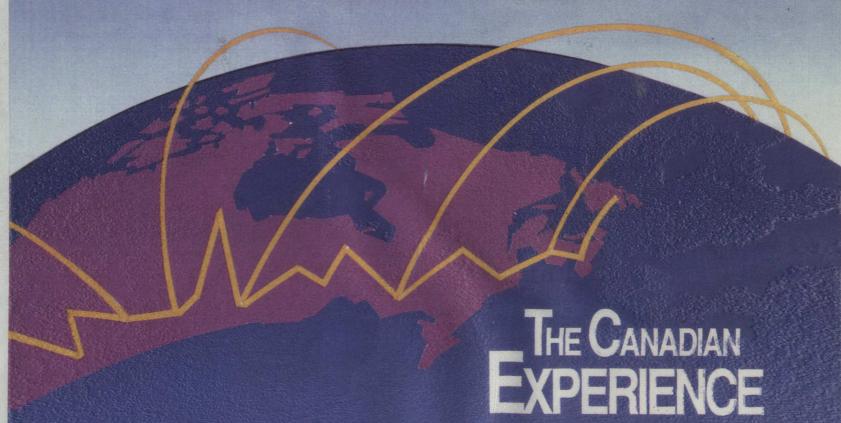
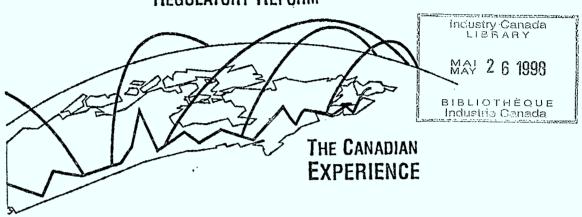
TELECOMMUNICATIONS POLICY AND REGULATORY REFORM



COMMUNICATIONS



TELECOMMUNICATIONS POLICY AND REGULATORY REFORM



Notes for a Presentation by Philip Palmer Senior Counsel and Director of Legal Services Department of Communications Government of Canada

Prepared for a Conference on the Theme
"The Deregulation of Telecommunications
as an Essential Pre-condition for
the Economic Development of Greece"

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Prepared by DGTP and DGIS in consultation with DGIR, DGSP and DGIE

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Industry Canada

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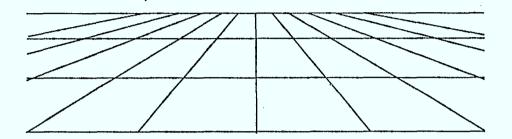
TELECOMMUNICATIONS POLICY AND REGULATORY REFORM

THE CANADIAN EXPERIENCE

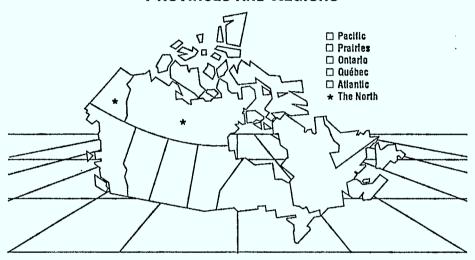
Introduction

- o I am most pleased to have the opportunity to be here with you today and participate in this conference.
- Telecommunications technology and markets are changing so rapidly that governments must adapt their policies and regulations to meet the evergrowing demand for new and innovative services.
- The telecommunications industry is being recognized not just as another service provider but as important in its own right, providing a key component of modern economies.
- o Today's market demands increased innovation, efficiency and flexibility.
- We cannot rely on established policies and regulation to ensure the continued provision of universal service while at the same time promoting more effective competition.
- In Canada, we have always taken a balanced approach to regulation, which has involved some degree of competition.
- In recent years, we have continued to combine both monopoly and competition elements, but with a move to greater reliance on competition.

THE SOCIOECONOMIC ENVIRONMENT



CANADA PROVINCES AND REGIONS

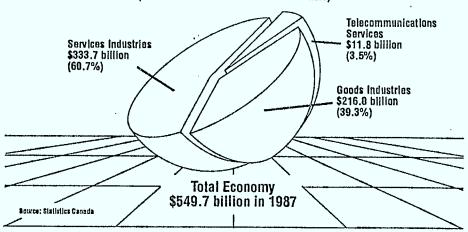


I) The Socioeconomic Environment

- 1) The Importance of Telecom and the Challenge of Geography
- A highly developed telecommunications system is essential given Canada's geography and its five distinct economic regions.
- Advanced telecommunications technology has always played an important part in supporting and strengthening our ties across the nation.
- Canada is the world's second largest country. Our vast country with varied terrain, stretches some 7,000 kilometres from the Atlantic to the Pacific.
- Ouebec, Ontario, the Prairies, and Pacific regions.
- Canada is a federal state, comprising ten provinces and two large, sparsely populated northern Territories.

