and account for the remaining 20% of the network.

Since the Alberta SuperNet is being constructed to connect Alberta's provincial government offices, schools, health facilities and libraries, only these facilities are eligible for direct connection to the SuperNet. However, in the network's Extended Area communities, service providers will be able to purchase network bandwidth, and in turn provide high-speed services to residences and businesses in and near these SuperNet communities. In Base Area communities, bandwidth will not be available for purchase by service providers as these communities already have high-speed service options available.

One of the primary objectives of the Alberta SuperNet is to enable high-speed service provision and encourage competition in the province's smaller communities, where high-speed access options and the accompanying competition do not exist. ISPs and application service providers can purchase bandwidth from SuperNet in Extended Area communities at standard rates throughout the province. These service providers can then offer competitively priced high-speed network services to businesses and residences in and around the Extended Area communities.

The Alberta SuperNet is an example of the first approach to accelerating the deployment of broadband faculties recommended by the NBTF – i.e., the infrastructure support model. The provincial government, and its related agencies and organizations, serve as anchor tenant for the network, supporting the extension of broadband infrastructure to communities that would otherwise not have been served by market forces alone.

Not all communities in Alberta will be linked to the SuperNet however. Consequently, a number of organizations representing communities in the province have also applied for broadband network deployment funding under the Federal Government's BRAND pilot program.[68]

Saskatchewan

In 2001, the Province of Saskatchewan also began construction of a broadband network – the *Saskatchewan CommunityNet* – which, once complete, will link more than 1,500 educational institutions, health care facilities, libraries and government offices located in 366 communities throughout the province.[69]

The Province of Saskatchewan has committed $70.9 million over a six-year period to the CommunityNet project. This investment is intended to cover the cost of constructing the network, which is scheduled to be completed in 2004, along with ongoing operational costs out to 2007. The total investment includes a contribution from the Government of Canada of $5 million through the Western Economic Diversification Fund.

Two public-sector organizations owned by the Province, SaskTel and the Saskatchewan Communications Network (SCN) are responsible for constructing the network and delivering telecommunications services over the network.[70] CommunityNet will link Saskatchewan communities through existing and new fibre facilities, as well as digital service lines using copper wire and satellite facilities. The satellite bandwidth used in CommunityNet will be provided by SCN and will provide high-speed connections to approximately 200 rural and northern education facilities on the network.

One of the key spin-off benefits of the network is that it is enabling SaskTel to expand its high-speed Internet service coverage to business and residence customers located in smaller communities with links to CommunityNet. To date, due in large part to CommunityNet, SaskTel has expanded its high-speed commercial network from just eight to 237 communities (covering more than 74% of the province's population)[71], including nearly every community in the province with 800 or more residents (and many with much less). In this way, CommunityNet provides the underlying facilities for SaskTel to explore the expansion of high-speed commercial offerings to an increasing number of communities. However, SaskTel has indicated that each expansion must be considered on a case-by-case basis to ensure that it is economically viable. SaskTel is currently assessing a combination of wireless and wireline service options to help achieve the goal of reaching 95% of Saskatchewan's population.

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[68] A total of eight proposals have been submitted under the BRAND pilot program, representing 26 communities in Alberta.

[69] More detailed information on Saskatchewan's CommunityNet is available at: http://www.communitynet.ca/.

[70] The Province indicated that there are no private sector ISPs in the province large enough to connect all of the communities involved into one network.

[71] Represents an investment of more than $60 million since 1995.

Saskatchewan has noted that the cost of connecting every village and hamlet to the network is too prohibitive at this time. Nevertheless, new technological options are being considered for future expansion to even more communities. In the meantime, the Province has suggested that some communities not included in CommunityNet will continue to have access to the Internet through the federal CAP and SaskTel's toll-free dial-up access programs (although these options do not generally provide broadband access at this time).

Like Alberta's SuperNet, Saskatchewan's CommunityNet is another example of the first infrastructure support approach to accelerating the deployment of broadband facilities recommended by the NBTF. In this case, the Government of Saskatchewan is serving as the anchor tenant for the broadband network. Communities in Saskatchewan are, however, also relying on the BRAND pilot program to provide broadband connectivity in cases where they cannot benefit from the CommunityNet.[72]

Quebec

In November 2001, the Government of Quebec announced the introduction of a program - the *Villages branchés du Québec* - which is intended to accelerate the deployment of broadband Internet services throughout the province and, more specifically, in rural and remote areas of Quebec.[73] The objective of the program is to ensure the deployment of broadband infrastructures in all of Quebec's regions to provide access to high-speed Internet services. The program provides funding support to local and regional partnership-based organizations in order to interconnect local or regional facilities through the high-speed communications backbone of the *Réseau d'informations scientifiques du Québec* (RISQ Network)[74] in order to aggregate demand and take advantage of existing network capacity.

In its 2001 budget, the Government of Quebec committed $75 million to Villages branchés du Québec. The program was launched in the fall of 2002. Funding for eligible projects will run through to 2005 (a three-year time frame).

In many respects, the Villages branchés du Québec initiative is similar to the federal government's BRAND program, following the community aggregator approach to stimulating broadband deployment as recommended by the NBTF. However, rather than being targeted at rural and remote communities, Quebec's program is aimed at educational institutions and municipal governments. Parties eligible for funding under the program include school boards, special status groups (i.e., Inuit and First Nations), local municipalities, regional county municipalities and private educational institutions. Schools and municipalities are encouraged to join forces to avoid unnecessary costs and overlapping infrastructures.

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[72] A total of 11 proposals have been submitted under the BRAND pilot program, representing over 110 communities in Saskatchewan.

[73] For more detailed information on the Connectivity for Quebec's Communities program see: http://www.meq.gouv.qc.ca/lancement/villagesbranches/.

[74] See: http://www.risq.qc.ca/.

Under the program, financial assistance is made available to build a broadband network infrastructure[75] to connect eligible buildings in a region. Financial assistance is also provided to connect these buildings to a communications backbone serving as a core network. Where a number of parties are involved, condominium arrangements are encouraged where shared infrastructures are jointly owned by the project partners. Private-sector carriers may participate in a project but they do not qualify for funding under the program. Financial assistance for successful applications under the program is determined as a percentage of eligible expenses (with up to two-thirds of eligible expenses being funded in certain cases).

Projects submitted by school boards or private educational institutions alone are eligible for funding under the program provided it can be established that special circumstances make partnership with a municipality unworkable. Projects submitted by municipalities alone are not eligible. However, such projects may receive funding under programs related to municipal infrastructures run by the Ministère des affaires municipales et de la Métropole.

The deadline for submitting applications for funding under the program is 30 November 2003. All approved projects must be completed within two years of that date.

Like the BRAND pilot program, funding for preliminary engineering studies is also available through the Province's *Fonds de l'autoroute de l'information* program.

The Villages branchés du Québec program is intended to build on the advances made through earlier programs and efforts, including Quebec's RISQ Network project which currently links the province's universities, research institutions and other organizations. The RISQ network is owned and operated by Quebec's universities and was constructed with the financial assistance of the Government of Quebec.

Manitoba

In May 2002, the Government of Manitoba announced that it would upgrade its internal Provincial Data Network to provide broadband access to provincial government offices and hospitals throughout the province. Over the course of five years, the initiative will provide broadband connectivity to hospitals and government offices in 85 communities in the province.

The total cost of the project is expected to be $47.4 million. MTS was awarded the contract for upgrading and expanding the capacity of the provincial government's current network.

[75] Involving a minimum symmetrical transmission capacity of 2 Mbps.

While Manitoba's broadband network project is consistent with the infrastructure support model suggested by the NBTF, once completed, the upgraded network is intended strictly for internal government department and agency use. There are no current plans to make capacity on the network available for use by commercial ISPs to provide high-speed access to residence and business users within the communities linked to the network. Nevertheless, it is anticipated that MTS should be in a position to accelerate the deployment of digital subscriber line (DSL) services in these communities as a spin-off benefit of the government's network upgrade program.

In addition, Manitoba is relying on other programs that exist to help promote the availability of high-speed Internet access throughout the province. These include the Manitoba Community Connections program (i.e., the CAP program administered in Manitoba).[76] As well, Manitoba is relying on the BRAND pilot program to support the expansion of broadband services to rural and remote areas of the province.[77]

Ontario

In February of this year, the Government of Ontario introduced its *Connect Ontario: Broadband Regional Access* (COBRA) program. COBRA is intended to bring affordable high-speed telecommunications services to rural and northern communities in Ontario by supporting the construction of the necessary broadband infrastructure.[78] The program is the second phase of the COBRA initiative.[79]

Ontario has committed $55 million to the COBRA program. Over the three-year term of the program, one proposal from each region across the province will be selected for funding. Up to $100,000 will be allocated for preparation of a business plan in eligible low-population-density regions of the province. For successful applications, up to 50% of eligible project costs will be funded under the COBRA program. Consideration will be given to contributing more than 50% of project costs in hard-to-serve regions where there is limited private-sector investment.

To qualify for funding under the COBRA program, regional applicants must be led by not-for-profit organizations or municipalities, and may include partners such as tourism organizations, chambers of commerce, First Nations and residential associations, among others. For instance, applicants could include representatives from post-secondary institutions, school boards, training organizations, business and technology associations, hospitals and other local health organizations, public libraries, cultural organizations, local service organizations and/or other community groups.