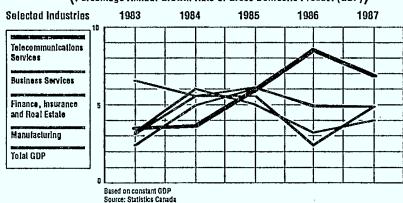
TELECOMMUNICATIONS SERVICES' CONTRIBUTION TO THE ECONOMY

(Gross Domestic Product in Current Dollars)



GROWTH IN TELECOMMUNICATIONS SERVICES RELATIVE TO OTHER INDUSTRIES

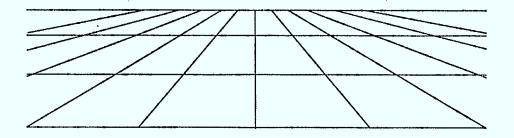
(Percentage Annual Growth Rate of Gross Domestic Product (GDP))

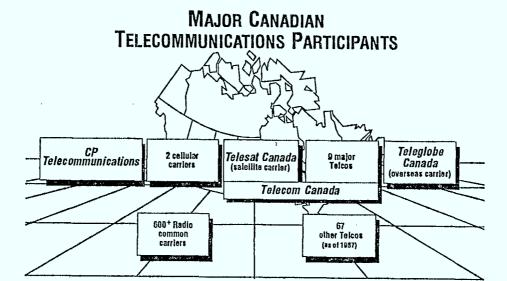


2) Contribution to the Economy and Growth of the Industry

- o In 1987, the telecommunications services industry in Canada accounted for \$11.8 billion of all service industries (\$333.7 billion), and about 3.5 percent of the total gross domestic product (\$549.7 billion).
- Telecommunications services are one of the fastest-growing sectors of the economy and a high technology industry in which Canada excels.
- The growth rate in telecommunications services increased from 3.4 percent in 1983 to 6.8 percent in 1987.
- This rapid growth has come as the result of the needs of increasingly sophisticated users of telecommunications services.

THE CANADIAN TELECOMMUNICATIONS INDUSTRY





II) The Canadian Telecommunications Industry

1) Major Participants

The major telecommunications services industry participants include:

The telephone companies; these are generally grouped into the nine largest telephone companies, each operating in its respective province, and about 67 generally smaller independent telephone companies;

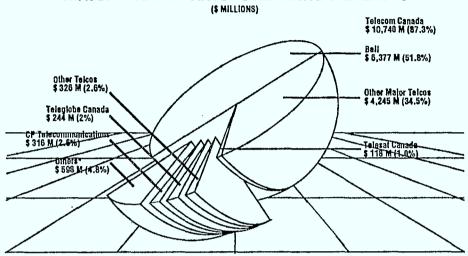
A national telecommunications company (CP Telecommunications) that competes with the telephone companies except in long-distance and basic local public telephone services;

A domestic satellite carrier (Telesat Canada) which operates Canada's domestic satellite system;

An overseas carrier (Teleglobe Canada) that provides overseas telecommunications links between Canada and almost every country in the world;

Two national cellular carriers and over 600 radio common carriers.

MAJOR PARTICIPANTS' OPERATING REVENUES



2) Major Participants' Operating Revenue

- The telecommunications services industry's operating revenue was \$12.3 billion in 1987.
- Of this total, the nine major telephone companies accounted for approximately \$10.7 billion.
- Bell Canada, the largest telephone company in Canada, with operating revenues of \$6.4 billion in 1987, operates in Ontario and Quebec and accounts for the highest percentage of industry revenue.
- o In comparison with the telephone companies, CP Telecommunications has revenues of \$316.5 million, accounting for 2.6% of total industry operating revenues.

TELECOMMUNICATIONS NETWORKS IN CANADA

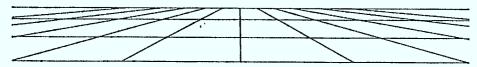
Three national facilities-based carrier networks

- ~Telecom Canada
- ~CP Telecommunications ~Telesat

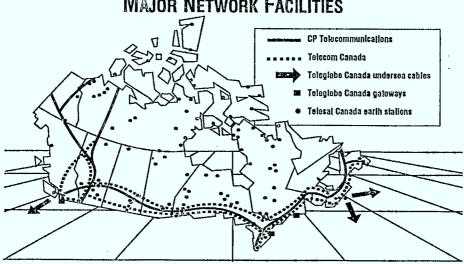
Two national cellular systems ~CellNet Canada ~Rogers-Cantel

One overseas carrier*

~Teleglobe



MAJOR NETWORK FACILITIES



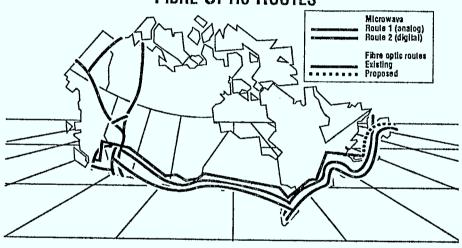
3) Major Participants and Networks

- Telecommunications networks have always been the backbone of Canada's telecommunications system.
- Canada has three national carrier networks, two national cellular systems and one overseas carrier that provides overseas services outside of North America.

TELECOM CANADA MEMBERS

Company	Territory	Assets, 1987(\$ Billions
BC Tel	Brilish Columbia	\$ 3.1
AGT	Alberta	2.4
Sask Tol	Saskalchewan	1.0
MTS	Manitoba	0.9
Bell Canada	Ontario, Quebec	13.5
Hawtoundland Tel	Newloundland	0.3
NB Tal	New Brunswick	0.6
MT&T	Nova Scotia	0,8
Island Tei	Prince Edward Island	0.1
Telesat Canada	Canada-Wide	0,5
	••	23.2
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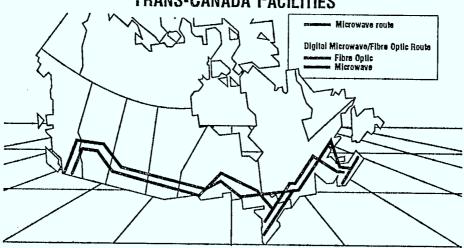
TELECOM CANADA MICROWAVE ROUTES AND FIBRE OPTIC ROUTES



Telecom Canada

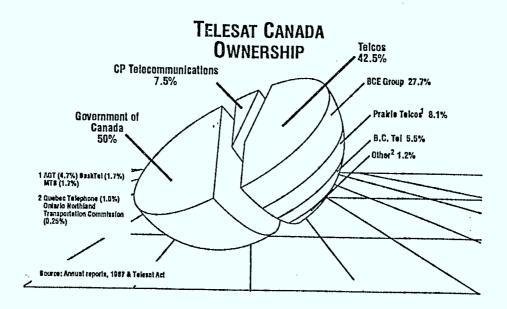
- Telecom Canada, an unincorporated association established in 1931, consists of the major telephone companies operating in each province and Telesat Canada. It is the largest provider of national telecommunications services in Canada.
- Telecom Canada provides a range of facilities for the transmission and switching of local and interexchange traffic, including fibre optics cables and two coast-to-coast microwave relay routes.
- In the Spring of 1985, Telecom Canada announced plans to construct a coast-to-coast fibre optics network.
- Major cities between Vancouver and Halifax can be connected over an all-digital path of about 6,500 kilometres, the longest of its kind in the world.
- Canada-U.S. transborder telecommunications traffic is handled by interconnection agreements between Canadian and U.S. telephone companies and by Telesat Canada and U.S. domestic satellite.

CP TELECOMMUNICATIONS TRANS-CANADA FACILITIES

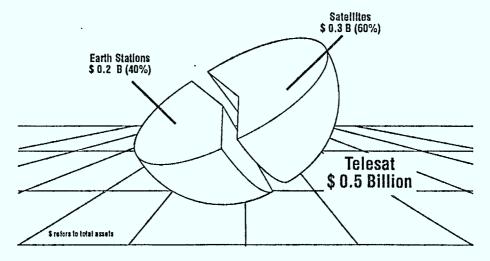


Canadian Pacific Telecommunications

- Canadian Pacific Telecommunications (CP Telecommunications), previously known as CNCP Telecommunications, was originally a partnership of the telecommunications divisions of Canada's two major railways, CN and CP Rail. In 1988, CN's ownership share was sold to CP, thus becoming part of the private sector.
- O It now operates its own national microwave relay system to provide non-switched competitive telecommunications services.
- O Also, it can lease local loops from local telephone companies to reach particular customers.
- OP Telecommunications was originally the first national carrier to use fibre optics for a long-distance, high-capacity network, linking Montreal, Ottawa, Kitchener, and Windsor.
- OP Telecommunications and Rogers Cable are finalizing an agreement under which Rogers Cable will purchase 40% of CP Telecommunications.