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[76] This program largely involves support for low-speed rather than broadband Internet access.

[77] A total of 16 proposals have been submitted under the BRAND pilot program, representing close to 160 communities in Manitoba.

[78] For more detailed information on the COBRA program see: http://www.ontario-canada.com/ontcan/en/rts/rts_connect-ontario.jsp.

[79] The first phase, *Connect Ontario: Partnering for Smart Communities (COPSC)*, was introduced in 2000. COPSC was designed to assist communities improve their web-based services and develop regional web portals.

Eligible proposals for the COBRA program must address connectivity needs for public-sector institutions as well as create accessible broadband infrastructure for residential, business and other users (at a minimum speed of 1.5 Mbps for institutional users). Preference will be given to proposals that demonstrate long-term sustainability, provide the best regional coverage for the lowest cost, require the least amount of provincial support and have the highest level of partnership contributions (including funding from the Federal Government).

As of July of this year, 26 business plans and three infrastructure projects have been funded through COBRA. For example, Ontario provided $700,000 in financial assistance to a group based in the Kenora region (i.e., the Lake of the Woods Business Incentive Corporation) to support web portal and broadband access.[80]

The COBRA program is similar to and, indeed, modeled on the Federal Government's BRAND pilot program, following the community aggregator model recommended by the NBTF. The two levels of government have worked closely together to coordinate and manage the two programs to ensure that they complement one another. In fact, there are a number of applicants representing over 400 communities in Ontario that have filed proposals under the BRAND pilot program, which stand to potentially take advantage of funding available under both programs.[81]

British Columbia

In August of 2001, the Province of British Columbia established the Premier's Technology Council (PTC) which was asked to provide advice to the Premier on technology-related issues facing British Columbia, including advice on how to make broadband access available to every community in the province. In the first of a series of reports to the Premier, the PTC assessed a number of alternative approaches that could be pursued in order to achieve this goal.[82] The PTC suggested, among other things, that using existing infrastructure wherever possible, combined with leveraging government demand for network services, would likely be the most effective way to bring broadband services to rural and remote communities.

A second report was released by the PTC in early 2002 in which it offered a number of specific recommendations for improving broadband infrastructure in the province. In particular, the PTC suggested that the provincial government's shared data and voice network (i.e., the Shared Provincial Access Network or SPAN/BC) could be used to provide broadband access to the unserved communities in the province. SPAN/BC connects over 4,000 locations throughout the province, covering almost 350 communities, 2,000 educational institutions, all provincial pharmacies, some hospitals, and more than 1,500 government locations.[83] The PTC considered that by upgrading SPAN/BC, a foundation for the delivery of broadband services throughout the province could be created.

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[80] Government of Ontario Press Release, "Eves government to provide affordable high-speed Internet to Kenora Region", 22 May 2003.

[81] In total, 34 applications have been filed by Ontario-based organizations under the BRAND pilot program, representing 414 communities in the province.

[82] To date, the PTC has issued four reports, all of which are available online at: http://www.gov.bc.ca/prem/popt/technology_council/reports_pubs.htm.

[83] Premier's Technology Council, Second Quarterly Report, April 2, 2002, page 32.

In addition, the PTC recommended that the government reform its procurement policy to stimulate the private sector to upgrade and expand broadband network infrastructure, and encourage the entry of local service providers such as community-based networks into the marketplace. In this regard, the PTC suggested that several communities should be identified as pilot sites to test the feasibility of this approach.

Acting on the PTC's recommendations, the Province of British Columbia recently announced four pilot projects to provide a number of communities in the province with high-speed access to the Internet.[84] The four pilot projects involve government, community organizations and, in some cases, service providers working together to deliver affordable broadband communications services. In each case, the government's use of these services serves as an incentive for local companies to provide the necessary communications links to the communities involved. For instance, in the pilot project being implemented by the City of Kamloops, the provincial government's network traffic will be carried on the newly constructed infrastructure in the area, providing the City with $450,000 in revenue per year. The Province expects to benefit from the project through reduced communications costs.

The four pilot projects undertaken by the Province of British Columbia are similar in nature and structure to those being implemented under the BRAND pilot program. However, the Province of British Columbia is not providing direct funding for any of the projects. Instead, it is supporting some of the projects by redirecting its current communications expenditures to support the underlying business cases for the projects.

The Province of British Columbia is also relying on and working closely with the Federal Government to extend broadband services to rural and remote communities in the province through the BRAND pilot program. In addition to these four pilot projects, a number of British Columbia based applicants have submitted proposals under the BRAND pilot program.[85]

New Brunswick

In New Brunswick, as part of its Innovation Agenda, the Province has undertaken a program to enhance the province's communications infrastructure. One element of this program has been to extend broadband access to all schools and community colleges in the province. This program was begun in May 2001 and is scheduled to be completed before the end of this year. A total of some 360 sites are to be linked under the program. The Province committed roughly $5 million spread over two years to the project.

[84] BC Press Release, "Tech Projects Bridge Digital Divide in Communities", 25 June 2003. Available at: http://www2.news.gov.bc.ca/nrm_news_releases/2003MSER0011-000603.htm.

[85] In the two applications rounds to date under the BRAND pilot program, 29 proposals covering over 350 communities in British Columbia have been approved for seed funding.

While New Brunswick had been exploring alternative options for extending broadband access to rural communities in the province, with the launch of the BRAND pilot program, the Province decided to wait and see how successful that program would be before introducing any new programs of its own. In fact, two multi-community proposals have been submitted under the BRAND pilot program to date in order to address the broadband access needs to virtually all rural communities in New Brunswick that currently do not have broadband service.

Nova Scotia

In Nova Scotia, the Province's Information Economy Initiative (IEI) included a $6 million investment to provide high-speed Internet access to every school, library and community college in the province (close to 600 sites in total). The program was launched in 2001 as a public/private sector partnership, with the Province contributing $1 million and Aliant Telecom the balance. The minimum connection speed under the program is 512 Kbps, with the majority of sites connected at DSL or T1 speeds or higher. It is expected that by providing high-speed Internet access to these designated sites, the provision of high-speed Internet services to the surrounding communities would be accelerated.

Nova Scotia is also relying on the BRAND pilot program to deliver broadband access to currently unserved communities in the province. Seven applications, covering close to 200 communities in the province, have been approved for seed funding under the BRAND program to date.

Prince Edward Island

In Prince Edward Island (PEI), the Province was one of the first provincial governments to undertake an extensive upgrade of its own communications infrastructure in order to provide high-speed access to schools, post-secondary institutions, government offices, libraries, hospitals and other facilities throughout the province. Overall, PEI invested over $3 million in the network along with Island Telecom Inc. (now part of Aliant Telecom). This initiative was undertaken in 1997 and was completed several years ago.

The Province is currently exploring ways of upgrading the network to latest generation technology. However, it has no current programs in place at this time to deliver broadband access to unserved communities in the province. Like other Atlantic provinces, it is relying on the BRAND pilot project to bridge the remaining gap. In this respect, five PEI based applicants have submitted funding proposals under the BRAND program covering roughly 50 communities in the province.

Newfoundland and Labrador

In Newfoundland and Labrador, the provincial government recently announced a joint initiative with the Government of Canada to expand broadband Internet services to rural and remote schools and communities in the province. The project is intended to facilitate online distance learning in rural and remote schools. The total cost of the project is $15 million. Each level of government will contribute $5 million[86], with the balance to be sought from private-sector partners selected to participate in the project.

As in other Atlantic provinces, Newfoundland and Labrador is also relying on the BRAND pilot project to address the broadband access needs of other unserved communities in the province. Under the BRAND program, 18 applications from Newfoundland and Labrador based organizations, representing over 300 communities have been approved for seed funding.

In large measure, the programs initiated by all four Atlantic provincial governments have followed the infrastructure supply model described by the NBTF, focusing on connecting schools and other public institutions with broadband facilities. However, with the exception of Newfoundland and Labrador, no new programs have been launched since the introduction of the federal government's BRAND pilot program.

5.4 Northern Territory Programs

The Government of Yukon was among the earliest to initiate a program specifically intended to stimulate the deployment of high-speed Internet services to virtually every community in its jurisdiction. Its *Connect Yukon program* was launched in 2000 with this specific goal. Connect Yukon was established as a cost-sharing partnership project with the Government of Yukon, Northwestel and local ISPs. The program targeted 11 Yukon communities (excluding Whitehorse), which accounted for the majority of communities in the territory and roughly 90% of homes in the territory.[87] The total cost to the Government of Yukon of the program was roughly $13.5 million.

The Connect Yukon program represented the greatest per capita investment to date in terms of recent initiatives to accelerate the deployment of broadband service. It is an example of the infrastructure support model suggested by the NBTF.

On the other hand, the Government of Nunavut has not introduced any programs to deploy broadband infrastructure to date. However, it did establish a Broadband Task Force of its own in February 2001 with the mandate of providing advice and recommendations on broadband issues affecting Nunavut.

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[86] The Federal Government's share will be drawn from the Canada Strategic Infrastructure Fund.

[87] A small number of Yukon communities have only low-speed access to the Internet at this time.

The Nunavut Broadband Task Force issued its report in September 2002.[88] It recommended, among other things, that the Governments of Canada and Nunavut ensure that funding and procurement actions guarantee a minimum of one broadband point of presence in each organized community in Nunavut (i.e., 25 communities in total). The Task Force also concluded that satellite services are the only option for connecting Nunavut communities, and that the ongoing costs of satellite services are likely to be significantly greater than technologies used in southern Canada (where fibre technology can be used). Therefore, it recommended that assistance will be required for up-front capital costs, ongoing operational costs of such services, as well as evolving broadband technology costs.

While the Government of Nunavut has not implemented any specific program in response to the Task Force's report to date, the Nunavut Broadband Development Corporation (NBDC), a not-for-profit organization representing community, private sector and citizen interests, was formed to take advantage of the BRAND pilot program. NBDC's application for funding from BRAND involves a single broadband project to serve all 25 communities in Nunavut. Relying on satellite to provide the network's backbone, the total cost of the project is estimated to be $18.5 million, with $7.4 million of the total being requested through the BRAND Pilot Program.[89] A decision on the proposal is not expected until the fall of this year.

Finally, the Government of the Northwest Territories undertook a program several years ago to connect all schools in its jurisdiction to its internal network infrastructure to provide Internet connectivity. However, this program did not provide schools with broadband connectivity. For this purpose, the Government of the Northwest Territories is currently relying primarily on the federal government's BRAND program. In this respect, a group of five community development corporations in the Northwest Territories formed the Broadband Business Alliance (BBA) to prepare a joint business plan proposal under the BRAND pilot program. The BBA proposal involves the construction of a $14 million broadband network that would provide broadband Internet access to every community in the Northwest Territories by 2005.

5.5 Community-based Initiatives

There have also been a variety of municipal and community-based initiatives to promote the delivery of broadband services to smaller communities across the country. One example is the community-based initiative launched by the South Grenville Economic Development Commission several years ago. Its objective was to develop a broadband fibre and wireless network throughout the county of Leeds and Grenville in Ontario. Public funding for the initiative largely has come from federal and provincial governments, including a recent investment of $2.8 million from the province of Ontario.[90] This additional funding for the initiative came from Ontario's Rural Economic Development program rather than from COBRA.

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[88] A copy of the report is available on the Government of Nunavut's website at: http://www.gov.nu.ca/Nunavut/English/departments/DSD/1broadband_eng.pdf.

[89] Information on NBDC proposal is available at: http://www.nunavut-broadband.ca.

[90] Ontario Government News Release, "Eves government continues support of broadband in rural areas", 14 January 2003.

Larger municipalities such as the City of Kamloops, as discussed above, have initiated broadband deployment initiatives within their jurisdiction. However, Kamloops' initiative is also dependent on provincial government participation.

Generally, smaller communities are not in a position to provide much, if any, financial support for broadband initiatives within their jurisdiction. They must rely instead on provincial and/or federal funding for public funding assistance. This is reflected in the large number of community-based proposals that have been submitted to the federal government under the existing BRAND program seeking public funding assistance for local broadband initiatives.

5.6 Summary

In its 2001 report, the NBTF estimated that of the close to 6,000 communities in Canada, almost 4,800 were without broadband access to the Internet (representing roughly 80% of all communities, but just 22% of the Canadian population).[91] Since that time, considerable progress has been made in extending broadband access to an increasing number of communities. Steady reductions in the number of unserved communities are being achieved through competitive market forces, as telecom and cable companies for instance expand the geographic coverage of their high-speed services along with ongoing initiatives to extend high-speed services to communities where market forces cannot be relied on for this purpose. However, a substantial number of communities remain unserved today.

With programs such as BRAND, SuperNet, CommunityNet, COBRA and Villages branchés du Québec underway, the number of unserved communities should fall dramatically over the next few years. The BRAND program alone has funded the development of business plans to extend broadband services to over 2,000 currently unserved communities. Of course, delivering broadband access to most, if not all, unserved communities is dependent on the success of these programs to generate sufficient public and private capital to execute the broadband proposals currently under development.

Table 5.1 below provides a summary of direct public funding currently committed to broadband deployment programs across the country. In total, federal, provincial and territorial funding amounts to roughly $575 million or, on an annualized basis, close to $160 million per year. Although, in the latter case, it should be noted that the time frames for most of the programs differ considerably.

It also should be emphasized that Table 5.1 only accounts for public funding of broadband deployment programs. Community-level and private sector funding that would be stimulated by these programs would be expected to match, if not, considerably exceed public sector contributions. While it appears that a significant gap may exist between the current public

[91] The NBTF defined a community as a locality which, among other things, has a name, a distinct physical location and territory and a population. This definition was used in conjunction with Statistics Canada's Census Sub-Division categorization methodology to identify and count communities across the country. It should be noted that alternative definitions of communities have been employed by different government departments and agencies which complicates the comparison of the number of communities covered by different broadband deployment programs.

funding commitments and the NBTF's estimates of the investment required to extend broadband access to all communities across the country, this may not be the case when community, private sector and other indirect public-sector funding is taken into account (including, in the latter case, regional economic development and national infrastructure programs).

Table 5.1
Programs to Accelerate the Deployment of Broadband Services in Rural, Remote, Northern and First Nations Communities ($ millions)

Programs	Program Time Span	Public Funding	Annualized Public Funding
Federal			
- BRAND Pilot Program	2003 – 2005	105.0	35.0
Provincial			
- Alberta SuperNet	2001 – 2004	193.0	48.3
- Saskatchewan CommunityNet	2001 – 2007	70.9	11.8
- Villages branchés du Québec	2003 – 2005	75.0	25.0
- Ontario – COBRA	2003 - 2005	55.0	18.3
- Manitoba *	2002 - 2007	47.4	9.5
- New Brunswick	2001 - 2003	5.0	2.5
- Nova Scotia	2003 – 2005	1.0	0.3
- Newfoundland & Labrador **	2003 - 2004	10.0	5.0
- PEI (no current program)			
- BC (no current program)			
Territorial			
- Connect Yukon	2000 - 2003	13.5	3.4
- Nunavut (no current program)			
- NWT (no current program)			
TOTAL		**$575.8**	**$159.1**

* Represents expenditure on Manitoba's private government network.
** Includes $5 million in federal government contribution.

6.0 Users of Telecommunications Services

6.1 Introduction

Total expenditures on retail telecommunications services by residential and business customers in 2002 were approximately $26.6 billion, with $7 billion or 26% related to wireless services and $19.6 billion or 74% to wireline services.[92] Of the expenditures made on wireline services, approximately $10.1 billion or 52% related to residential consumers and $9.5 billion or 48% to business customers.[93]

6.2 Residential Consumers

Availability of Service

Canadian consumers continue to have one of the highest penetration rates of telephone service in the world. According to the most recent data available from Statistics Canada, 98.6%[94] of Canadian households had wireline and/or wireless telephone service in 2001 up slightly from 98.5% in 1995. Other international studies such as the OECD Communications Outlook report[95] placed Canada as the sixth highest among 30 OECD countries in 2001 in terms of fixed connections per 100 inhabitants.

To maintain high levels of telephone service and penetration rate in Canada, the incumbent telephone companies have been required to file service improvement plans (SIPs)[96] with the Commission outlining how, over a four-year period, the companies propose not only to improve or upgrade telephone service, but to expand service in high-cost serving areas.

The CRTC has reviewed and approved SIPs from the large and small incumbent companies that identified 19,680 unserved and 34,700 underserved households in 1,626 communities. By year-end 2002, 742 of the unserved households had service and another 14,219 of the underserved households had improved service in 221 communities.

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92 CRTC Data Collection.

93 Ibid.

94 2002 Monitoring Report pursuant to Order CRTC 2000-393, 10 May 2000. Original data source: Statistics Canada.

95 OECD Communications Outlook, 2003 Table 4.5, p.103, presented the number of fixed wirelines per 100 inhabitants for 30 OECD countries in 2001. The number of wireline connections, which OECD terms "fixed telecommunication channels" per 100 inhabitants in Canada was 69.0 in 2001 placing it as 6th highest among the countries. The highest was Luxembourg at 78.6. Sweden was 2nd at 75.5, Switzerland 3rd at 74.4, Norway 4th at 73.5, and Denmark 5th at 71.5. The U.S. had 67.5 channels per 100, which placed it at number 8 in the list.