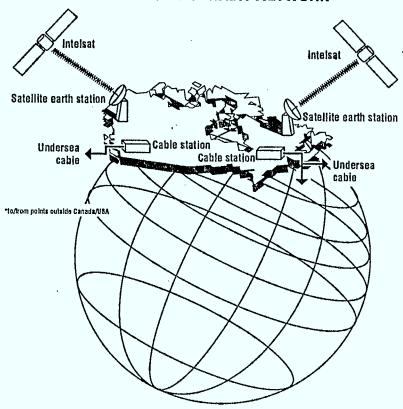
TELESAT CANADA ASSETS



Telesat Canada

- Telesat Canada (Telesat), the domestic satellite carrier, is jointly owned by the federal government and the major common carriers.
- Telesat's satellites and earth stations provide for the carriage of domestic and Canada-US. telecommunications services such as data-transmission and private-line services, as well as various broadcasting services.
- Where permitted, Telesat uses the local networks of the telephone companies to gain access to its customers.
- One of Telesat's most important functions is to provide access to telecommunications services to Canadians living in remote areas.

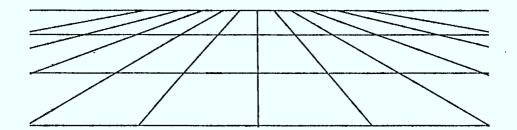
TELEGLOBE CANADA NETWORK*



Teleglobe Canada

- Teleglobe Canada (Teleglobe), Canada's sole overseas telecommunications carrier, operates an international cable and satellite network for a wide variety of services such as telephone, telex, data communications, radio and television transmission.
- Using Teleglobe networks, Canadians can telephone to some 220 destinations around the world. International direct dialing is available to over 85 percent of Canadian telephone subscribers.
- Teleglobe Canada carries its traffic via its international gateway switches in Montreal, Toronto and Vancouver, where it is routed internationally by transoceanic cables or earth stations accessing Intelsat satellites.
- Teleglobe was government owned until 1987 when it became a wholly owned subsidiary of Memotec Data Inc. of Montreal. Under the terms of the privatization, Teleglobe's monopoly of overseas telecommunications traffic will be reviewed in 1992.

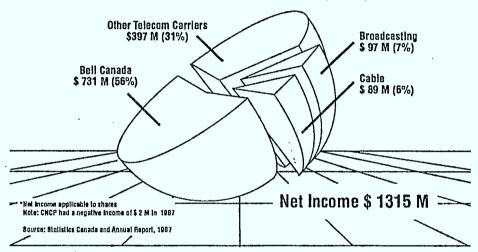
CELLULAR RADIO CARRIERS



Cellular Radio Carriers

- Canada has two cellular radio systems, one operated by the telephone companies (Cellnet Canada) and the other by Cantel Inc.
- Cellular telephone service was inaugurated in Canada on July 1, 1985 in Montreal and Toronto.
- O At present, there are an estimated 300,000 subscribers in Canada.
- In addition to cellular carriers, there are over 600 radio common carriers providing service in Canada.

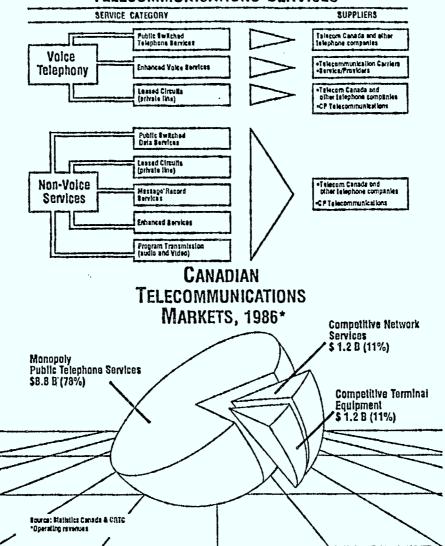
TELECOM INDUSTRY INCOME (1987)



Cable Companies

- The cable industry accounted for 6% of the communications services industry's net income in 1987.
- Broadcasting, by comparison, accounted for 7% of the communications services industries net income in 1987.
- Rogers Cable Systems and Videotron are the largest cable service providers.

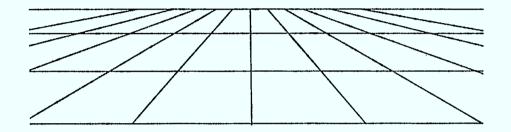
TELECOMMUNICATIONS SERVICES



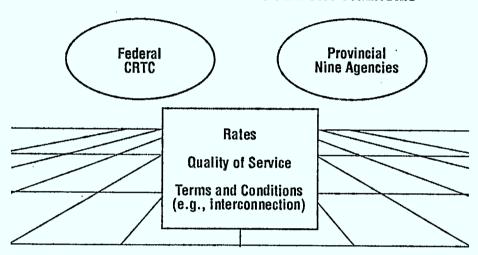
Telecommunications Services

- Services offered by the telecommunications industry include: Public switched telephone services; a wide range of private line voice and data transmission services, (including video, text message services); some message record, program transmission; and radio services (including paging and cellular mobile telephone).
- In the case of private lines and data communications services, CP Telecommunications has competed, to a degree, with Telecom Canada since the 1950's.
- The only two services not fully competitive in Canada are long distance voice and basic local telephone service, which are provided on a monopoly basis by the telephone companies.
- This has been challenged by CP Telecommunications.
- Monopoly public telephone service accounted for more than 70 percent of the telephone companies operating revenues in 1987.

REGULATORY ENVIRONMENT



RESPONSIBILITIES OF REGULATORY AGENCIES

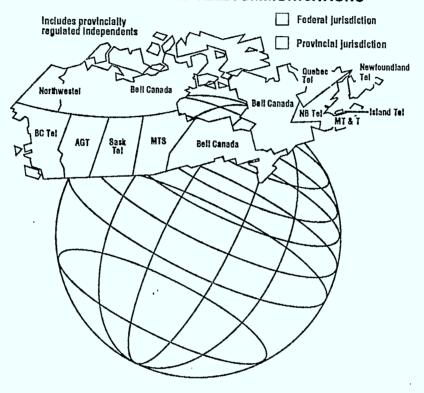


III) Regulatory Environment

1) Historical Development

- Outil the 1970's, the Telecommunications carriage industry was characterized by stable monopolies providing primarily telephone service in their respective operating territories. There was competition, however, in the provision of some private line and data services.
- Ountil recently, telecommunications services were governed by a complex array of federal and provincial legislation, policies and regulation.
- ° Carriers were regulated by a federal agency, the Canadian Radio-Television and Telecommunications Commission (CRTC), a provincial utility board or commission, or in some cases a provincial government or municipality.
- Originally, the Canadian Transport Commission was responsible for telecommunications regulation. In 1976, telecommunications became the responsibility of the CRTC, which had been formed in 1968 to regulate the broadcasting and cable industries.

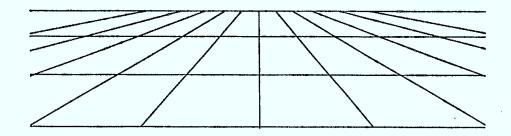
TRADITIONAL FEDERAL AND PROVINCIAL JURISDICTION OVER TELECOMMUNICATIONS



2) Recent Changes

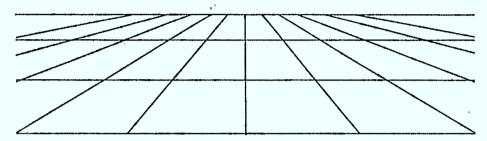
- On August 14, 1989, the Supreme Court of Canada settled the constitutional question of jurisdiction over telecommunications.
- o In its decision, the court recognized the jurisdiction of the federal government over Alberta Government Telephones and, by extension, gave the federal government jurisdiction over all telephone companies that are members of Telecom Canada.
- O Some clarification is required concerning the jurisdiction over the regional independent telephone companies.
- On October 19, 1989, the Minister of Communications tabled an amendment to the Railway Act giving the CRTC regulatory authority over all members of Telecom Canada.