96 Pursuant to *Telephone service to high-cost serving areas*, Telecom Decision CRTC 99-16, 19 October 1999.

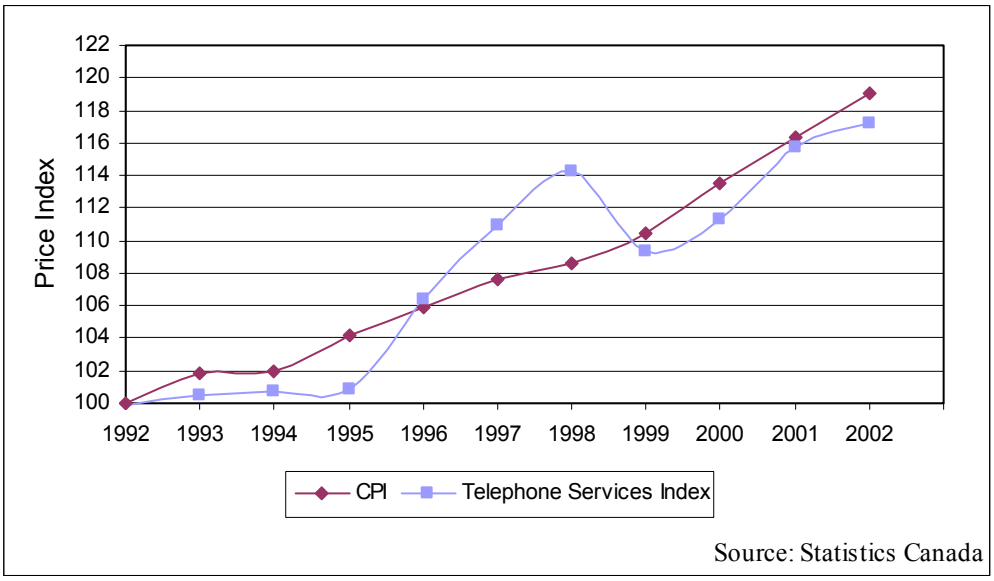
Canada is well placed to participate in the information society. Not only do Canadians enjoy a very high telephone penetration rate, but cable service is also available to close to 90%[97] of Canadian households, while others are increasingly being served by satellite and other distribution technologies.

Although the number of fixed wireline residential subscriptions decreased since 2001 as stated in Section 4.3 of this report, the use of other access paths to the network, such as wireless, ISDN and cable internet subscriptions, has increased. These provide consumers with choices of how they wish to communicate based on their own requirements and preferences.

Pricing

In Figure 6.1, an index reflecting the price changes experienced by a household for a basket of telephone services is compared to the consumer price index (CPI) for the period 1992 to 2002. The telephone service price changes reflect a weighted average of consumer expenditures on basic local service, other local services (such as options and features), long distance, installation and repair charges. They do not include cellular or Internet service expenditures.[98]

Figure 6.1
Telephone Services Price Changes as Compared to Inflation



Source: Statistics Canada

[97] OECD "Regulatory Reform in the Telecommunications Industry", 2002, p.22. According to Canada Census 2001, there were 11,562,975 households. In the Commission's Statistical and Financial Summaries for broadcasting distribution undertakings, there were 10.2 million cable-wired households (http://www.crtc.gc.ca/eng/stats.htm).

[98] Statistics Canada Catalogue No. 60-010XPB 1995-98; 62-001XPB 1999-2001; 62-001, 2002.

The telephone services price index increases from 1996 to 1998 are a result of rate increases approved by the CRTC, which were implemented to ensure that the price of basic residential local service better reflected the cost of providing this service. The reduction in this index in 1999 is predominantly due to the decline in long distance service prices resulting from the introduction of flat rate pricing plans.

During the 1999-2001 period, the rates for basic local service to residential customers increased in most urban and rural areas, consistent with the regime established by the Commission's 1997 price cap decision which applied to the large incumbents (except for SaskTel). During this period, the Commission imposed an overall price cap constraint on incumbents' services that was tied to the rate of inflation less a productivity factor of 4.5%.

In 2002, the price cap regime was continued through various changes to the service baskets and to the pricing constraints with respect to the rates for services in residential and optional local services.[99] Residential consumers, on average, would not see a rate increase for basic local services unless inflation exceeded 3.5%. There were no basic residential local rate increases in 2002 by the ILECs. The increases that received approval were the monthly rates for optional residential services provided by SaskTel and TELUS to high-cost serving areas.

Canadian rates for local and long distance residential service are among the lowest in the world. Among the 30 OECD member countries, Canada ranks 8th from the lowest country, Iceland, with respect to residential local service and domestic long distance prices. [100] These findings are supported by other studies such as a recent study by Seaboard Group[101] which concludes that, in general, Canadian consumers pay less for their residential communications than their counterparts in the U.S., except in mobile communications in which the prices are nearly identical between the two countries.

Expenditure on Telephone Services

In 2001, less than 1.5% of total residential household expenditures were allocated to traditional telephone services (not including spending on wireless and Internet services).

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99 Pursuant to *Regulatory framework for second price cap period,* Telecom Decision CRTC 2002-34, 30 May 2002.

100 OECD Communications Outlook 2003, Table 6.9, p.178, quoted in U.S. dollars using purchasing power parity. The average monthly residential telephone charge (including local and domestic long distance service) is lowest for Iceland at $17.52. Switzerland is 2nd at $24.21, Korea 3rd at $24.78, Sweden 4th at $25.32, UK 5th at $26.16, Japan 6th at $26.70 and Denmark 7th at $27.81. Canada ranks 8th at $27.94, and the U.S. ranks 14th at $33.84. The highest is the Slovak Republic at $66.29.

101 Communications Pricing for Consumers – A Cross-National Survey; IGB Grant, Brian Sharwood, Seaboard Group, May 2003.

Over the last five years, shifts in the pricing of telephone services have taken place in conjunction with growing competition in the telephone industry. In 1996, long distance services and local services represented 54%, and 38%, respectively, of a household's average telephone bill, while in 2001 these proportions were essentially reversed.[102]

Residential consumer spending on optional local services (including calling features such as voice mail, call display and call waiting) has increased in recent years. In 1998, calling features generated approximately 20% of residential local voice services revenues. In 2002, this proportion increased to 24%.[103]

Impact of Competition

In 2002, national wireline carriers – Bell Canada, TELUS, Allstream, Call-Net and 360networks provided services to businesses. Presently, residential wireline local service is largely provided by Bell Canada, TELUS, MTS, SaskTel, Aliant Telecom and by Call-Net in nine cities. Wireline residential local service is also provided in the Halifax and PEI areas by Eastlink and FCI Broadband in the Greater Toronto Area.

Residential consumers now have a range of alternatives to the incumbent telephone companies available to them for long distance calling, Internet access, and mobile telephony. With respect to residential local service, the choice of suppliers has been limited to certain major centres in Canada, with a small number of companies offering basic local phone service with optional features and long distance service plans.

For example, in 2002-2003, Call-Net through its wholly owned subsidiary, Sprint Canada, offered local, long distance, wireless (in partnership with Microcell) and Internet services to residences and businesses and has deployed local service in nine urban markets with over 140,000 residential customers. In the Atlantic provinces, EastLink offers service bundles of local, long distance and Internet services to homes passed by cable in the Halifax region and in PEI.

As competition evolves, service providers are increasingly looking at bundled service offerings and pricing plans to attract and retain customers. Bundles generally offer consumers a price incentive compared to purchasing the same products and services individually, and the convenience of a single bill. However, as new services are developed and introduced into the marketplace, price is not necessarily the primary marketing tool for attracting subscribers. Affinity partnerships with other companies can serve as a means of broadening the base of services which providers can offer their customers.

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[102] Statistics Canada Catalogue No. 62-555-XPB, Family Expenditure in Canada, 1996; Statistics Canada Catalogue No. 56-002-XIE, Quarterly Telecommunications Statistics, 4th quarter 2001.

[103] Source: CRTC Data Collection.

Although competition in the provision of local telephone service to residential customers has evolved more slowly than anticipated, the CRTC has been addressing barriers to competition in order for competitors to compete on a fair and equitable basis and provide Canadians with choice in services and service providers. For example, local number portability was implemented enabling subscribers to switch wireline local service providers without having to switch telephone numbers. In Decision 2003-45, the CRTC stated that all local phone companies that want to provide access to customers who live in multi-dwelling units such as apartments, and condos, should have this access under reasonable terms and conditions which will in turn enable end-users to access providers of their choice.

Standards related to quality of retail service to residential and business customers has been of concern to the CRTC during the course of changes in the regulatory regime including, most recently, changes in the competitive landscape. However, because there is limited competition in the local service market, competitive pressures alone would not be enough to ensure that the incumbents would meet these standards. In view of this, the CRTC has established performance standards for telecommunications services provided by incumbent local service providers.[104] At the same time, the CRTC has emphasized service quality at a high level, and has taken certain measures to maintain this level. In Decisions 2002-34 and 2002-43, the CRTC implemented, on an interim basis, a plan in the form of payment or rebate to customers when a company delivers sub-standard quality of service. The CRTC plans to arrive at a final rate and implement an audit process for retail quality of service and related matters for residential and business customers.

Long Distance Service

In 2000, residential consumers paid $3.1 billion for long distance wireline service. In 2002, this was marginally lower, $3.0 billion. As discussed in Section 4.2, residential long distance minutes have also declined. Lower rates, innovation and more choices have been brought about by competition in this segment.

Generally, consumers pay the same rate per minute for long distance calling within Canada regardless of the calling distance. Consumers can use the wireline long distance service plans of their local service provider or sign on to another long distance provider. In addition, they can use "dial-around" which involves dialling an access number followed by the long distance number, pre-paid calling cards which enable them to use up to a certain number of minutes, or use the long distance services of a wireless carrier. For many of the long distance plans offered, the consumer is not committed to one provider, and can easily switch to another. Those who do not opt into a plan can also make use of their local wireline service provider's basic rate schedule for long distance calling with discounts depending on the time of day or week that the call is made. These choices of carriers and long distance services benefit all consumers giving them flexibility in their calling patterns, and/or enabling them to reduce their long distance expenditures.