POLICY DEVELOPMENT

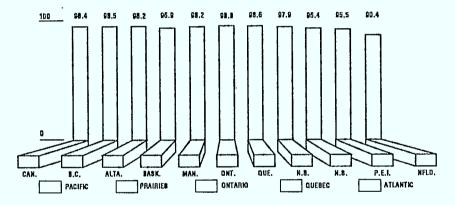


RESPONSIBILITIES OF THE FEDERAL DEPARTMENT OF COMMUNICATIONS

- Legislation
- Policy Development
- Management of Radio Spectrum



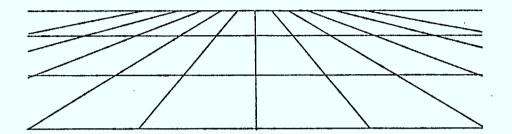
PERCENTAGE OF HOUSEHOLDS WITH TELEPHONE SERVICE (1988)



IV) Policy Development

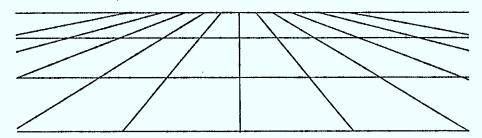
- The Department of Communications assumed responsibility for the formulation of federal telecommunications policy when it was established in 1969.
- Traditionally, the Canadian government's primary objective has been to ensure universal access to basic telephone service at reasonable rates for everyone, wherever they live throughout the country.
- The Canadian government has also supported the development of the national telecommunications infrastructure, as a means of enhancing the welfare of the country as a whole.
- The result is that not only Canada as a whole but in each of the regions, a very high percentage of households have telephone service.

ENVIRONMENTAL INFLUENCES



ENVIRONMENTAL INFLUENCES

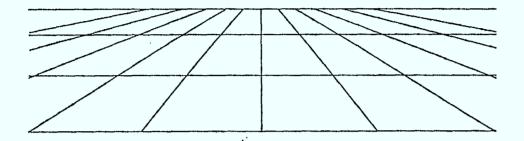
- Changing Technology
- Market Demand
- . Changing Industry Structures
- Government Objectives



V) Environmental Influences

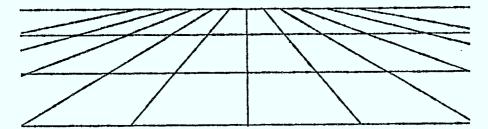
- Many policy issues have been driven by factors such as technology, the demands of the market place, the global information economy, and industry structure, as well as government objectives.
- In recent years, the telephone system has become much more than a provider of telephone services.
- The introduction of new technologies and innovative communications applications have made possible the provision of a wider range of telecommunication services.
- At the same time, businesses are demanding access to the benefits that the new technologies can provide.
- As the result, policy objectives, such as the promotion of greater competition in the provision of services and the encouragement of product innovation, have assumed greater importance.
- The corporate linkages developing among the telecommunications companies are also interesting phenomena.
- Companies are now diversifying into many related areas.

POLICY INITIATIVES AND REGULATORY DECISIONS REGARDING COMPETITION

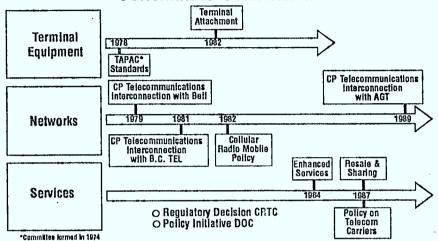


COMPETITIVE MARKETS

- Terminal EquipmentNetworks:Services



REGULATORY DECISIONS AND POLICY CONCERNING COMPETITION



VI) Policy Initiatives and Regulatory Decisions Re: Competition

1) Terminal Equipment

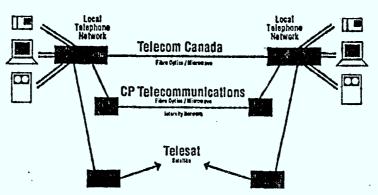
i) TAPAC

- o In 1974, the Terminal Attachment Program Advisory Committee (TAPAC) was established to develop technical standards for terminal equipment in Canada.
- The Committee was chaired by the Department of Communications and included representatives from the carriers, manufacturers, suppliers, users and provincial governments. It first issued standards in 1978.
- Terminal equipment must be certified for standards compliance by the Department of Communications before it may be attached to the carriers' networks.

ii) Terminal Attachment

- At the regulatory level, in 1980, the CRTC permitted on an interim basis, customer-owned terminal equipment to be attached to all federally regulated carriers' networks.
- A final decision permitting terminal attachment of customer-owned equipment was issued by the CRTC in 1982.
- Most other regulatory authorities have followed the CRTC's example and have allowed some form of attachment of customer-owned terminal equipment.
- However, the scope and rules for attachment vary considerably.
- A full range of terminal equipment may be attached to the network in all provinces except Saskatchewan, Manitoba and Newfoundland.
- Competition resulting from terminal attachment has benefitted the public through lower prices, increased product choice, and accelerated technological innovation.