Pricing alternatives in long distance calling include plans with a per-minute charge or a flat charge for a fixed number of minutes, or a combination of both. Some service providers now offer

[104] Most recently, the CRTC issued *Final standards for quality of service indicators for use in telephone company regulation and other related matters,* Decision CRTC 2000-24, 20 January 2000. The CRTC also issued *Quality of service indicators for use in telephone company regulation*, Telecom Decision CRTC 97-16, 24 July 1997.

unlimited long distance packages for a flat monthly fee. In the past year, some long distance providers have implemented a fixed monthly "network" fee applied to residential consumers who sign on to the providers' long distance plans while maintaining the per-minute pricing at a low level in an aggressive competitive market. This network fee has added approximately $133 million to residential long distance expenditures in 2002.[105]

Access to the Internet

In 2002, more than 6.5 million Canadian households had Internet access subscriptions.[106] In 2003, there are 256 firms which Statistics Canada classified as being in the Internet Service Provider industry.[107] Canadians can choose from a variety of ISPs and Internet high-speed/ low-speed access plans with rates ranging from hourly charges to a flat monthly charge for either a certain number of hours or unlimited access. Service providers now offer a range of low-speed, broadband, DSL and wireless access services to meet different recreational, business and messaging needs.

Pricing for broadband has reached the stage where it is comparable to low-speed for heavier users that use a lot of connect time.[108] Generally, dial-up low-speed services are provided from approximately $10/month and high-speed services are priced from approximately $40/month.

In Decision 2003-49, the Commission mandated that high-speed access (DSL) should, upon request, be provided by Aliant Telecom, Bell Canada, MTS, SaskTel and TELUS to residential customers who subscribe to local wireline services of a CLEC. This means that consumers who switch their local service from an incumbent to a CLEC need not give up their subscriptions to an ILEC's high-speed service, thus their choice of high-speed Internet service provider is maintained.

In addition to wireline and cable access to the Internet, wireless devices are now being used – cellular phones, wireless modem-equipped personal digital asssitants (PDAs) and 2-way pagers. This provides the consumer with more choices for messaging and accessing information.

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105 Source: CRTC Data Collection.

106 Source: CRTC Data Collection.

107 Statistics Canada; "Struggling to remain competitive: a study of factors impeding growth for Canadian Internet service providers", p.2; Heather Archibald; Catalog 63F0002 XIE No. 44, July 2003.

108 Merrill-Lynch Broadband Handbook, 21 February 2003, p.17.

Consumer Awareness

Along with changes to the pricing rules in 2002, the CRTC initiated proceedings to address residential consumers' awareness of the telecommunications services available to them. These included developing clear and concise statements of existing consumer rights and better identification of charges and services in the incumbents' billing statements.[109]

In a competitive market, consumers' roles and responsibilities include making informed decisions regarding the telecommunications services they want to use and the providers of these services. In their decision-making, consumer responsibilities include assessing the features and benefits of the services offered, comparing prices of various calling plans and services, and examining service quality and customer support. All of these are based on awareness of what is available in the market.

In order to measure consumer awareness of competitive alternatives, the ease of making comparisons, and factors influencing choice of a service provider, the CRTC engaged the services of the Ipsos-Reid Corporation to carry out a national telephone survey of Canadian households in 2003.

The survey indicated that 91% of respondents stated they were either somewhat or well informed about competitive alternatives in local, long distance, wireless and Internet services.[110] In addition, consumers were asked to respond "true" or "false" to statements regarding local services and their characteristics. The results are summarized in the table below.

[109] Pursuant to Decision 2002-34, 30 May 2002.

[110] Ipsos-Reid 2003 Survey Q.2 asked – "As a consumer, how well informed do you consider yourself to be about telecommunications services including competitive alternatives in local telecommunications service, long distance, wireless and Internet services?" The answers were as follows: 34% were well-informed, 57% were somewhat informed, and 10% were not at all informed.

Table 6.1
Statements for Which Consumers Responded True or False [111]

	Correct Answer	Percent Answered Correctly	Percent Didn't Know or Refused to Answer
1. *Competition for local telephone service is now permitted.	True	77	3
2. *If an alternative local service provider is available and I want to change to this provider, I would have to change my telephone number.	False	71	5
3. *If an alternative local service provider is available and I want to change to this provider, I would be able to access emergency services.	True	81	5
4. *If an alternative local service provider is available and I want to change to this provider, I would be able to list in the telephone directory and have directory assistance.	True	65	8
5. **It is not possible to have voice conversations over the Internet.	False	79	6
6. **I can change my cellular service provider without having to change my cellular telephone number.	False	55	12
7. *I must use the same service provider for long distance that provides my local telephone service.	False	75	2

The above results show that over three quarters of those surveyed were aware that local competition is permitted. In addition, most were aware that switching to an alternative local service provider would not change their local telephone number or access to emergency and directory services. However, with respect to cellular service, slightly more than half of the

[111] The Ipsos-Reid telephone survey was conducted in June 2003 in two waves. The first wave consisted of questions asked of 1,055 households. The second wave consisted of a repeat of certain questions asked in the first wave of another 1,055 households for a total of 2,110. The items marked (*) are questions asked in two waves of telephone surveys, or 2,110 households, while items marked (**) are questions asked in one telephone survey of 1,055 households. The 1,055 sample size provides an overall margin of error within +/- 3.1%, 19 times out of 20. The 2,110 sample size provides a margin of error within +/- 2.1%, 19 times out of 20.

respondents were aware that their cellular number would have to change when changing providers. It should be noted that some of these respondents, about 18%, stated they did not use cellular service.[112]

It is noteworthy from statement 5 that most respondents (79%) were aware of the ability of making voice calls over the Internet and that 18% stated they actually use the Internet to make such calls.[113]

In comparing answers given by consumers who live in urban communities to those who live in rural communities, the awareness levels do not differ markedly, except in the case of number portability (statement 2) where 69% of urban respondents answered correctly compared to 77% of rural respondents, and in the case of local and long distance providers (statement 7) where 77% of urban repondents answered correctly compared to 69% of rural respondents.[114]

Factors Which Motivate or Impede Choice of Service Provider

In the survey, consumers were asked how easy it was to compare the prices and features offered by companies who provide local, long distance, cellular, and Internet services.[115] The results are shown in Table 6.2 below.

Table 6.2
Ability to Compare Service Providers

	Local service (Percent)	Long distance service (Percent)	Cellular service (Percent)	Internet service (Percent)
Easy to compare	58	68	55	65
Not easy to compare	36	30	33	23
Service does not apply to me	2	1	7	7
Don't know/refused	4	2	5	5

[112] Ipsos-Reid Survey Q.9 asked respondents about the use of their cell phone – 18% stated they did not use one.

[113] Ipsos-Reid Survey Q.10 asked whether the respondent used the Internet to make voice calls from the home.

[114] These true/false statements were posed to 2,110 respondents in two waves of telephone surveys which consisted of an urban-rural split of 1,642 and 468 respectively. The 1,642 urban sample provides an overall margin of error within +/- 2.5%, 19 times out of 20; the 468 rural sample provides an overall margin of error within +/- 5.3%, 19 times out of 20.

[115] Ipsos-Reid Survey Q.4 was based on 1,055 respondents.

The majority of consumers stated that it was easy to compare alternatives in each of the above service categories. However, when consumers were asked if it was difficult to obtain objective, unbiased information on different telecommunications services and prices, 64% agreed that this was the case.[116]

With respect to choosing a long distance, cellular or Internet service provider, consumers were presented with three criteria and asked to select the most important factor which would influence their choice – price, quality of service, or the convenience of having that service bundled with other telecommunications services delivered by one provider. For each of these services, respondents chose "price" as the most important criterion, followed by "quality of service" and lastly the convenience factor.[117]

With respect to local service, consumers were asked if they were presented with alternatives in a local service provider, to choose the top two among six factors which would influence their decision. Again, price and quality of service ranked the highest. These six factors and the choices expressed in percent terms are ranked below.[118]

Table 6.3
Factors Affecting Choice of Local Service Provider

Criteria	Percentage
Price	58
Quality of service	45
Reliability – being able to access 9-1-1, directory assistance	31
Convenience of a single bill for all telecommunications services	23
Service features offered in a convenient package	19
Ability to keep your telephone number (number portability)	19
None/Would not switch	1
Don't know/Refused	1

Overall, 72% of respondents stated that they have benefited from the availability of competition in telecommunications services.[119]

[116] Ipsos-Reid Survey Q.5-1.

[117] Ipsos-Reid Survey Q.6.

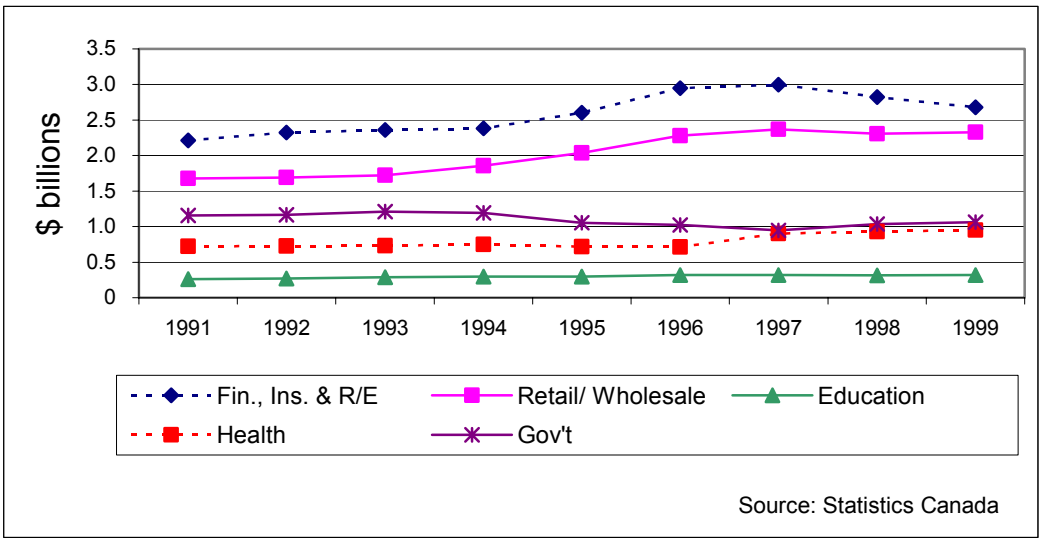
[118] Ipsos-Reid Survey Q.11.

[119] Ipsos-Reid Survey Q.5.

6.3 Business Customers – Telecommunications Users

Based on the most recent data from Statistics Canada, over the 1991 to 1999 period, business customers increased their consumption of telecommunications services from approximately $9.9 billion in 1991 to $12.8 billion in 1999[120] or 3% annually. Figure 6.2 displays telecommunications expenditures for the Finance, Insurance and Real Estate, Retail/Wholesale, Education, Health and Government sectors for the period 1991 to 1999.

Figure 6.2
Telecommunications Business Expenditures by Organizational Sector



These sectors, as displayed in Figure 6.2, represented approximately 58% of the total 1999 telecommunications expenditures. The largest consumer of telecommunications services was the Finance, Insurance and Real Estate sector. For this sector, telecommunications expenses represented between 1.5% to 1.8% of their total expenditures. For the remaining sectors, telecommunications expenditures represented between 0.5% and 1.4% of their total expenditures.

[120] Statistics Canada Input Output data.

Business Customer Segmentation

In 2002, roughly 90% of business wireline accounts were small business; however, the revenues generated by these accounts represented less than 14% of total business wireline revenues. Table 6.4 summarizes the 2002 distribution of small, medium, large and very large business accounts and revenues for incumbents and competitors.[121]

Table 6.4
Business Accounts and Revenues Distribution (2002)

	Number of Business Accounts				Business Revenues			
	Small	Medium	Large	Very Large	Small	Medium	Large	Very Large
Incumbents	88.9%	9.3%	1.5%	0.3%	13.7%	12.0%	15.6%	58.7%
Competitors	94.0%	4.6%	1.2%	0.2%	13.3%	15.0%	23.5%	48.3%
Industry	90.3%	8.0%	1.4%	0.3%	13.6%	12.6%	17.3%	56.6%

Source: CRTC Data Collection

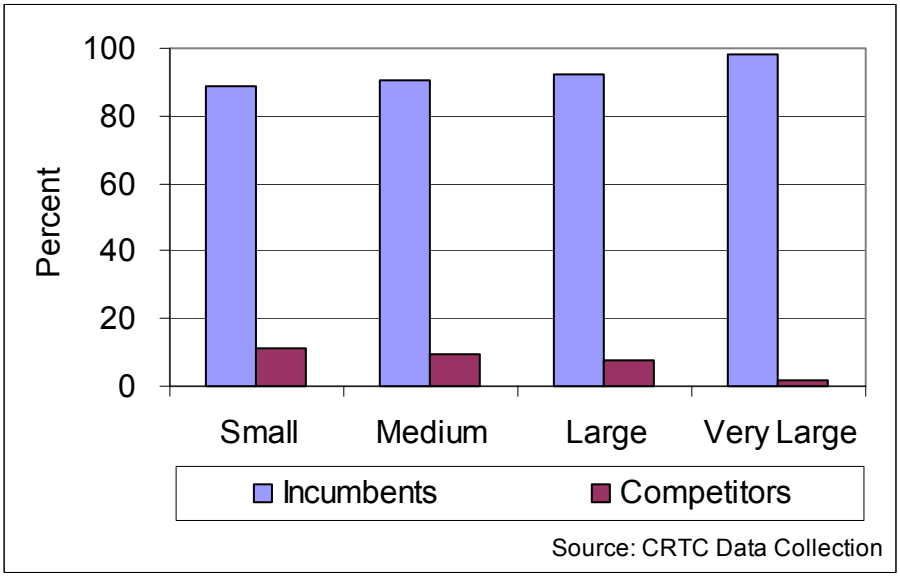
Between 1998 and 2002, the number of large and very large business accounts combined as a percent of total business accounts remained relatively constant at roughly 2%. However, as a percent of revenues, large and very large business customers combined increased from approximately 69% of total business revenues in 1998 to approximately 74% in 2002.[122] In 2002, the number of large business accounts was approximately five times the number of very large accounts. However, in terms of revenues, the situation was almost reversed. The very large business revenues were approximately three times the large business revenues.

Figure 6.3 displays the suppliers of local service for the small, medium, large and very large business market segment. The dominant supplier of local service to the very large business customer was the incumbent local supplier. Competitors captured slightly over 10% of the small business expenditures on local service.

[121] For the purposes of this report, wireline business customers were segmented into small, medium, large and very large customers. A small business customer is defined as a business account that generated less than $6,000 in annual telecommunications revenues. A medium business customer is defined as a business account that generated annual revenues of at least $6,000 but less than $30,000. A large business customer is defined as a business account that generated annual revenues of at least $30,000 but less than $240,000. A very large business account is defined as a business account that generated annual revenues of at least $240,000.

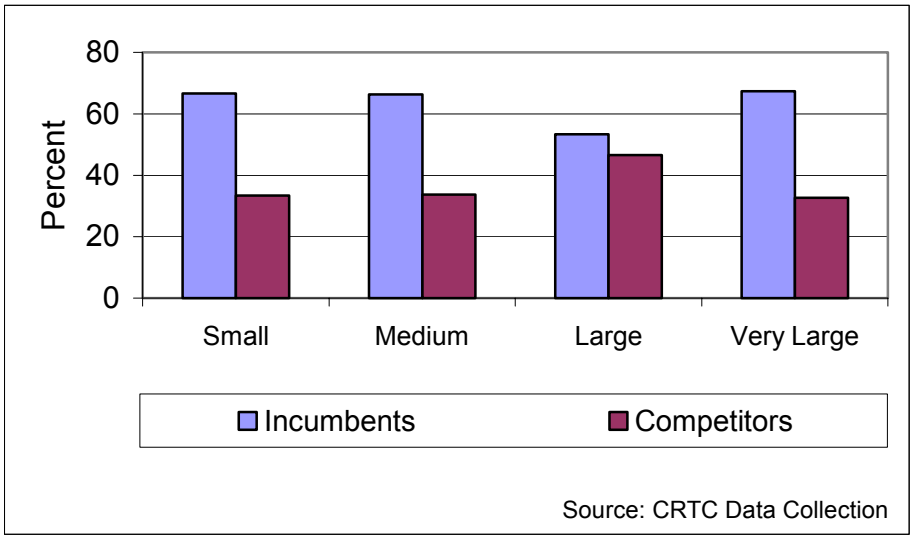
[122] Source: CRTC Data Collection.

Figure 6.3
Local Business Revenues – Incumbents v. Competitors (2002)



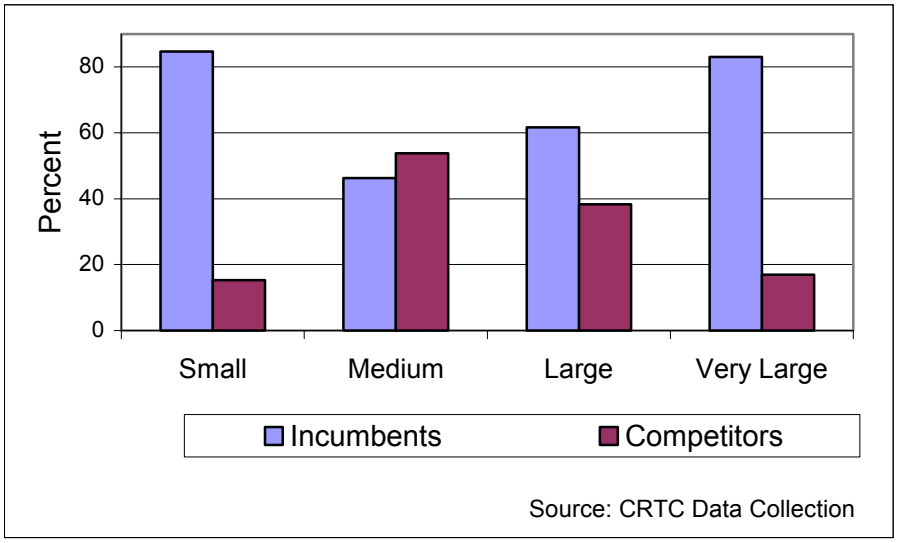
The long distance small, medium, large and very large business market, as displayed in Figure 6.4, was roughly 32% supplied by competitors except for the large business market which was approximately 46% supplied by competitors.

Figure 6.4
Long Distance Business Revenues
Incumbents v. Competitors (2002)



With respect to data and private line services, competitors had approximately 40% to 50% of the medium and large business market. Incumbents, however, maintained over 80% of the small and very large business segments.