NETWORK INTERCONNECTION



O Telecom Canada provides long-distance telephone service and interexchange public data & private line O CP Telecommunications and Telesat provide interexchange public data & private line

2) Networks

i) Network Interconnection

- The more recent issue of network interconnection arose as the result of initiatives by the telecommunications industry.
- At the federal level, network interconnection first occurred in 1979, when the CRTC permitted CP Telecommunications to interconnect their networks with Bell Canada's local telephone network.
- This permitted CP Telecommunications customers to access private-line voice and data services via local telephones in Bell Canada territory.
- A similar decision by the CRTC in 1981 which allowed CP Telecommunications to interconnect its facilities to B.C. Tel's local telephone network.
- Interconnection has permitted greater competition in private-line services.
- With the exception of Alberta, interconnection has not been permitted by provincial regulators.

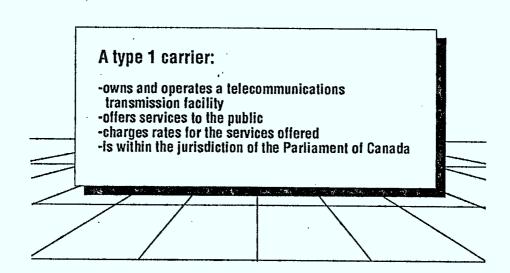
- ii) Cellular Mobile Radio Policy
- The Government of Canada announced a cellular mobile radio policy in 1982.
- The goal of this policy was to provide the public with nation-wide high-capacity mobile radio communications services.
- The policy established a maximum of two competing cellular radio providers in each service area, one to be operated by the local telephone company (Cellnet Canada member) and one to be operated by another service provider.
- o In 1983, the federal government issued a radio licence to Cantel Inc. to be the other provider of public cellular radio across Canada.

3) Services

- i) Enhanced Services
- The CRTC separated telecommunications services into basic and enhanced services categories in 1984, in response to the growing use of computers in communications.
- Basic services involved transmission facilities with no computer processing and were to be provided by monopoly carriers.
- ^o Enhanced services, that is services offered beyond the basic offering of transmission capacity for the movement of information, involved primarily computer processing, and were to be offered competitively.
- Telecom Canada's iNet 2000, an information search and retrieval service which provides access to various computer data bases in the U.S., Canada and Europe, is an example of an enhanced service provided by a carrier.
- Non-carrier service providers offer enhanced services such as electronic mail and electronic bill payments.

ii) Resale and Sharing of Facilities

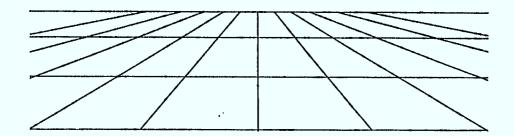
- In 1987, the CRTC issued two landmark decisions which opened the market for the resale and sharing of facilities to permit more competition.
- Essentially, all carrier services other than long distance and WATS could be resold or shared to provide enhanced services.
- This involved data, enhanced and basic services other than basic interexchange voice services that provide access to the public switched network.
- Primary exchange voice services such as shared tenant services and individual line, and PBX trunk and centrex services, could be provided via sharing arrangements except for public pay telephone service.
- These decisions permitted the development of the enhanced services market and allowed smaller companies to benefit on an equal basis with large companies regarding the use of facilities.



iii) Policy on Telecom Carriers

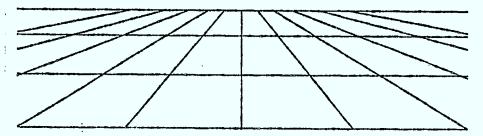
- o In July 1987, as a move towards encouraging more effective competition, the Minister of Communications announced the most comprehensive telecommunications policy statement since the early 1970's.
- This policy distinguishes between two types of telecommunications carriers, Type I and Type II.
- Type I carriers are those carriers that owned and operated basic infrastructure and included the member companies of Telecom Canada, as well as CP Telecommunications, Telesat and Teleglobe Canada.
- Type II carriers are non-facilities-based service providers, that lease facilities from Type I carriers.
- The policy encourages strong competition among a limited number of Type I carriers to ensure the efficient operation of network facilities.
- Full competition in the provision of services provided by Type II carriers is intended to promote greater technological innovation in readiness for the demands of the information economy.