Figure 6.5
Data and Private Line Revenues
Incumbents v. Competitors (2002)



Summary of Canadian Telecommunications Milestones to Competition

Market	Year	Details
Data and Private Line	1979	Allowed the interconnection of private line data circuits between CNCP Telecommunications and Bell Canada.
Terminal Equipment	1982	Allowed customers to purchase their own terminal equipment (e.g., telephone sets).
Wireless	1984	A duopoly market structure was initially created in 1984; two additional national mobile wireless licences were issued by Industry Canada in 1995. The terms and conditions for wireless service providers to interconnect to the incumbent telephone companies' networks were initially established in 1984.
Long Distance (resale)	1987	Long distance resale was first allowed in 1987, with the rules being liberalized in 1990. Resale of international long distance service was permitted in 1991.
Long Distance (facilities-based)	1992	Facilities-based competition was permitted in 1992, but full competition did not begin until 1994 when the incumbents were required to modify their networks to allow customers to make long distance calls without dialling extra digits (equal ease of access). Facilities-based competition in the provision of international services was permitted in 1998.
Local	1997	Framework for facilities-based competition in the local services market was established for most large incumbents in 1997. In the following year, large incumbents were required to begin to modify their networks to allow customers to switch service providers without changing telephone numbers (i.e., implement local number portability).
Payphone	1998	Incumbents were required to put in place access tariffs and service agreements for new entrants.

Summary of Canadian Telecommunications Markets Subject to CRTC Forbearance Rulings

Market	Year	Details
Terminal Equipment	1994	Sales and rental of terminal equipment.
Wireless	1994	Cellular, personal communications services, mobile radio and paging, except in the case of incumbent in-house mobile service providers. Forbearance extended to incumbent mobile operations, starting in 1998, once competitive safeguards had been implemented.
Satellite Services	1994	Telesat's digital video compression services initially; further services offered by Telesat, such as sale/lease of earth stations and RF channels, in subsequent years.
Services Provided by Non-dominant Carriers	1995	Services, such as long distance, data, Internet and private line, provided by non-dominant competitive carriers.
Data and Private Line	1997	High-speed/DDS inter-exchange private line services provided by the incumbent telephone companies on a route-specific basis.
Internet Services	1997	Incumbent telephone companies' retail Internet services in 1997 and those of cable providers in 1998.
Long Distance	1998	Toll and toll-free services.
International Services	1998	Initially excluded Teleglobe; however, certain international services provided by Teleglobe later forborne as well.

Summary of Certain Recent CRTC Rulings Relevant to Telecommunications Competition

Ruling	Details
Part VII Application – Access to supporting structures of municipal power utilities – CCTA vs MEA et al – Final Decision, Telecom Decision CRTC 99-13, 28 September 1999.	The Commission determined the terms and conditions for access by cable companies to the support structures of certain utility companies. The Supreme Court of Canada ruled in May 2003 that federal regulators have no authority under current legislation to allow cable operators to string their lines along power poles owned by municipal and provincial utilities.
Ledcor/Vancouver – Construction, operation and maintenance of transmission lines in Vancouver, Decision CRTC 2001-23, 25 January 2001.	The Commission determined the terms and conditions for access by Ledcor Industries and its affiliates to municipal rights-of-way in Vancouver. The appeal to the Federal Court of Appeal was dismissed and Leave to Appeal to the Supreme Court of Canada was dismissed in September 2003.
Application of the winback rules with respect to primary exchange service, Telecom Decision CRTC 2002-1, 10 January 2002.	The Commission amended the local winback rules by directing incumbent local exchange carriers not to attempt to win back a business customer with respect to primary exchange service, and, in the case of a residential customer, with respect to primary exchange or any other service, for a period of three months after that customer's primary local exchange service has been completely transferred to another local service provider.
Regulatory framework for second price cap period, Telecom Decision CRTC 2002-34, 30 May 2002.	The price cap decision provided new rules to determine the rates charged for local telephone services of TELUS, SaskTel, MTS, Bell Canada and Aliant Telecom. It also provided for an adjusted quality of service mechanism and a requirement for the incumbents to provide Competitor Digital Network Access (CDNA) on the same basis as other competitor services (i.e., priced at cost plus a 15% mark-up). This decision lowered certain ILEC wholesale rates to competitors.
Implementation of price regulation for Télébec and TELUS Québec, Telecom Decision CRTC 2002-43, 31 July 2002.	The Commission determined the terms and conditions for a price cap regime applicable to Télébec and TELUS Québec for a four-year period, beginning in 2002. The Commission adopted a regime that was similar, in most respects, to the regime implemented for the large ILECs in Telecom Decision CRTC 2002-34.

Ruling	Details
Framework for the expansion of local calling areas, Telecom Decision CRTC 2002-56, 12 September 2002.	The Commission provided a new framework for the expansion of local calling areas. Customers in these expanded local calling areas will be subject to a surcharge for a limited period of time to compensate toll carriers for toll revenues foregone.
GT Group Telecom Services Corp. v. Bell Canada – Non-compliance with Bundling Rules, Telecom Decision CRTC 2002-58, 20 September 2002.	The Commission found that a Bell Canada promotion offering business customers a rebate of long distance charges contingent on the customer obtaining local exchange service from Bell Canada is a bundled service that requires tariff approval. The Commission directed that such bundled services provided without an approved tariff should cease to be offered, and that all ILECs file information with the Commission related to similar services.
Interim rates for Access Tandem service and Direct Connection service, Telecom Orders CRTC 2002-384, 24 September 2002, and 2002-384-1, 30 September 2002, and *Revised interim rates for Access Tandem service*, Telecom Order CRTC 2002-412, 31 October 2002.	Direct connection (DC) and access tandem (AT) per-minute rates were reduced on an interim basis, effective 1 June 2002, for TELUS, SaskTel, MTS, Bell Canada and Aliant Telecom. Some AT rates were reduced by as much as 70%.
Call-Net Enterprises Inc. v. Bell Canada – Compliance with winback rules, Telecom Decision CRTC 2002-73, 4 December 2002.	The Commission found Bell to be in violation of the Commission's winback rules, and directed it to cease and desist from violating winback rules, develop internal procedures to ensure compliance and report back to the Commission within 60 days on the internal procedures.
Regulatory safeguards with respect to incumbent affiliates, bundling by Bell Canada and related matters, Telecom Decision CRTC 2002-76, 12 December 2002.	The Commission considered that certain single source and packaged arrangements of Bell Canada and Bell Nexxia that involved Bell Canada tariffed service elements constitute bundling, requiring Bell Canada to file tariffs for approval in respect of these arrangements. The CRTC also tightened the rules under which an ILEC may provide tariffed services to an affiliate. The rates, terms and conditions of these tariffed services provided to an affiliate must be identical to those that would apply if the telecommunications services in question were provided to the public by the ILEC, instead of the affiliate.

Ruling	**Details**
Review of promotions, Telecom Public Notice CRTC 2003-1-1, 13 March 2003.	The Commission suspended consideration of applications for ILEC promotions in the local wireline market pending its examination of the rules regarding promotions by incumbents.
GT Group Telecom Services Corp. v. Aliant Telecom Inc. – Tariff violations and contraventions of the Telecommunications Act, Telecom Decision CRTC 2003-23, 10 April 2003.	The Commission found that Aliant Telecom contravened sections 25(1) and 27(1) and (2) of the *Telecommunications Act*. The Commission took measures to address Aliant Telecom's behaviour with a view to ensuring compliance with its tariffs and the Act.
Measures with respect to incumbent telephone company regulatory compliance, Telecom Public Notice CRTC 2003-4, 10 April 2003.	The Commission announced measures to ensure full compliance by incumbent telephone companies with the *Telecomunications Act* and Commission decisions, including the designation of inspectors under section 71 of the Act.
Provision of telecommunications services to customers in multi-dwelling units, Telecom Decision CRTC 2003-45, 30 June 2003.	The Commission established the conditions and principles for the provision of telecommunications services to customers located in multi-dwelling units (MDUs) including guidelines that assist building owners and local exchange carriers in negotiating just and expedient conditions to access MDUs. Leave to appeal to the Federal Court of Appeal was granted.
Call-Net Enterprises Inc. – Request to lift restrictions on the provision of retail digital subscriber line Internet services, Telecom Decision CRTC 2003-49, 21 July 2003.	The Commission directed the ILECs (except MTS) to, upon request, provide their respective retail digital subscriber line Internet services to any residential CLEC primary exchange service customer, who is served by a local loop leased from the ILECs and would otherwise qualify for those services. The Commission also directed MTS to show cause as to why this decision should not also apply to it.
Conditions of service for wireless competitive local exchange carriers and for emergency services offered by wireless service providers, Telecom Decision CRTC 2003-53, 12 August 2003.	The Commission established conditions under which wireless carriers could offer service as wireless CLECs, and introduced public safety obligations and liability limitations for all wireless carriers.

Ruling	Details
Review of Bell Canada's customer-specific arrangements filed pursuant to Telecom Decision 2002-76, Telecom Decision CRTC 2003-63, 23 September 2003.	The Commission found that the tariffs accompanying the customer-specific arrangements (CSAs) filed by Bell Canada pursuant to the Commission's direction in Telecom Decision CRTC 2002-76 did not meet the Commission's requirement in regard to the rates, terms and conditions that should be publicly available in the tariffs. The Commission sets out the criteria in regard to the level of detail that Bell Canada must provide in tariffs accompanying CSAs. In addition, the Commission found that Bell Canada understated the Phase II cost components of the imputation tests filed in support of the CSAs, and directed the company to file proposed tariffs establishing rates that would assure the recovery of revenues set out in the decision, or notify the Commission that it has discontinued the provision of the service in question.
Review of price floor safeguards for retail tariffed services and related issues, Telecom Public Notice CRTC 2003-8, 23 October 2003.	The Commission initiated a proceeding to invite comments on proposed interim modifications to the imputation test and the service bundle pricing rules, as well as on the introduction of a new interim pricing safeguard for volume and term contracts for retail tariff services. The Commission also invited comments on what changes to these pricing safeguards may be appropriate on a final basis.

Major Market Participants

Incumbent Carriers

The advent of competition has significantly changed the role of the incumbents. The incumbents now provide not only retail services, but also a range of wholesale services to competitors under terms and conditions mandated by the CRTC. These wholesale services include long distance switching and aggregation services, local transit and transport services, co-location and unbundled local loops. Incumbent carriers also provide a range of other services to retail customers and competitors such as Digital Network Access and Centrex services.

Incumbent carriers can be divided into two categories: large and small. Since the break-up of the former Stentor Alliance in 1998, the large incumbent carriers have begun to compete against one another by providing telecommunications services outside of their traditional home serving territories. These services include data and IP services targeted at business customers, wireless services, business local exchange services, international telecommunications services and satellite transmission capacity and related earth segment (uplink and downlink) services. At the same time, there has been an increasing trend toward consolidation among large incumbents.

Large Incumbents

The most significant large incumbents are Aliant Telecom, Bell Canada, MTS, SaskTel, TELUS, Teleglobe and Telesat Canada. The other large incumbents are Northwestel, which provides services in the Yukon, the Northwest Territories, Nunavut and parts of British Columbia, and Télébec and TELUS Québec, which provide services in Quebec.

Incumbent Out-of-Territory Service Providers

The three active players in this category are Bell Canada and MTS (through Bell West Inc.), TELUS and SaskTel (through Navigata).

Small Incumbent Carriers

There are 39 small incumbent telephone companies in Canada. With the exception of municipally-owned Prince Rupert City Telephones (CityTel) in British Columbia, these carriers are dispersed throughout the provinces of Ontario and Quebec. Small incumbent carriers are municipally-owned or independently owned, either privately or publicly. Like the large incumbents, they have enjoyed historical monopolies in their respective operating territories. Most serve mainly rural areas. Overall, small incumbent carriers serve less than 2% of the total population of Canada.

Given their limited serving areas, small incumbent carriers typically do not provide facilities-based long distance services. However, they do provide a range of local voice, data, Internet and wireless services. One exception is O.N.Telcom that operates in a relatively large territory in Northern Ontario and primarily provides long distance services as well as local services. As well, branching out from the provision of local, data, wireless and terminal equipment services, NorthernTel Limited Partnership has entered the long distance market in north-eastern Ontario.

Nineteen small incumbents are members of the Ontario Telecommunications Association (OTA), thirteen other small incumbents are members of the Association des Compagnies de Téléphone du Québec inc. (ACTQ), and five municipally-owned small incumbent carriers belong to the Canadian Alliance of Publicly-owned Telecommunications Systems (CAPTS).

Competitive Service Providers

Competitive service providers in the Canadian telecommunications market provide telecommunications services on a facilities or resale basis, as well as on a combined facilities/resale (or hybrid) basis.

Facilities-Based Competitive Service Providers

These are competitive service providers that own physical transmission facilities. This would include Allstream, Call-Net, Microcell, 360networks services ltd/ 360networks Canada Ltd. and FCI Broadband.

Resellers

Resellers began to first enter the long distance market in the late 1980s. To provide long distance services, they resell the facilities and services of incumbent and/or competitive carriers. Since resellers do not own transmission facilities, they are not necessarily Canadian carriers and, therefore, are not subject to foreign ownership restrictions. In addition, resellers are not subject to rate regulation by the CRTC.

Resellers provide business customers with local, long distance and other services on a resale basis, and they provide residential customers with long distance and Internet access services. Examples of resellers include Primus Telecommunications Canada Inc., Distributel Communications Limited and YAK Communications (Canada) Inc.

Resale-based Internet Service Providers (ISPs)

While incumbent carriers and cable companies account for the majority of the retail Internet access market, there are also hundreds of other independent ISPs operating across the country today.[1] Similar to resellers, these companies are not carriers and, therefore, are not subject to foreign ownership limitations. They provide business and residential customers with Internet access services, as well as web hosting, e-commerce and other services.

Most independent ISPs provide service on a local basis, although some service providers, such as AOL Canada, provide service on a national basis.

Payphone Service Providers

The payphone market was opened to competition in 1998. At that time, the CRTC set access rates to be charged to entrants wishing to connect their payphones to the incumbents' networks. Since that time, numerous parties have registered as Competitive Pay Telephone Service Providers (CPTSPs), with the intent of providing competitive alternatives to the incumbent carriers.[2] The vast majority of these new entrants are either inactive or very small.

Cable Providers

The largest cable companies provide a diverse range of services, which, in addition to cable modem service, includes a variety of other wireless and wireline telecommunications services. EastLink is the only Canadian cable provider to provide cable telephony services to date.

Utility Telcos

Historically, many utility companies (e.g., in the electricity, energy, gas or other utility businesses) have managed their own telecommunications facilities to meet internal service requirements for administrative data, voice and power system protection and operation. They own facilities that include microwave radio, fibre-optic cable, power line carrier and mobile radio systems, although microwave radio systems have been or are in the process of being replaced by fibre-optic systems.

Entry into the telecommunications market by utility telcos has been limited, but appears to be increasing. Examples of utility telcos include the creation of Hydro One Telecom Inc., which provides service on a provincial basis, as well as members of the Ontario-based FibreWired Network who provide telecommunications services in the metropolitan areas served by their respective parent electric utility companies.

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[1] Independent ISPs in this context includes ISPs that are not affiliated with either incumbent carriers, cable providers or other facilities-based carriers (such as Allstream or Call-Net).

[2] A list of current CPTSPs is available on the CRTC's website: http://www.crtc.gc.ca/ENG/public/Iplists/cptsp.htm.

Glossary of Terms and Acronyms[1]

Analog Service: Transmission of a set of audible frequencies enabling telephony voice conversations or dial-up Internet access via a regular telephone line. Virtually all residential telephones are analog devices. Analog signals are typically converted to a digital format.

Broadband Services: For the purposes of this report, a service enabling the two-way transmission of voice, data or multimedia communications with speeds in one direction in excess of 1.544 Mbps.

Cable Internet Service: A bi-directional high-speed digital communication service, enabling Internet access through the use of cable TV coaxial network.

Centrex Resale: The purchase and resale of bulk Centrex service to retail customers.

Centrex Service: A telephone company-supplied local service with associated sets of features (e.g., call display, call forwarding).

Competitive Local Exchange Carrier (CLEC): A facilities-based provider of local exchange service, other than an ILEC.

CRTC Interconnection Steering Committee (CISC): A forum for parties, with CRTC assistance, to resolve local competition implementation issues of a technological, operational or administrative nature and to resolve other telecommunications issues.

Digital Service: The transmission of binary data signals (a continuous string of zeros and ones). Such service is used for computer-to-computer communications or for transmission of digitally-encoded analog signals in telephone and digital cellular networks.

Digital Subscriber Loop (DSL): A local loop equipped to allow high-speed data transmission.

Facilities-based Carrier: A carrier that provides telecommunications services, using, in part, their own switching and transmission facilities.

[1] A complete glossary of telecommunications terms can be found at http://www.crtc.gc.ca/PartVII/eng/monitor/glossary.htm.

Fibre Optics: A broadband transmission facility which uses a beam of light to transmit a digital signal through a glass strand.

Fixed wireless: Point-to-point transmission through the air between stationary devices.

Incumbent Local Exchange Carrier (ILEC): A company that, prior to the introduction of competition, provided monopoly local telephone service.

Internet Service Providers (ISPs): Companies that provide customers with Internet access.

Interexchange Private Line (IXPL): A dedicated communications channel provided at flat rates between points in different exchanges.

Local Loop: Sometimes called the "last mile", the physical connection between the customer premise and the Central Office.

Long Distance Resale: The purchase and resale of bulk private line and other interexchange services for the provision of long distance services to retail customers.

Mobile Services: Wireless services including analog and digital cellular (e.g. Personal Communications Services or PCS).

Narrowband Services: For the purposes of this report, a service enabling the two-way transmission of voice or data communications with speeds in either direction not exceeding 64 Kbps.

Private Line Service: A dedicated communications channel between two or more points.

Support Structure: Structures, such as poles and conduit, that support transmission facilities (copper cable and/or fibre optics).

Terminal Equipment: Equipment located at the customer's premises, used for voice or data communications (e.g., telephone set).

Wireless Services: Telecommunications services via the airwaves using radio, cellular, satellite, microwave and other wireless transmission systems including fixed wireless.

Wireline Service: Telecommunications services offered over wires.