POLICY ISSUES



POLICY ISSUES

- Increased Competition
- Mobile Radio Services
- Privatization
- Network Development



VII) Policy Isnes

1) Increased Competition

- The Department supports the introduction of increased competition in all areas of telecommunications where it serves the public interest.
- In this regard, work is being currently carried out by the Department which will lay the foundations for the introduction of a single-tier regulatory system for Canada.
- This uniform approach will not only simplify the regulatory system but will facilitate the introduction of increased competition so companies will have greater freedom to develop and provide innovative products and services both domestically and internationally.
- The Department is also studying a number of important issues including new powers such as regulatory forbearance which would permit the regulator to refrain from regulating a service when competition is sufficient to support an open market.
- Regarding long-distance services, the Government recently undertook a study of competition in the long-distance market.

2) Mobile Radio Services: Mobile Satellites (MSAT)

- MSAT is a new mobile communications satellite system that will be implemented in Canada next year.
- Work was undertaken on MSAT by the Department of Communications to satisfy the national need for improved public and government mobile communications in isolated and sparsely populated areas of the country.
- The proposed system will bring two-way mobile radio and telephone service to all Canadians by using a satellite as a relay station in space.
- MSAT, which will be the most powerful satellite in Canada's history, is intended to improve voice and data communications to vehicles, aircraft, ships and other portable stations.
- o In addition, MSAT will serve people living in areas beyond the reach of the public telephone as well as offering a wide variety of business applications to industries in rural and remote areas of Canada.

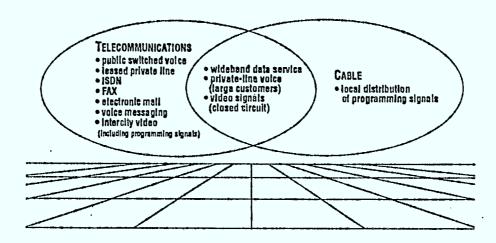
3) Privatization

- The Government of Canada has a policy of privatizing those companies in which government ownership is no longer required to serve a public policy goal.
- The Government has privatized four telecommunications carriers.
- O Teleglobe Canada was privatized in April 1987 and government holdings in CP Telecommunications were privatized in 1988.
- o Two smaller Telcos, Northwest Tel and Terra Nova, were also sold in 1988.

4) Network Development

- i) Integrated Services Digital Networks (ISDN)
- The Department established an Advisory Committee to conduct a public examination of policies respecting the orderly introduction of narrow-band integrated services digital networks (ISDN) technology in Canada.
- The Advisory Committee recommended that ISDN be implemented on a national basis.
- This would include compatible levels of interconnection, national standards and a minimum level of capacity.
- The Committee also recommended that ISDN be implemented in a manner that would allow for competition and the preservation of universality through the regulatory process.

CONVERGENCE OF TELECOMMUNICATIONS AND CABLE SERVICES



5) The Development of Broadband Distribution Standards

4 4

- New technologies are permitting the telephone and cable industries to be able to move very rapidly into each others markets, however, there are regulatory restraints which prevent them from doing this at this time.
- Nevertheless, the distinction between services being provided by the telephone companies and those provided by the cable companies is blurring as both attempt to generate more revenue from their investment in distribution facilities.
- For example, the telephone companies wish to expand the use of the local loop by providing new services such as weather forecasts, public transport schedules, inter-active banking and reservations.
- The cable companies would like to move into the area of two way or interactive communication services such as various types of electronic games.
- These overlapping industries eventually could result in the creation of two parallel local distribution systems with the capability of providing a full array of telephone and broadcasting services to the home.
- The Department has just initiated a public review process which will examine the various concerns related to development of broadband distribution systems.

Concluding Remarks

- The Canadian model has tended to be one of gradual change.
- While we recognize the advantages of increased competition we are not prepared to suddenly abandon our existing policies if the ramifications would be too shocking to the existing system.
- It is expected that in the foreseeable future strong policy direction and regulatory oversight will still be required to ensure that all Canadians throughout the country are able to have access to networks and services necessary to participate fully in the information economy.
- In order to realize this goal, we will be supporting policies that continue to create an open market favourable to technological innovation and new services.
- As well we will be working towards simplifying the regulatory structure so as to promote the competitiveness of industries.
- Part of this process will involve working closely with the provinces so that all regions will be recognized and supported in the development of national telecommunications policy which continues to support universality of service throughout the nation, an efficient telecommunications network infrastructure, and a thriving market place in the supply of telecom services and equipment in all regions of Canada.



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